UICI-8-1

QUARTERLY REPORTS

2022

May 16, 2022

Mr. Carl Chavez, CHMM
New Mexico Oil Conservation Division (Albuquerque Office)
Energy, Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, NM 87113

RE: 2022 3rd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3 and WDW-4 HF Sinclair.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2022 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing the various volumes and pressures as required under Permit Condition 2.1.1, Quarterly Reports.

Over the third quarter, the average injection pressure for each well is as reported, 978 psig for WDW-1, 910 psig for WDW-2, 809 psig for WDW-3 and 245 psig for WDW-4. The average flows for each well is reported as, WDW-1, 210 gpm, WDW-2, 102 gpm, WDW-3, 79 gpm and WDW-4, 291 gpm. There were no significant loses from the glycol expansion tanks Well Annulus Monitoring System (WAMS).The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from January 1, 2022 to March 31, 2022. HF Sinclair has disposed a total of 2,097,903 barrels of fluid into the four wells during the third quarter 2022. The volume per well is:

- 649,028 barrels into WDW-1: 30-015-27592
- 315,870 barrels into WDW-2: 30-015-20894
- 243,634 barrels into WDW-3: 30-015-26575
- 889,371 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions or comments, please contact Randy Dade at 575-746-5281

Respectfully,

Kawika Tupou
Environmental Manager
HF Sinclair

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2022 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												48,480,625
Jan-22	917	193	263	108	18	46	0	6,617	9,017	3,703	**205,131**	48,685,756
Feb-22	858	200	266	80	0	3	0	6,857	9,120	2,743	**192,000**	48,877,756
Mar-22	1,158	237	282	125	1	7	0	8,126	9,669	4,286	**251,897**	49,129,653
Monthly Avg	978	210								**TOTAL**	649,028	
30-015-20894 WDW-2												29,758,860
Jan-22	907	122	172	76	410	1,219	91	4,183	5,897	2,606	**129,699**	29,888,559
Feb-22	814	81	137	0	818	987	478	2,777	4,697	0	**77,760**	29,966,319
Mar-22	1,010	102	190	50	786	1,196	427	3,497	6,514	6,000	**108,411**	30,074,730
Monthly Avg	910	102								**TOTAL**	315,870	
30-015-26575 WDW-3												21,685,076
Jan-22	786	69	122	41	459	1,047	62	2,366	4,183	1,406	**73,337**	21,758,413
Feb-22	760	70	291	7	585	1,188	292	2,400	9,977	240	**67,200**	21,825,613
Mar-22	881	97	125	70	595	921	319	3,326	4,286	2,400	**103,097**	21,928,710
Monthly Avg	809	79								**TOTAL**	243,634	
30-015-44677 WDW-4												7,002,653
Jan-22	230	308	541	191	118	223	43	10,560	18,549	6,549	**327,360**	7,330,013
Feb-22	339	364	542	164	176	239	110	12,480	18,583	5,623	**349,440**	7,679,453
Mar-22	167	200	238	123	160	247	63	6,857	8,160	4,217	**212,571**	7,892,024
Monthly Avg	245	291								**TOTAL**	889,371	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	649,028	48,480,625	49,129,653
WDW2	315,870	29,758,860	30,074,730
WDW3	243,634	21,685,076	21,928,710
WDW4	889,371	7,002,653	7,892,024
	2,097,903		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 13, 2022

Randy Dade

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: PSP WDW 1 2 3 4 Inj Well OrderNo.: 2203E91

Dear Randy Dade:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/29/2022 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **2203E91**
Date: **5/13/2022**

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Analytical Notes:
Full list TCLP was requested for the two samples in this report. Per the TCLP Method 1311, "If a total analysis of the waste demonstrates that individual analytes are not present in the waste, or that they are present but at such low concentrations that the appropriate regulatory levels could not possibly be exceeded, the TCLP need not be run". All TCLP compounds are reported as totals in this report, at the TCLP Limits, since the low solids content did not require filtration. The TCLP term is used in the method header; this is used to represent that the compounds listed are the specific TCLP compounds and that these compounds are reported at the TCLP regulatory limits.
The cations were filtered using a 0.45um filter for the C/A balance determination.

Analytical Report
Lab Order **2203E91**
Date Reported: **5/13/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2203E91-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 3/28/2022 9:35:00 AM
Received Date: 3/29/2022 8:15:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **JME**	
Chlordane	ND	0.00050	0.030		mg/L	1	4/8/2022 11:41:10 AM	66537
Endrin	ND	0.000049	0.020		mg/L	1	4/8/2022 11:41:10 AM	66537
gamma-BHC (Lindane)	ND	0.000041	0.40		mg/L	1	4/8/2022 11:41:10 AM	66537
Heptachlor	ND	0.000041	0.0080		mg/L	1	4/8/2022 11:41:10 AM	66537
Heptachlor epoxide	ND	0.000047	0.0080		mg/L	1	4/8/2022 11:41:10 AM	66537
Methoxychlor	ND	0.000046	10		mg/L	1	4/8/2022 11:41:10 AM	66537
Toxaphene	ND	0.00050	0.50		mg/L	1	4/8/2022 11:41:10 AM	66537
Surr: Decachlorobiphenyl	87.1	0	73-119		%Rec	1	4/8/2022 11:41:10 AM	66537
Surr: Tetrachloro-m-xylene	117	0	36.6-84.1	S	%Rec	1	4/8/2022 11:41:10 AM	66537
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	35	2.0	5.0	*	mg/L	50	4/8/2022 10:49:57 AM	R87132
Chloride	720	12	25	*	mg/L	50	4/8/2022 10:49:57 AM	R87132
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	3/29/2022 4:27:18 PM	R86833
Bromide	0.61	0.25	0.50		mg/L	5	3/29/2022 4:27:18 PM	R86833
Nitrogen, Nitrate (As N)	0.75	0.050	0.50		mg/L	5	3/29/2022 4:27:18 PM	R86833
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	3/29/2022 4:27:18 PM	R86833
Sulfate	2300	12	25	*	mg/L	50	4/8/2022 10:49:57 AM	R87132
EPA METHOD 6020A: TCLP METALS							Analyst: **DBK**	
Arsenic	0.0078	0.0050	5.0	J	mg/L	10	3/30/2022 2:59:41 PM	66484
Lead	ND	0.0050	100		mg/L	10	3/30/2022 2:59:41 PM	66484
Selenium	0.067	0.0050	1.0	J	mg/L	10	3/30/2022 2:59:41 PM	66484
EPA METHOD 7470A: MERCURY							Analyst: **VP**	
Mercury	0.00034	0.000091	0.020	J	mg/L	1	3/30/2022 2:32:07 PM	66490
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **JLF**	
Calcium	460	0.58	10		mg/L	10	4/5/2022 6:20:12 PM	A87057
Magnesium	140	0.34	10		mg/L	10	4/5/2022 6:20:12 PM	A87057
Potassium	130	2.1	10		mg/L	10	4/5/2022 6:20:12 PM	A87057
Sodium	640	4.2	10		mg/L	10	4/8/2022 12:49:55 PM	A87128
EPA 6010B: TCLP METALS							Analyst: **JLF**	
Barium	0.041	0.0053	100	J	mg/L	5	4/5/2022 3:54:17 PM	66484
Cadmium	ND	0.0058	1.0		mg/L	5	4/5/2022 3:54:17 PM	66484
Chromium	ND	0.0084	5.0		mg/L	5	4/5/2022 3:54:17 PM	66484
Silver	0.0068	0.0063	5.0	J	mg/L	5	4/5/2022 3:54:17 PM	66484
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.00051	200		mg/L	1	4/13/2022 11:15:48 PM	66542
3+4-Methylphenol	ND	0.00045	200		mg/L	1	4/13/2022 11:15:48 PM	66542

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2203E91**
Date Reported: **5/13/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2203E91-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 3/28/2022 9:35:00 AM
Received Date: 3/29/2022 8:15:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.00062	0.13		mg/L	1	4/13/2022 11:15:48 PM	66542
Hexachlorobenzene	ND	0.00066	0.13		mg/L	1	4/13/2022 11:15:48 PM	66542
Hexachlorobutadiene	ND	0.00082	0.50		mg/L	1	4/13/2022 11:15:48 PM	66542
Hexachloroethane	ND	0.00045	3.0		mg/L	1	4/13/2022 11:15:48 PM	66542
Nitrobenzene	ND	0.00051	2.0		mg/L	1	4/13/2022 11:15:48 PM	66542
Pentachlorophenol	ND	0.00059	100		mg/L	1	4/13/2022 11:15:48 PM	66542
Pyridine	ND	0.00093	5.0		mg/L	1	4/13/2022 11:15:48 PM	66542
2,4,5-Trichlorophenol	ND	0.00062	400		mg/L	1	4/13/2022 11:15:48 PM	66542
2,4,6-Trichlorophenol	ND	0.00043	2.0		mg/L	1	4/13/2022 11:15:48 PM	66542
Cresols, Total	ND	0.00051	200		mg/L	1	4/13/2022 11:15:48 PM	66542
Surr: 2-Fluorophenol	46.8	0	15-118		%Rec	1	4/13/2022 11:15:48 PM	66542
Surr: Phenol-d5	36.0	0	15-92.9		%Rec	1	4/13/2022 11:15:48 PM	66542
Surr: 2,4,6-Tribromophenol	60.4	0	15-150		%Rec	1	4/13/2022 11:15:48 PM	66542
Surr: Nitrobenzene-d5	63.3	0	15-136		%Rec	1	4/13/2022 11:15:48 PM	66542
Surr: 2-Fluorobiphenyl	51.4	0	15-134		%Rec	1	4/13/2022 11:15:48 PM	66542
Surr: 4-Terphenyl-d14	74.5	0	15-168		%Rec	1	4/13/2022 11:15:48 PM	66542
TCLP VOLATILES BY 8260B							Analyst: **CCM**	
Benzene	ND	0.00023	0.50		mg/L	200	4/6/2022 9:14:00 PM	T87039
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	4/6/2022 9:14:00 PM	T87039
2-Butanone	ND	0.0020	200		mg/L	200	4/6/2022 9:14:00 PM	T87039
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	4/6/2022 9:14:00 PM	T87039
Chloroform	ND	0.00013	6.0		mg/L	200	4/6/2022 9:14:00 PM	T87039
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	4/6/2022 9:14:00 PM	T87039
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	4/6/2022 9:14:00 PM	T87039
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	4/6/2022 9:14:00 PM	T87039
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	4/6/2022 9:14:00 PM	T87039
Vinyl chloride	ND	0.00032	0.20		mg/L	200	4/6/2022 9:14:00 PM	T87039
Chlorobenzene	ND	0.00016	100		mg/L	200	4/6/2022 9:14:00 PM	T87039
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	200	4/6/2022 9:14:00 PM	T87039
Surr: 4-Bromofluorobenzene	99.3	0	70-130		%Rec	200	4/6/2022 9:14:00 PM	T87039
Surr: Dibromofluoromethane	105	0	70-130		%Rec	200	4/6/2022 9:14:00 PM	T87039
Surr: Toluene-d8	95.6	0	70-130		%Rec	200	4/6/2022 9:14:00 PM	T87039
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **LRN**	
Conductivity	6300	10	10		µmhos/c	1	4/5/2022 1:59:25 PM	R87028
SM4500-H+B / 9040C: PH							Analyst: **LRN**	
pH	7.72			H	pH units	1	4/5/2022 1:59:25 PM	R87028
SM2320B: ALKALINITY							Analyst: **LRN**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2203E91**
Date Reported: **5/13/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2203E91-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 3/28/2022 9:35:00 AM
Received Date: 3/29/2022 8:15:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **LRN**	
Bicarbonate (As CaCO3)	477.1	20.00	20.00		mg/L Ca	1	4/5/2022 1:59:25 PM	R87028
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	4/5/2022 1:59:25 PM	R87028
Total Alkalinity (as CaCO3)	477.1	20.00	20.00		mg/L Ca	1	4/5/2022 1:59:25 PM	R87028
SPECIFIC GRAVITY							Analyst: **CAS**	
Specific Gravity	0.9968	0	0			1	4/11/2022 4:41:00 PM	R87156
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	4660	100	100	*D	mg/L	1	4/7/2022 11:00:00 AM	66599
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	14	4.0	4.0		mg/L	1	4/5/2022 10:33:00 AM	66600

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2203E91**
Date Reported: **5/13/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2203E91-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City of POTW
Collection Date: 3/28/2022 10:05:00 AM
Received Date: 3/29/2022 8:15:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **JME**	
Chlordane	ND	0.00050	0.030		mg/L	1	4/8/2022 12:07:30 PM	66537
Endrin	ND	0.000049	0.020		mg/L	1	4/8/2022 12:07:30 PM	66537
gamma-BHC (Lindane)	ND	0.000041	0.40		mg/L	1	4/8/2022 12:07:30 PM	66537
Heptachlor	ND	0.000041	0.0080		mg/L	1	4/8/2022 12:07:30 PM	66537
Heptachlor epoxide	ND	0.000047	0.0080		mg/L	1	4/8/2022 12:07:30 PM	66537
Methoxychlor	ND	0.000046	10		mg/L	1	4/8/2022 12:07:30 PM	66537
Toxaphene	ND	0.00050	0.50		mg/L	1	4/8/2022 12:07:30 PM	66537
Surr: Decachlorobiphenyl	97.6	0	73-119		%Rec	1	4/8/2022 12:07:30 PM	66537
Surr: Tetrachloro-m-xylene	73.1	0	36.6-84.1		%Rec	1	4/8/2022 12:07:30 PM	66537
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	1.1	0.040	0.10		mg/L	1	4/8/2022 11:02:18 AM	R87132
Chloride	100	5.0	10		mg/L	20	3/29/2022 5:29:21 PM	R86833
Nitrogen, Nitrite (As N)	0.049	0.0053	0.10	J	mg/L	1	3/29/2022 4:52:07 PM	R86833
Bromide	ND	0.050	0.10		mg/L	1	3/29/2022 4:52:07 PM	R86833
Nitrogen, Nitrate (As N)	4.9	0.010	0.10		mg/L	1	3/29/2022 4:52:07 PM	R86833
Phosphorus, Orthophosphate (As P)	2.0	0.25	0.50		mg/L	1	3/29/2022 4:52:07 PM	R86833
Sulfate	740	5.0	10	*	mg/L	20	3/29/2022 5:29:21 PM	R86833
EPA METHOD 6020A: TCLP METALS							Analyst: **DBK**	
Arsenic	ND	0.0050	5.0		mg/L	10	3/30/2022 3:04:15 PM	66484
Lead	ND	0.0050	100		mg/L	10	3/30/2022 3:04:15 PM	66484
Selenium	ND	0.0050	1.0		mg/L	10	3/30/2022 3:04:15 PM	66484
EPA METHOD 7470A: MERCURY							Analyst: **VP**	
Mercury	ND	0.000091	0.020		mg/L	1	3/30/2022 2:34:11 PM	66490
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **JLF**	
Calcium	220	0.58	10		mg/L	10	4/5/2022 6:23:18 PM	A87057
Magnesium	64	0.034	1.0		mg/L	1	4/5/2022 6:46:41 PM	A87057
Potassium	1.9	0.21	1.0		mg/L	1	4/5/2022 6:46:41 PM	A87057
Sodium	81	2.1	5.0		mg/L	5	4/8/2022 12:52:47 PM	A87128
EPA 6010B: TCLP METALS							Analyst: **JLF**	
Barium	0.022	0.0011	100	J	mg/L	1	4/5/2022 7:11:20 PM	66484
Cadmium	ND	0.0012	1.0		mg/L	1	4/5/2022 7:11:20 PM	66484
Chromium	0.0024	0.0017	5.0	J	mg/L	1	4/5/2022 7:11:20 PM	66484
Silver	0.0032	0.0013	5.0	J	mg/L	1	4/5/2022 7:11:20 PM	66484
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.00051	200		mg/L	1	4/13/2022 11:56:36 PM	66542
3+4-Methylphenol	ND	0.00045	200		mg/L	1	4/13/2022 11:56:36 PM	66542

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
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Analytical Report
Lab Order **2203E91**
Date Reported: **5/13/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2203E91-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City of POTW
Collection Date: 3/28/2022 10:05:00 AM
Received Date: 3/29/2022 8:15:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.00062	0.13		mg/L	1	4/13/2022 11:56:36 PM	66542
Hexachlorobenzene	ND	0.00066	0.13		mg/L	1	4/13/2022 11:56:36 PM	66542
Hexachlorobutadiene	ND	0.00082	0.50		mg/L	1	4/13/2022 11:56:36 PM	66542
Hexachloroethane	ND	0.00045	3.0		mg/L	1	4/13/2022 11:56:36 PM	66542
Nitrobenzene	ND	0.00051	2.0		mg/L	1	4/13/2022 11:56:36 PM	66542
Pentachlorophenol	ND	0.00059	100		mg/L	1	4/13/2022 11:56:36 PM	66542
Pyridine	ND	0.00093	5.0		mg/L	1	4/13/2022 11:56:36 PM	66542
2,4,5-Trichlorophenol	ND	0.00062	400		mg/L	1	4/13/2022 11:56:36 PM	66542
2,4,6-Trichlorophenol	ND	0.00043	2.0		mg/L	1	4/13/2022 11:56:36 PM	66542
Cresols, Total	ND	0.00051	200		mg/L	1	4/13/2022 11:56:36 PM	66542
Surr: 2-Fluorophenol	56.8	0	15-118		%Rec	1	4/13/2022 11:56:36 PM	66542
Surr: Phenol-d5	43.1	0	15-92.9		%Rec	1	4/13/2022 11:56:36 PM	66542
Surr: 2,4,6-Tribromophenol	61.6	0	15-150		%Rec	1	4/13/2022 11:56:36 PM	66542
Surr: Nitrobenzene-d5	70.6	0	15-136		%Rec	1	4/13/2022 11:56:36 PM	66542
Surr: 2-Fluorobiphenyl	59.1	0	15-134		%Rec	1	4/13/2022 11:56:36 PM	66542
Surr: 4-Terphenyl-d14	86.0	0	15-168		%Rec	1	4/13/2022 11:56:36 PM	66542
TCLP VOLATILES BY 8260B							Analyst: **CCM**	
Benzene	ND	0.00023	0.50		mg/L	200	4/6/2022 9:37:00 PM	T87039
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	4/6/2022 9:37:00 PM	T87039
2-Butanone	ND	0.0020	200		mg/L	200	4/6/2022 9:37:00 PM	T87039
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	4/6/2022 9:37:00 PM	T87039
Chloroform	ND	0.00013	6.0		mg/L	200	4/6/2022 9:37:00 PM	T87039
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	4/6/2022 9:37:00 PM	T87039
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	4/6/2022 9:37:00 PM	T87039
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	4/6/2022 9:37:00 PM	T87039
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	4/6/2022 9:37:00 PM	T87039
Vinyl chloride	ND	0.00032	0.20		mg/L	200	4/6/2022 9:37:00 PM	T87039
Chlorobenzene	ND	0.00016	100		mg/L	200	4/6/2022 9:37:00 PM	T87039
Surr: 1,2-Dichloroethane-d4	106	0	70-130		%Rec	200	4/6/2022 9:37:00 PM	T87039
Surr: 4-Bromofluorobenzene	97.5	0	70-130		%Rec	200	4/6/2022 9:37:00 PM	T87039
Surr: Dibromofluoromethane	107	0	70-130		%Rec	200	4/6/2022 9:37:00 PM	T87039
Surr: Toluene-d8	96.7	0	70-130		%Rec	200	4/6/2022 9:37:00 PM	T87039
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **LRN**	
Conductivity	1700	10	10		µmhos/c	1	4/5/2022 2:19:18 PM	R87028
SM4500-H+B / 9040C: PH							Analyst: **LRN**	
pH	7.29			H	pH units	1	4/5/2022 2:19:18 PM	R87028
SM2320B: ALKALINITY							Analyst: **LRN**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2203E91**
Date Reported: **5/13/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well
Lab ID: 2203E91-002 **Matrix:** AQUEOUS

Client Sample ID: CTB to City of POTW
Collection Date: 3/28/2022 10:05:00 AM
Received Date: 3/29/2022 8:15:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **LRN**	
Bicarbonate (As CaCO3)	35.00	20.00	20.00		mg/L Ca	1	4/5/2022 2:19:18 PM	R87028
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	4/5/2022 2:19:18 PM	R87028
Total Alkalinity (as CaCO3)	35.00	20.00	20.00		mg/L Ca	1	4/5/2022 2:19:18 PM	R87028
SPECIFIC GRAVITY							Analyst: **CAS**	
Specific Gravity	0.9900	0	0			1	4/11/2022 4:41:00 PM	R87156
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	1380	40.0	40.0	*D	mg/L	1	4/7/2022 11:00:00 AM	66599
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	9.0	4.0	4.0		mg/L	1	4/5/2022 10:33:00 AM	66600

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

ANALYTICAL REPORT

April 07, 2022

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Hall Environmental Analysis Laboratory

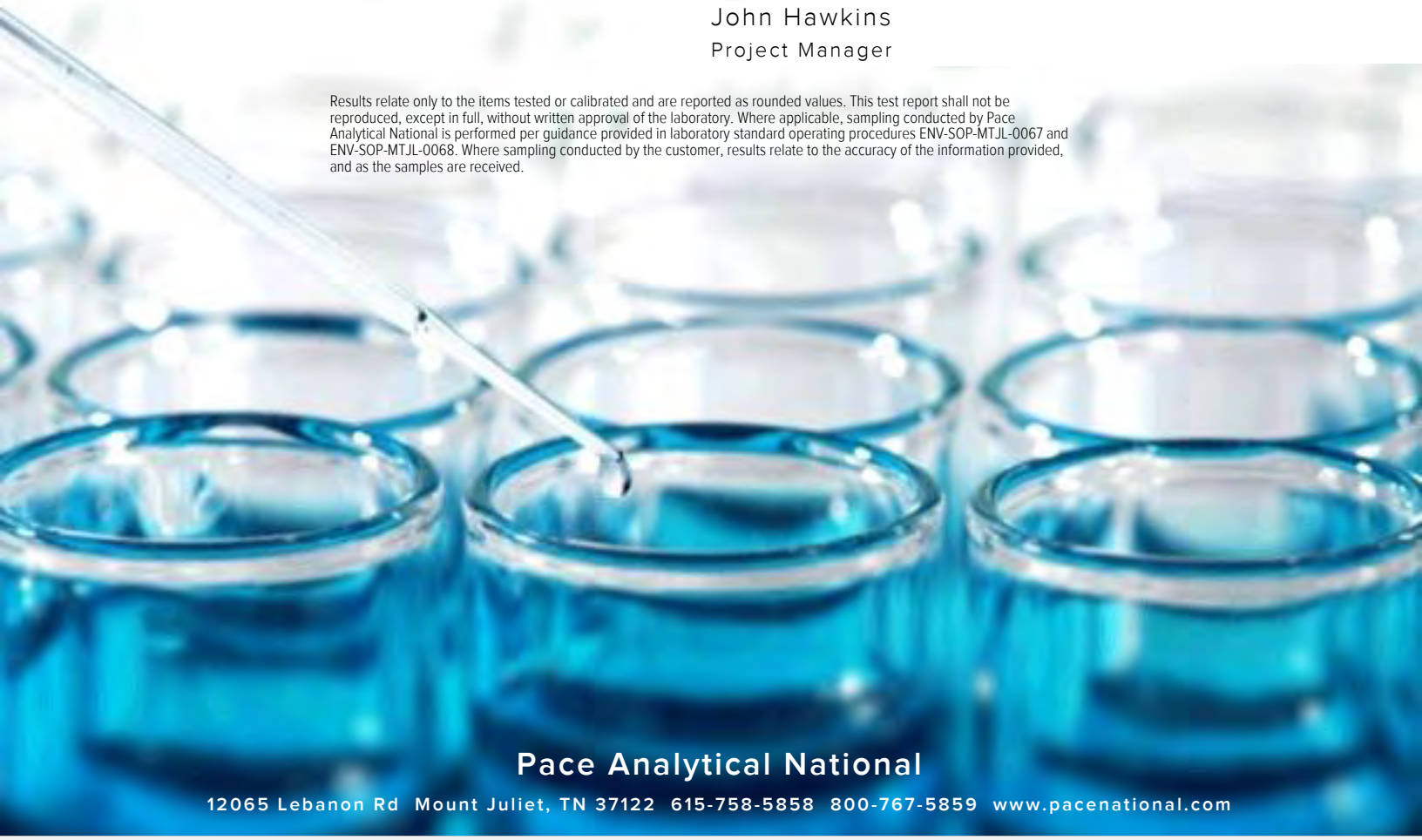
Sample Delivery Group:	L1476728
Samples Received:	03/30/2022
Project Number:	
Description:	

Report To: Andy Freeman
4901 Hawkins NE
Albuquerque, NM 87109

Entire Report Reviewed By:

John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 4

Sr: Sample Results 5

- 2203E91-001F WDW-1,2,3 & 4 EFFLUENT L1476728-01 5
- 2203E91-001G WDW-1,2,3 & 4 EFFLUENT L1476728-02 6
- 2203E91-001H WDW-1,2,3 & 4 EFFLUENT L1476728-03 7
- 2203E91-002F CTB TO CITY OF POTW L1476728-04 8
- 2203E91-002G CTB TO CITY OF POTW L1476728-05 9
- 2203E91-002H CTB TO CITY OF POTW L1476728-06 10

Qc: Quality Control Summary 11

- Wet Chemistry by Method 2580 11
- Wet Chemistry by Method 4500 CN E-2016 13
- Wet Chemistry by Method 4500 S2 D-2011 14
- Wet Chemistry by Method 9040C 15
- Wet Chemistry by Method D93/1010A 17
- Chlorinated Acid Herbicides (GC) by Method 8151A 18

Gl: Glossary of Terms 19

Al: Accreditations & Locations 20

Sc: Sample Chain of Custody 21

2203E91-001F WDW-1,2,3 & 4 EFFLUENT L1476728-01 Waste

Collected by | Collected date/time 03/28/22 09:35 | Received date/time 03/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1841054	1	03/31/22 12:11	03/31/22 12:11	JWS	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1842932	1	04/05/22 04:17	04/06/22 13:13	HLA	Mt. Juliet, TN

2203E91-001G WDW-1,2,3 & 4 EFFLUENT L1476728-02 GW

Collected by | Collected date/time 03/28/22 09:35 | Received date/time 03/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1840372	1	03/31/22 01:58	03/31/22 01:58	ARD	Mt. Juliet, TN

2203E91-001H WDW-1,2,3 & 4 EFFLUENT L1476728-03 GW

Collected by | Collected date/time 03/28/22 09:35 | Received date/time 03/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500 CN E-2016	WG1841262	1	03/31/22 17:11	04/01/22 10:12	LDT	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1840723	1	03/30/22 20:33	03/30/22 20:33	TWF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1842212	1	04/05/22 12:00	04/05/22 12:00	GI	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1840943	1	03/31/22 01:00	03/31/22 01:00	WOS	Mt. Juliet, TN

2203E91-002F CTB TO CITY OF POTW L1476728-04 Waste

Collected by | Collected date/time 03/28/22 10:05 | Received date/time 03/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1841054	1	03/31/22 12:11	03/31/22 12:11	JWS	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1842932	1	04/05/22 04:17	04/06/22 14:11	AO	Mt. Juliet, TN

2203E91-002G CTB TO CITY OF POTW L1476728-05 GW

Collected by | Collected date/time 03/28/22 10:05 | Received date/time 03/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1840372	1	03/31/22 01:58	03/31/22 01:58	ARD	Mt. Juliet, TN

2203E91-002H CTB TO CITY OF POTW L1476728-06 GW

Collected by | Collected date/time 03/28/22 10:05 | Received date/time 03/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500 CN E-2016	WG1841262	1	03/31/22 17:11	04/01/22 10:13	LDT	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1840723	1	03/30/22 20:34	03/30/22 20:34	TWF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1843431	1	04/06/22 11:38	04/06/22 11:38	SCM	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1840943	1	03/31/22 01:00	03/31/22 01:00	WOS	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 4500 CN E-2016.
All Reactive Sulfide results reported in the attached report were determined as totals using method 4500 S2 D-2011.

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		3/31/2022 12:11:40 PM	WG1841054
Fluid	1		3/31/2022 12:11:40 PM	WG1841054
Initial pH	N/A		3/31/2022 12:11:40 PM	WG1841054
Final pH	N/A		3/31/2022 12:11:40 PM	WG1841054

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
2,4,5-TP (Silvex)	ND		0.00200	1	1	04/06/2022 13:13	WG1842932
2,4-D	ND		0.00200	10	1	04/06/2022 13:13	WG1842932
(S) 2,4-Dichlorophenyl Acetic Acid	*41.0*		*14.0-158*			*04/06/2022 13:13*	WG1842932

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	34.9	T8	1	03/31/2022 01:58	WG1840372

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0103		0.00500	1	04/01/2022 10:12	WG1841262

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	ND		0.0500	1	03/30/2022 20:33	WG1840723

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.47	T8	1	04/05/2022 12:00	WG1842212

Sample Narrative:

L1476728-03 WG1842212: 7.47 at 18.5C

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	03/31/2022 01:00	WG1840943

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		3/31/2022 12:11:40 PM	WG1841054
Fluid	1		3/31/2022 12:11:40 PM	WG1841054
Initial pH	N/A		3/31/2022 12:11:40 PM	WG1841054
Final pH	N/A		3/31/2022 12:11:40 PM	WG1841054

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
2,4,5-TP (Silvex)	ND		0.00200	1	1	04/06/2022 14:11	WG1842932
2,4-D	ND		0.00200	10	1	04/06/2022 14:11	WG1842932
(S) 2,4-Dichlorophenyl Acetic Acid	*40.6*		*14.0-158*			*04/06/2022 14:11*	WG1842932

Received by OCD: 5/16/2022 2:12:41 PM

Collected date/time: 03/28/22 10:05

L1476728

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	65.8	T8	1	03/31/2022 01:58	WG1840372

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Collected date/time: 03/28/22 10:05
L1476728

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Cyanide	ND		0.00500	1	04/01/2022 10:13	WG1841262

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Sulfide	ND		0.0500	1	03/30/2022 20:34	WG1840723

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
Corrosivity by pH	7.20	T8	1	04/06/2022 11:38	WG1843431

Sample Narrative:

L1476728-06 WG1843431: 7.20 @ 20.55C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	deg F			date / time	
Flashpoint	DNF at 170		1	03/31/2022 01:00	WG1840943

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Released to Imaging: 7/12/2024 10:49:45 AM

L1476010-17 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-17 03/31/22 01:58 • (DUP) R3775877-3 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	190	192	1	2.00		20

L1476010-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-18 03/31/22 01:58 • (DUP) R3775877-4 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	240	240	1	0.600		20

L1476010-19 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-19 03/31/22 01:58 • (DUP) R3775877-5 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	295	294	1	0.900		20

L1476010-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-20 03/31/22 01:58 • (DUP) R3775877-6 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	286	279	1	6.50		20

L1476010-21 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-21 03/31/22 01:58 • (DUP) R3775877-7 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	292	289	1	3.10		20

L1476010-22 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-22 03/31/22 01:58 • (DUP) R3775877-8 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	291	281	1	9.60		20

L1476010-23 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-23 03/31/22 01:58 • (DUP) R3775877-9 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	296	291	1	4.20		20

L1476010-24 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-24 03/31/22 01:58 • (DUP) R3775877-10 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	-36.3	-40.8	1	0.000		20

L1476728-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1476728-02 03/31/22 01:58 • (DUP) R3775877-11 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	34.9	42.7	1	7.80		20

L1476728-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1476728-05 03/31/22 01:58 • (DUP) R3775877-12 03/31/22 01:58

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	65.8	68.0	1	2.20		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3775877-1 03/31/22 01:58 • (LCSD) R3775877-2 03/31/22 01:58

Analyte	Spike Amount mV	LCS Result mV	LCSD Result mV	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	Diff mV	Diff Limits mV
ORP	108	110	110	102	102	86.0-105			0.300	20

Method Blank (MB)

(MB) R3776480-1 04/01/22 09:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.00180	0.00500

L1476719-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1476719-01 04/01/22 10:04 • (DUP) R3776480-3 04/01/22 10:05

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

L1476734-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1476734-01 04/01/22 10:14 • (DUP) R3776480-6 04/01/22 10:15

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3776480-2 04/01/22 09:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.0952	95.2	87.1-120	

L1476720-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1476720-02 04/01/22 10:06 • (MS) R3776480-4 04/01/22 10:09 • (MSD) R3776480-5 04/01/22 10:10

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	0.0394	0.136	0.136	96.6	96.6	1	90.0-110			0.000	20

L1476734-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1476734-02 04/01/22 10:16 • (MS) R3776480-7 04/01/22 10:17 • (MSD) R3776480-8 04/01/22 10:18

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.0897	0.0833	89.7	83.3	1	90.0-110	J6	J6	7.40	20

Method Blank (MB)

(MB) R3775845-1 03/30/22 20:27

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.0250	0.0500

Laboratory Control Sample (LCS)

(LCS) R3775845-2 03/30/22 20:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.503	101	85.0-115	

L1476728-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1476728-06 03/30/22 20:34 • (MS) R3775845-4 03/30/22 20:38 • (MSD) R3775845-5 03/30/22 20:38

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Sulfide	1.00	ND	0.472	0.484	47.2	48.4	1	80.0-120			2.51	20

Laboratory Control Sample (LCS)

(LCS) R3777702-1 04/05/22 12:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	9.92	99.2	99.0-101	

Sample Narrative:

LCS: 9.92 at 19.4C

L1476010-17 Original Sample (OS) • Duplicate (DUP)

(OS) L1476010-17 04/06/22 10:26 • (DUP) R3778150-2 04/06/22 10:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
Corrosivity by pH	7.47	7.49	1	0.267		1

Sample Narrative:

OS: 7.47 @ 19.87C

DUP: 7.49 @ 19.85C

L1476677-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1476677-01 04/06/22 11:25 • (DUP) R3778150-3 04/06/22 11:32

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
Corrosivity by pH	7.43	7.51	1	1.07	J3	1

Sample Narrative:

OS: 7.43 @ 20.46C

DUP: 7.51 @ 20.50C

Laboratory Control Sample (LCS)

(LCS) R3778150-1 04/06/22 10:21

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	9.91	99.1	99.0-101	

Sample Narrative:

LCS: 9.91 @ 19.91C

L1476517-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1476517-02 03/31/22 01:00 • (DUP) R3776327-3 03/31/22 01:00

Analyte	Original Result deg F	DUP Result deg F	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3776327-1 03/31/22 01:00 • (LCSD) R3776327-2 03/31/22 01:00

Analyte	Spike Amount deg F	LCS Result deg F	LCSD Result deg F	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Flashpoint	126	125	129	98.8	102	96.0-104			3.16	10

Method Blank (MB)

(MB) R3778206-1 04/06/22 10:01

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2,4,5-TP (Silvex)	U		0.000667	0.00200
2,4-D	U		0.000667	0.00200
(S) 2,4-Dichlorophenyl Acetic Acid	*50.8*			*14.0-158*

Laboratory Control Sample (LCS)

(LCS) R3778206-2 04/06/22 10:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4,5-TP (Silvex)	0.0500	0.0287	57.4	50.0-125	
2,4-D	0.0500	0.0257	51.4	50.0-120	
(S) 2,4-Dichlorophenyl Acetic Acid			*47.0*	*14.0-158*	

L1473617-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1473617-01 04/06/22 10:31 • (MS) R3778206-3 04/06/22 10:46 • (MSD) R3778206-4 04/06/22 11:00

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
2,4,5-TP (Silvex)	0.0500	ND	0.0240	0.0227	48.0	45.4	1	50.0-125	J6	J6	5.57	20
2,4-D	0.0500	ND	0.0230	0.0216	46.0	43.2	1	50.0-120	J6	J6	6.28	20
(S) 2,4-Dichlorophenyl Acetic Acid					*42.0*	*39.8*		*14.0-158*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Received by OCD: 5/16/2022 2:12:41 PM

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: clients.hallenvironmental.com

H009

SUB CONTRATOR: Pace TN	COMPANY: PACE TN	PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Mt. Juliet, TN 37122			

L1476728

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2203E91-001F	WDW-1,2,3 & 4 Effluent	1LAMGU	Aqueous	3/28/2022 9:35:00 AM	1	8151TCLP *RUSH 7 DAY TAT* 01
2	2203E91-001G	WDW-1,2,3 & 4 Effluent	125HDP	Aqueous	3/28/2022 9:35:00 AM	1	ORP *RUSH 7 DAY TAT* 02
3	2203E91-001H	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	3/28/2022 9:35:00 AM	3	RCI *RUSH 7 DAY TAT* 03
4	2203E91-002F	CTB to City of POTW	1LAMGU	Aqueous	3/28/2022 10:05:00 AM	1	8151TCLP *RUSH 7 DAY TAT* 04
5	2203E91-002G	CTB to City of POTW	125HDP	Aqueous	3/28/2022 10:05:00 AM	1	ORP *RUSH 7 DAY TAT* 05
6	2203E91-002H	CTB to City of POTW	500HDPE	Aqueous	3/28/2022 10:05:00 AM	3	RCI *RUSH 7 DAY TAT* 06

Sample Receipt Checklist

COC Seal Present/Intact:	Y N	If Applicable	
COC Signed/Accurate:	Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	Y N	Pres.Correct/Check:	Y N
Correct bottles used:	Y N		
Sufficient volume sent:	Y N		
RAD Screen <0.5 mR/hr:	Y N		

1.6 to = 1.6 DR A7

8528 5947 9547

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 3/29/2022	Time: 9:42 AM	Received By: M. Scott	Date: 3/30/22	Time: 0900
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool ? _____

Comments: _____

Released to Imaging: 7/12/2024 10:49:45 AM

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**
13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB**	SampType: **MBlk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R86833**	RunNo: **86833**
Prep Date:	Analysis Date: **3/29/2022**	SeqNo: **3066895** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R86833**	RunNo: **86833**
Prep Date:	Analysis Date: **3/29/2022**	SeqNo: **3066896** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.2	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	96.7	90	110			
Bromide	2.4	0.10	2.500	0	97.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	100	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	91.9	90	110			
Sulfate	9.4	0.50	10.00	0	93.6	90	110			

Sample ID: **2203E91-002CMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CTB to City of POT**	Batch ID: **R86833**	RunNo: **86833**
Prep Date:	Analysis Date: **3/29/2022**	SeqNo: **3066925** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0.04900	92.5	83.4	105			
Bromide	2.4	0.10	2.500	0	97.1	91.2	106			
Phosphorus, Orthophosphate (As P	6.1	0.50	5.000	2.040	80.5	80.1	109			

Sample ID: **2203E91-002CMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CTB to City of POT**	Batch ID: **R86833**	RunNo: **86833**
Prep Date:	Analysis Date: **3/29/2022**	SeqNo: **3066926** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0.04900	93.1	83.4	105	0.655	20	
Bromide	2.4	0.10	2.500	0	97.9	91.2	106	0.911	20	
Phosphorus, Orthophosphate (As P	6.2	0.50	5.000	2.040	82.3	80.1	109	1.52	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**
13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R87132**	RunNo: **87132**
Prep Date:	Analysis Date: **4/8/2022**	SeqNo: **3080691** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R87132**	RunNo: **87132**
Prep Date:	Analysis Date: **4/8/2022**	SeqNo: **3080692** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.8	0.50	5.000	0	95.5	90	110			
Sulfate	9.6	0.50	10.00	0	95.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**
13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-66484**	SampType: **MBLK**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **PBW**	Batch ID: **66484**	RunNo: **86849**
Prep Date: **3/29/2022**	Analysis Date: **3/30/2022**	SeqNo: **3067909** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								

Sample ID: **MSLLLCS-66484**	SampType: **LCSLL**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **BatchQC**	Batch ID: **66484**	RunNo: **86849**
Prep Date: **3/29/2022**	Analysis Date: **3/30/2022**	SeqNo: **3067910** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00087	0.0010	0.001000	0	87.0	70	130			J
Lead	0.0011	0.0010	0.001000	0	107	70	130			
Selenium	0.00091	0.0010	0.001000	0	90.9	70	130			J

Sample ID: **MSLCS-66484**	SampType: **LCS**	TestCode: **EPA Method 6020A: TCLP Metals**
Client ID: **LCSW**	Batch ID: **66484**	RunNo: **86849**
Prep Date: **3/29/2022**	Analysis Date: **3/30/2022**	SeqNo: **3067911** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.049	0.0010	0.05000	0	98.6	80	120			
Lead	0.051	0.0010	0.05000	0	102	80	120			
Selenium	0.048	0.0010	0.05000	0	96.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**
13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-66537**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **66537**	RunNo: **87097**
Prep Date: **3/31/2022**	Analysis Date: **4/8/2022**	SeqNo: **3080552** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Endrin	ND	0.020								
gamma-BHC (Lindane)	ND	0.40								
Heptachlor	ND	0.0080								
Heptachlor epoxide	ND	0.0080								
Methoxychlor	ND	10								
Toxaphene	ND	0.50								
Surr: Decachlorobiphenyl	0.0028		0.002500		113	73	119			
Surr: Tetrachloro-m-xylene	0.0019		0.002500		75.6	36.6	84.1			

Sample ID: **MB-66537**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **66537**	RunNo: **87097**
Prep Date: **3/31/2022**	Analysis Date: **4/8/2022**	SeqNo: **3080553** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Endrin	ND	0.020								
gamma-BHC (Lindane)	ND	0.40								
Heptachlor	ND	0.0080								
Heptachlor epoxide	ND	0.0080								
Methoxychlor	ND	10								
Toxaphene	ND	0.50								
Surr: Decachlorobiphenyl	0.0029		0.002500		118	73	119			
Surr: Tetrachloro-m-xylene	0.0019		0.002500		76.7	36.6	84.1			

Sample ID: **LCS-66537**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **66537**	RunNo: **87097**
Prep Date: **3/31/2022**	Analysis Date: **4/8/2022**	SeqNo: **3080554** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00048	0.00010	0.0005000	0	96.9	56.3	126			
gamma-BHC (Lindane)	0.00038	0.00010	0.0005000	0	76.3	45.8	103			
Heptachlor	0.00037	0.00010	0.0005000	0	74.3	33.7	104			
Heptachlor epoxide	0.00047	0.00010	0.0005000	0	93.6	50.1	116			
Methoxychlor	0.00051	0.00010	0.0005000	0	101	15	203			
Surr: Decachlorobiphenyl	0.0029		0.002500		115	73	119			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		60.8	36.6	84.1			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**
13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **LCS-66537** SampType: **LCS** TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW** Batch ID: **66537** RunNo: **87097**
Prep Date: **3/31/2022** Analysis Date: **4/8/2022** SeqNo: **3080555** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Endrin	0.00050	0.00010	0.0005000	0	101	56.3	126			
gamma-BHC (Lindane)	0.00041	0.00010	0.0005000	0	82.5	45.8	103			
Heptachlor	0.00038	0.00010	0.0005000	0	76.4	33.7	104			
Heptachlor epoxide	0.00047	0.00010	0.0005000	0	93.7	50.1	116			
Methoxychlor	0.00052	0.00010	0.0005000	0	104	15	203			
Surr: Decachlorobiphenyl	0.0030		0.002500		119	73	119			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		63.5	36.6	84.1			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**
13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **100ng 624 lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**	
Client ID: **LCSW**	Batch ID: **T87039**	RunNo: **87039**	
Prep Date:	Analysis Date: **4/6/2022**	SeqNo: **3077978**	Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.021	0.50	0.02000	0	105	70	130			J
1,1-Dichloroethene	0.020	0.70	0.02000	0	101	70	130			J
Trichloroethene (TCE)	0.020	0.50	0.02000	0	101	70	130			J
Chlorobenzene	0.021	100	0.02000	0	105	70	130			J
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		101	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		104	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		101	70	130			
Surr: Toluene-d8	0.0099		0.01000		98.9	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**
13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **mb-66542**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW**	Batch ID: **66542**	RunNo: **87231**
Prep Date: **4/1/2022**	Analysis Date: **4/13/2022**	SeqNo: **3084458** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.11		0.2000		55.0	15	118			
Surr: Phenol-d5	0.082		0.2000		41.0	15	92.9			
Surr: 2,4,6-Tribromophenol	0.13		0.2000		62.7	15	150			
Surr: Nitrobenzene-d5	0.065		0.1000		65.3	15	136			
Surr: 2-Fluorobiphenyl	0.052		0.1000		51.8	15	134			
Surr: 4-Terphenyl-d14	0.075		0.1000		74.5	15	168			

Sample ID: **lcs-66542**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW**	Batch ID: **66542**	RunNo: **87231**
Prep Date: **4/1/2022**	Analysis Date: **4/13/2022**	SeqNo: **3084459** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.056	0.00010	0.1000	0	55.8	19	106			
3+4-Methylphenol	0.11	0.00010	0.2000	0	53.3	16.3	112			
2,4-Dinitrotoluene	0.034	0.00010	0.1000	0	34.3	15	99.6			
Hexachlorobenzene	0.052	0.00010	0.1000	0	52.4	41.8	111			
Hexachlorobutadiene	0.042	0.00010	0.1000	0	41.6	15	91.5			
Hexachloroethane	0.046	0.00010	0.1000	0	46.3	15	87.5			
Nitrobenzene	0.059	0.00010	0.1000	0	59.3	19.3	114			
Pentachlorophenol	0.057	0.00010	0.1000	0	56.7	29	103			
Pyridine	0.039	0.00010	0.1000	0	39.3	15	92.6			
2,4,5-Trichlorophenol	0.052	0.00010	0.1000	0	51.7	25.2	114			
2,4,6-Trichlorophenol	0.053	0.00010	0.1000	0	52.9	25.7	112			
Cresols, Total	0.16	0.00010	0.3000	0	54.1	15	145			
Surr: 2-Fluorophenol	0.092		0.2000		45.9	15	118			
Surr: Phenol-d5	0.071		0.2000		35.3	15	92.9			
Surr: 2,4,6-Tribromophenol	0.12		0.2000		61.6	15	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**
13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **lcs-66542**	SampType: **LCS**		TestCode: **EPA Method 8270C TCLP**		
Client ID: **LCSW**	Batch ID: **66542**		RunNo: **87231**		
Prep Date: **4/1/2022**	Analysis Date: **4/13/2022**		SeqNo: **3084459**	Units: **mg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.058		0.1000		58.5	15	136			
Surr: 2-Fluorobiphenyl	0.051		0.1000		50.8	15	134			
Surr: 4-Terphenyl-d14	0.077		0.1000		77.0	15	168			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**
13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **lcs-1 100.2uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R87028**	RunNo: **87028**
Prep Date:	Analysis Date: **4/5/2022**	SeqNo: **3075403** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	100.2	0	100	85	115			

Sample ID: **lcs-2 100.2uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R87028**	RunNo: **87028**
Prep Date:	Analysis Date: **4/5/2022**	SeqNo: **3075427** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	100.2	0	104	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**

13-May-22

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-66490**	SampType: **MBLK**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **PBW**	Batch ID: **66490**	RunNo: **86867**							
Prep Date: **3/30/2022**	Analysis Date: **3/30/2022**	SeqNo: **3068731**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCSLL-66490**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **BatchQC**	Batch ID: **66490**	RunNo: **86867**							
Prep Date: **3/30/2022**	Analysis Date: **3/30/2022**	SeqNo: **3068732**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00019	0.00020	0.0001500	0	129	50	150			J

Sample ID: **LCS-66490**	SampType: **LCS**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **LCSW**	Batch ID: **66490**	RunNo: **86867**							
Prep Date: **3/30/2022**	Analysis Date: **3/30/2022**	SeqNo: **3068733**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	92.4	85	115			

Sample ID: **LCSD-66490**	SampType: **LCSD**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **LCSS02**	Batch ID: **66490**	RunNo: **86867**							
Prep Date: **3/30/2022**	Analysis Date: **3/30/2022**	SeqNo: **3068734**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	91.1	85	115	1.45	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**

13-May-22

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A87057**	RunNo: **87057**
Prep Date:	Analysis Date: **4/5/2022**	SeqNo: **3077196** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A87057**	RunNo: **87057**
Prep Date:	Analysis Date: **4/5/2022**	SeqNo: **3077198** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	55	1.0	50.00	0	111	80	120			
Magnesium	53	1.0	50.00	0	107	80	120			
Potassium	53	1.0	50.00	0	106	80	120			

Sample ID: **LCSD-A**	SampType: **LCSD**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSS02**	Batch ID: **A87057**	RunNo: **87057**
Prep Date:	Analysis Date: **4/5/2022**	SeqNo: **3077199** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	56	1.0	50.00	0	112	80	120	0.933	20	
Magnesium	54	1.0	50.00	0	108	80	120	0.834	20	
Potassium	53	1.0	50.00	0	107	80	120	0.832	20	

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A87128**	RunNo: **87128**
Prep Date:	Analysis Date: **4/8/2022**	SeqNo: **3080438** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A87128**	RunNo: **87128**
Prep Date:	Analysis Date: **4/8/2022**	SeqNo: **3080440** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	48	1.0	50.00	0	95.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**

13-May-22

Client: Navajo Refining Company

Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-66484**	SampType: **MBLK**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **66484**	RunNo: **86886**
Prep Date: **3/29/2022**	Analysis Date: **3/31/2022**	SeqNo: **3069689** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Silver	ND	0.0050								

Sample ID: **LCS-66484**	SampType: **LCS**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **66484**	RunNo: **86886**
Prep Date: **3/29/2022**	Analysis Date: **3/31/2022**	SeqNo: **3069691** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	99.8	80	120			
Cadmium	0.50	0.0020	0.5000	0	100	80	120			
Chromium	0.50	0.0060	0.5000	0	101	80	120			
Silver	0.10	0.0050	0.1000	0	103	80	120			

Sample ID: **2203E91-001EMS**	SampType: **MS**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **66484**	RunNo: **87057**
Prep Date: **3/29/2022**	Analysis Date: **4/5/2022**	SeqNo: **3077186** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.010	0.5000	0.04065	89.8	75	125			
Cadmium	0.45	0.010	0.5000	0	90.8	75	125			
Chromium	0.44	0.030	0.5000	0	88.0	75	125			
Silver	0.096	0.025	0.1000	0.006833	89.5	75	125			

Sample ID: **2203E91-001EMSD**	SampType: **MSD**	TestCode: **EPA 6010B: TCLP Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **66484**	RunNo: **87057**
Prep Date: **3/29/2022**	Analysis Date: **4/5/2022**	SeqNo: **3077187** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.010	0.5000	0.04065	91.3	75	125	1.47	20	
Cadmium	0.47	0.010	0.5000	0	93.0	75	125	2.43	20	
Chromium	0.45	0.030	0.5000	0	89.5	75	125	1.69	20	
Silver	0.094	0.025	0.1000	0.006833	86.9	75	125	2.72	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**
13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R87028**	RunNo: **87028**							
Prep Date:	Analysis Date: **4/5/2022**	SeqNo: **3075482**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R87028**	RunNo: **87028**							
Prep Date:	Analysis Date: **4/5/2022**	SeqNo: **3075483**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	73.64	20.00	80.00	0	92.0	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R87028**	RunNo: **87028**							
Prep Date:	Analysis Date: **4/5/2022**	SeqNo: **3075505**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R87028**	RunNo: **87028**							
Prep Date:	Analysis Date: **4/5/2022**	SeqNo: **3075506**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	73.84	20.00	80.00	0	92.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**
13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-66599**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **66599**	RunNo: **87062**
Prep Date: **4/4/2022**	Analysis Date: **4/7/2022**	SeqNo: **3077421** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-66599**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **66599**	RunNo: **87062**
Prep Date: **4/4/2022**	Analysis Date: **4/7/2022**	SeqNo: **3077422** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2203E91**
13-May-22

Client: Navajo Refining Company
Project: PSP WDW 1 2 3 4 Inj Well

Sample ID: **MB-66600**	SampType: **MBLK**	TestCode: **SM 2540D: TSS**							
Client ID: **PBW**	Batch ID: **66600**	RunNo: **87001**							
Prep Date: **4/4/2022**	Analysis Date: **4/5/2022**	SeqNo: **3074139**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	ND	4.0								

Sample ID: **LCS-66600**	SampType: **LCS**	TestCode: **SM 2540D: TSS**							
Client ID: **LCSW**	Batch ID: **66600**	RunNo: **87001**							
Prep Date: **4/4/2022**	Analysis Date: **4/5/2022**	SeqNo: **3074140**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	92	4.0	92.40	0	99.6	83.44	119.05			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: Navajo Refining | Work Order Number: 2203E91 | RcptNo: 1

Received By: Sean Livingston 3/29/2022 8:15:00 AM

Completed By: Sean Livingston 3/29/2022 9:09:25 AM

Reviewed By: JN 3/29/22

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☑	No ☐	NA ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 6 4 (<2 or >12 unless noted)

Adjusted? NO

Checked by: KPG 3/29/22

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks: Poured off from unpreserved 002C 2 of 2 for ORP 125mL 002G - KPG 3/29/22

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.5	Good				

Poured off from unpres 001C 1 of 2 for ORP 125mL 001G - KPG 3/29/22

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159

Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
Standard X Rush X

Project Name:
PSP WDW-1, 2, 3 &4 Inj Well

Project #: P.O. # 251841

Project Manager:
Randy Dade

Sampler: Brady Hubbard

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.6 -0.1 = 0.5°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 2203E91	Specific Gravity, C/A Balance, ORP, pH, TSS	8260 TCLP Compounds	8270 TCLP Compounds	RCI	RCRA 8 Metals	8081 TCLP Compounds	8151 TCLP Compounds
3/28/22	9:35	Liquid	WDW-1, 2, 3 & 4 Effluent	**	**	001	X						
3/28/22	9:35	Liquid	WDW-1, 2, 3 & 4 Effluent	3-40ml VOA	HCL			X					
3/28/22	9:35	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none				X				
3/28/22	9:35	Liquid	WDW-1, 2, 3 & 4 Effluent	***	***					X			
3/28/22	9:35	Liquid	WDW-1, 2, 3 & 4 Effluent	1-250ml P	HNO3						X		
3/28/22	9:35	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none							X	
3/28/22	9:35	Liquid	WDW-1, 2, 3 & 4 Effluent	1-1L Amber	none								X
3/28/22	10:05	Liquid	CTB to City POTW	**	**	002	X						
3/28/22	10:05	Liquid	CTB to City POTW	3-40ml VOA	HCL			X					
3/28/22	10:05	Liquid	CTB to City POTW	1-1L Amber	none				X				
3/28/22	10:05	Liquid	CTB to City POTW	***	***					X			
3/28/22	10:05	Liquid	CTB to City POTW	1-250ml P	HNO4						X		
3/28/22	10:05	Liquid	CTB to City POTW	1-1L Amber	none							X	
3/28/22	10:05	Liquid	CTB to City POTW	1-1L Amber	none								X

Date	Time	Relinquished by	Received by	Date	Time
3-28-22	10:30	Brady Hubbard			
3/28/22	1900			3/29/22	8:15

Remarks: Dissolved Cations by EPA Method 200.7. **1-500ml unpreserved plastic, 1-125ml H2SO4 plastic, 1-125ml HNO3 plastic. *** 1-500ml unpreserved plastic, 1-500ml NaOH plastic, 1-500ml NaOH/ZnAcetate plastic.
Will suffice for Quarterly WDW-1, 2, 3 & 4 Inj Well

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HOLLYFRONTIER.

HollyFrontier Navajo Refining LLC
501 East Main, Artesia, New Mexico 88210
Tel: 575-748-3311
hollyfrontier.com

February 1, 2022

Mr. Carl Chavez, CHMM
New Mexico Oil Conservation Division (Albuquerque Office)
Energy, Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, NM 87113

RE: 2022 2nd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4 HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the second quarter 2022 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for each well was 1077 psig for WDW-1, 1005 psig for WDW-2, 879 psig for WDW-3 and 153 psig for WDW-4.The average flows were 218 gpm for WDW-1, 83 gpm for WDW-2, 103 gpm for WDW-3 and 185 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from October 1, 2021 to December 31, 2021. Navajo has disposed a total of 2,326,937 barrels of fluid into the four wells during the fourth quarter of 2020. The volume per well is:

- 854,331 barrels into WDW-1; 30-015-27592
- 329,520 barrels into WDW-2; 30-015-20894
- 403,783 barrels into WDW-3; 30-015-26575
- 739,303 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully,

Kawika Tupou
Environmental Manager
HollyFrontier Navajo Refining LLC

Page 51 of 5828

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

2022 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												47,626,294
Oct-21	993	228	292	116	81	257	5	7,817	10,011	3,977	**242,331**	47,868,625
Nov-21	1,111	208	255	159	37	142	0	7,131	8,743	5,451	**299,520**	48,168,145
Dec-21	1,126	217	265	162	51	118	16	7,440	9,086	5,554	**312,480**	48,480,625
Monthly Avg	1,077	218								**TOTAL**	854,331	
30-015-20894 WDW-2												29,429,340
Oct-21	987	77	91	53	295	574	96	2,640	3,120	1,817	**81,840**	29,511,180
Nov-21	1,034	82	110	41	177	384	96	2,811	3,771	1,406	**118,080**	29,629,260
Dec-21	993	90	106	73	146	323	104	3,086	3,634	2,503	**129,600**	29,758,860
Monthly Avg	1,005	83								**TOTAL**	329,520	
30-015-26575 WDW-3												21,281,293
Oct-21	894	113	141	75	309	490	180	3,874	4,834	2,571	**120,103**	21,401,396
Nov-21	874	103	125	82	441	644	225	3,531	4,286	2,811	**148,320**	21,549,716
Dec-21	868	94	113	54	460	626	398	3,223	3,068	1,851	**135,360**	21,685,076
Monthly Avg	879	103								**TOTAL**	403,783	
30-015-44677 WDW-4												6,263,350
Oct-21	145	155	253	88	84	189	52	5,314	8,674	3,017	**164,743**	6,428,093
Nov-21	143	159	249	77	79	124	53	5,451	8,537	2,640	**228,960**	6,657,053
Dec-21	171	240	284	208	94	125	71	8,229	9,737	7,131	**345,600**	7,002,653
Monthly Avg	153	185								**TOTAL**	739,303	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	854,331	47,626,294	48,480,625
WDW2	329,520	29,429,340	29,758,860
WDW3	403,783	21,281,293	21,685,076
WDW4	739,303	6,263,350	7,002,653

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

January 20, 2022

Randy Dade
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 3 4 Inj Well OrderNo.: 2112C79

Dear Randy Dade:

Hall Environmental Analysis Laboratory received 2 sample(s) on 12/22/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Case Narrative

WO#: **2112C79**
Date: **1/20/2022**

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Analytical Notes Regarding EPA Method 8270:
Pyridine is reported with an "E" flag. The "E" flag is used to represent an estimated value. Pyridine was not detected in the sample, but the calibration curve for this compound did not meet the method requirements.

Analytical Report
Lab Order **2112C79**
Date Reported: **1/20/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well
Lab ID: 2112C79-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 12/21/2021 10:15:00 AM
Received Date: 12/22/2021 7:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **LSB**	
Chlordane	ND	0.0012	0.075		mg/L	1	1/11/2022 7:03:42 PM	64757
Surr: Decachlorobiphenyl	73.2	0	73-119		%Rec	1	1/11/2022 7:03:42 PM	64757
Surr: Tetrachloro-m-xylene	60.2	0	36.6-84.1		%Rec	1	1/11/2022 7:03:42 PM	64757
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	57	0.80	2.0	*	mg/L	20	12/22/2021 3:16:42 PM	R84756
Chloride	800	25	50	*	mg/L	100	1/8/2022 2:29:50 PM	R85040
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	12/22/2021 3:04:18 PM	R84756
Bromide	0.80	0.25	0.50		mg/L	5	12/22/2021 3:04:18 PM	R84756
Nitrogen, Nitrate (As N)	0.45	0.050	0.50	J	mg/L	5	12/22/2021 3:04:18 PM	R84756
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	12/22/2021 3:04:18 PM	R84756
Sulfate	1800	25	50	*	mg/L	100	1/8/2022 2:29:50 PM	R85040
EPA METHOD 7470A: MERCURY							Analyst: **VP**	
Mercury	ND	0.20	0.0010		mg/L	5	12/27/2021 5:00:11 PM	64706
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **JLF**	
Calcium	340	0.29	5.0		mg/L	5	12/22/2021 8:17:59 PM	A84757
Magnesium	110	0.17	5.0		mg/L	5	12/22/2021 8:17:59 PM	A84757
Potassium	140	1.0	5.0		mg/L	5	12/22/2021 8:17:59 PM	A84757
Sodium	850	21	50		mg/L	50	12/22/2021 8:20:16 PM	A84757
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: **JLF**	
Arsenic	ND	0.22	5.0		mg/L	10	1/4/2022 5:19:46 PM	64703
Barium	0.041	0.011	100	J	mg/L	10	1/4/2022 4:12:19 PM	64703
Cadmium	ND	0.012	1.0		mg/L	10	1/4/2022 7:10:30 PM	64703
Chromium	ND	0.017	5.0		mg/L	10	1/4/2022 4:12:19 PM	64703
Lead	0.19	0.13	5.0	J	mg/L	10	1/18/2022 7:46:25 AM	64703
Selenium	ND	0.25	1.0		mg/L	10	1/4/2022 7:10:30 PM	64703
Silver	0.015	0.013	5.0	J	mg/L	10	1/4/2022 4:12:19 PM	64703
EPA METHOD 8270C TCLP							Analyst: **JME**	
2-Methylphenol	0.016	0.0010	200	JD	mg/L	2	1/5/2022 4:05:58 AM	64755
3+4-Methylphenol	0.026	0.00090	200	JD	mg/L	2	1/5/2022 4:05:58 AM	64755
2,4-Dinitrotoluene	ND	0.0012	0.13	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Hexachlorobenzene	ND	0.0013	0.13	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Hexachlorobutadiene	ND	0.0016	0.50	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Hexachloroethane	ND	0.00090	3.0	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Nitrobenzene	ND	0.0010	2.0	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Pentachlorophenol	ND	0.0012	100	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Pyridine	ND	0.0019	40	ED	mg/L	2	1/5/2022 4:05:58 AM	64755
2,4,5-Trichlorophenol	ND	0.0012	400	D	mg/L	2	1/5/2022 4:05:58 AM	64755

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2112C79**
Date Reported: **1/20/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well
Lab ID: 2112C79-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 12/21/2021 10:15:00 AM
Received Date: 12/22/2021 7:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **JME**	
2,4,6-Trichlorophenol	ND	0.00087	2.0	D	mg/L	2	1/5/2022 4:05:58 AM	64755
Cresols, Total	0.042	0.0010	200	JD	mg/L	2	1/5/2022 4:05:58 AM	64755
Surr: 2-Fluorophenol	0.497	0	15-118	SD	%Rec	2	1/5/2022 4:05:58 AM	64755
Surr: Phenol-d5	11.8	0	15-92.9	SD	%Rec	2	1/5/2022 4:05:58 AM	64755
Surr: 2,4,6-Tribromophenol	1.36	0	15-150	SD	%Rec	2	1/5/2022 4:05:58 AM	64755
Surr: Nitrobenzene-d5	71.4	0	15-136	D	%Rec	2	1/5/2022 4:05:58 AM	64755
Surr: 2-Fluorobiphenyl	69.9	0	15-134	D	%Rec	2	1/5/2022 4:05:58 AM	64755
Surr: 4-Terphenyl-d14	110	0	15-168	D	%Rec	2	1/5/2022 4:05:58 AM	64755
TCLP VOLATILES BY 8260B							Analyst: **RAA**	
Benzene	0.27	0.00023	0.50	J	mg/L	200	12/27/2021 9:36:53 PM	T84811
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	12/27/2021 9:36:53 PM	T84811
2-Butanone	ND	0.0020	200		mg/L	200	12/27/2021 9:36:53 PM	T84811
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	12/27/2021 9:36:53 PM	T84811
Chloroform	ND	0.00013	6.0		mg/L	200	12/27/2021 9:36:53 PM	T84811
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	12/27/2021 9:36:53 PM	T84811
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	12/27/2021 9:36:53 PM	T84811
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	12/27/2021 9:36:53 PM	T84811
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	12/27/2021 9:36:53 PM	T84811
Vinyl chloride	ND	0.00032	0.20		mg/L	200	12/27/2021 9:36:53 PM	T84811
Chlorobenzene	0.069	0.00016	100	J	mg/L	200	12/27/2021 9:36:53 PM	T84811
Surr: 1,2-Dichloroethane-d4	107	0	70-130		%Rec	200	12/27/2021 9:36:53 PM	T84811
Surr: 4-Bromofluorobenzene	98.7	0	70-130		%Rec	200	12/27/2021 9:36:53 PM	T84811
Surr: Dibromofluoromethane	110	0	70-130		%Rec	200	12/27/2021 9:36:53 PM	T84811
Surr: Toluene-d8	91.3	0	70-130		%Rec	200	12/27/2021 9:36:53 PM	T84811
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	7400	10	10		µmhos/c	1	12/27/2021 1:08:18 PM	R84794
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	826.6	20.00	20.00		mg/L Ca	1	12/27/2021 1:08:18 PM	R84794
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	12/27/2021 1:08:18 PM	R84794
Total Alkalinity (as CaCO3)	826.6	20.00	20.00		mg/L Ca	1	12/27/2021 1:08:18 PM	R84794
SPECIFIC GRAVITY							Analyst: **JRR**	
Specific Gravity	1.002	0	0			1	1/7/2022 12:54:00 PM	R85017
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **CJS**	
Total Dissolved Solids	5340	100	100	*D	mg/L	1	12/30/2021 10:03:00 A	64762

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2112C79**
Date Reported: **1/20/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW 1 2 3 4 Inj Well
Collection Date:
Lab ID: 2112C79-002 **Matrix:** TRIP BLANK **Received Date:** 12/22/2021 7:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
TCLP VOLATILES BY 8260B							Analyst: **RAA**	
Benzene	ND	0.00023	0.50		mg/L	1	12/27/2021 10:03:52 P	T84811
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	1	12/27/2021 10:03:52 P	T84811
2-Butanone	ND	0.0020	200		mg/L	1	12/27/2021 10:03:52 P	T84811
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	1	12/27/2021 10:03:52 P	T84811
Chloroform	ND	0.00013	6.0		mg/L	1	12/27/2021 10:03:52 P	T84811
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	1	12/27/2021 10:03:52 P	T84811
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	1	12/27/2021 10:03:52 P	T84811
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	1	12/27/2021 10:03:52 P	T84811
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	1	12/27/2021 10:03:52 P	T84811
Vinyl chloride	ND	0.00032	0.20		mg/L	1	12/27/2021 10:03:52 P	T84811
Chlorobenzene	ND	0.00016	100		mg/L	1	12/27/2021 10:03:52 P	T84811
Surr: 1,2-Dichloroethane-d4	105	0	70-130		%Rec	1	12/27/2021 10:03:52 P	T84811
Surr: 4-Bromofluorobenzene	93.3	0	70-130		%Rec	1	12/27/2021 10:03:52 P	T84811
Surr: Dibromofluoromethane	105	0	70-130		%Rec	1	12/27/2021 10:03:52 P	T84811
Surr: Toluene-d8	102	0	70-130		%Rec	1	12/27/2021 10:03:52 P	T84811

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

ANALYTICAL REPORT

January 04, 2022

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1445523
Samples Received:	12/23/2021
Project Number:	
Description:	

Report To: Andy Freeman
4901 Hawkins NE
Albuquerque, NM 87109

Entire Report Reviewed By: John V Hawkins

John Hawkins
Project Manager

Results relate only to the Items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

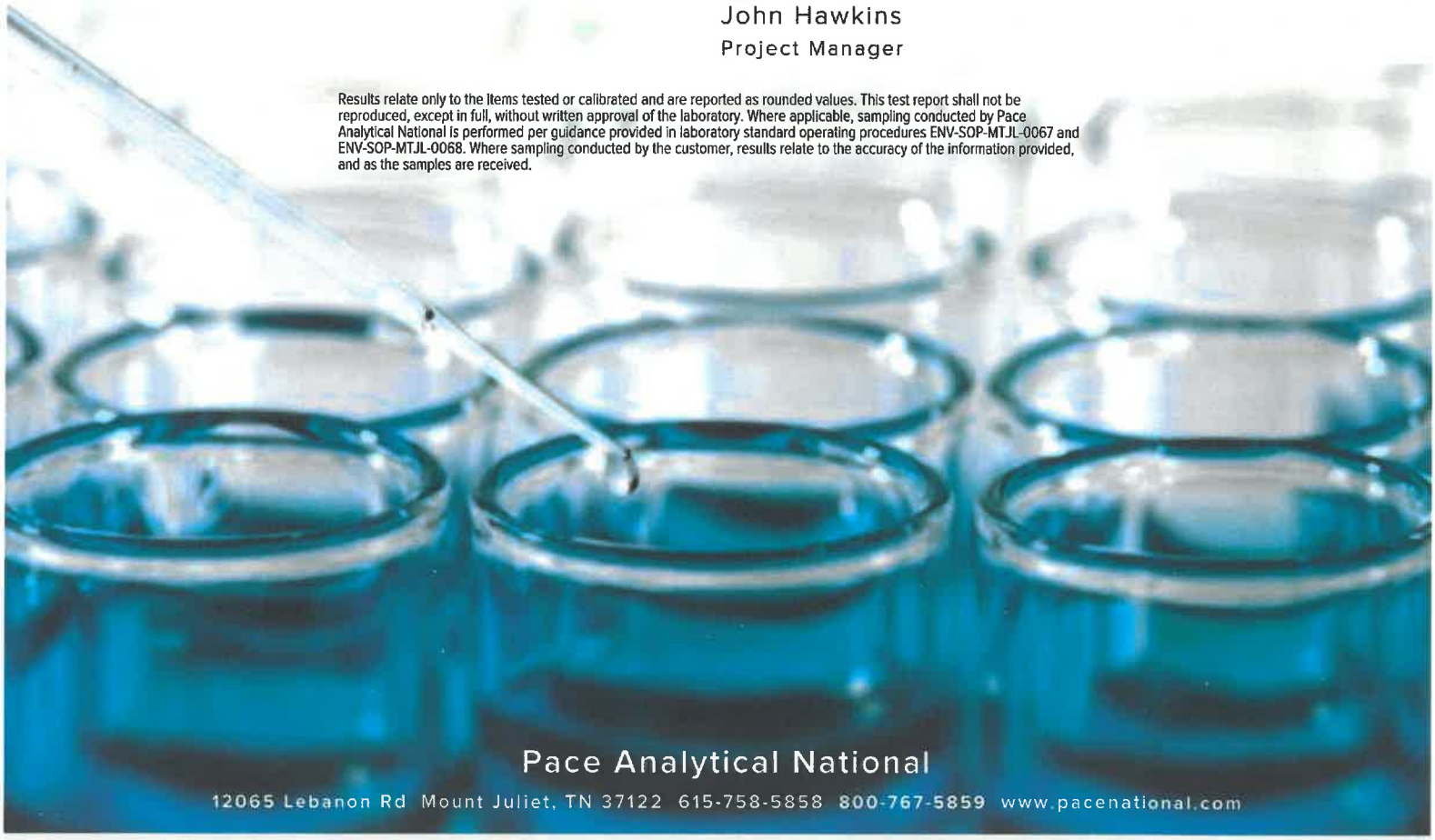


TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
2112C79-001F WDW-1,2,3 & 4 EFFLUENT L1445523-01	5
Qc: Quality Control Summary	6
Wet Chemistry by Method 2580	6
Wet Chemistry by Method 4500 CN E-2016	7
Wet Chemistry by Method 4500 S2 D-2011	8
Wet Chemistry by Method 9040C	9
Wet Chemistry by Method D93/1010A	10
Gl: Glossary of Terms	11
Al: Accreditations & Locations	12
Sc: Sample Chain of Custody	13

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SAMPLE SUMMARY

2112C79-001F WDW-1,2,3 & 4 EFFLUENT L1445523-01 GW

	Collected by	Collected date/time	Received date/time
		12/21/21 10:15	12/23/21 09:50

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1794960	1	01/02/22 08:47	01/02/22 08:47	ARD	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2016	WG1794923	10	12/26/21 22:40	12/28/21 14:51	KEG	Mt. Juliet, TN
Wet Chemistry by Method 4500 S2 D-2011	WG1797616	1	01/03/22 21:51	01/03/22 21:51	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1795243	1	12/27/21 16:31	12/27/21 16:31	SCM	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1794911	1	12/27/21 00:35	12/27/21 00:35	WOS	Mt. Juliet, TN

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CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 4500 CN E-2016.
All Reactive Sulfide results reported in the attached report were determined as totals using method 4500 S2 D-2011.

1 Cp
2 Tc
3 Ss
Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

2112C79-001F WDW-1,2,3 & 4 EFFLUENT

Collected date/time: 12/21/21 10:15

SAMPLE RESULTS - 01

L1445523

Wet Chemistry by Method 2580

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	-10.4	T8	1	01/02/2022 08:47	WG1794960

Wet Chemistry by Method 4500 CN E-2016

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	ND		0.0500	10	12/28/2021 14:51	WG1794923

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	0.334	T8	0.0500	1	01/03/2022 21:51	WG1797616

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.39	T8	1	12/27/2021 16:31	WG1795243

Sample Narrative:

L1445523-01 WG1795243: 7.39 at 20.1C

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	12/27/2021 00:35	WG1794911

1 Cp
2 Tc
3 Ss
4 Cn
Sr
6 Qc
7 Gl
8 Al
9 Sc

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QUALITY CONTROL SUMMARY

L1445523-01

L1445523-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1445523-01 01/02/22 08:47 • (DUP) R3746662-3 01/02/22 08:47

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	-10.4	-11.2	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3746662-1 01/02/22 08:47 • (LCSD) R3746662-2 01/02/22 08:47

Analyte	Spike Amount mV	LCS Result mV	LCSD Result mV	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	Diff mV	Diff Limits mV
ORP	108	108	110	99.9	102	86.0-105			2.40	20

Page 62 of 5828

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WG1794923

Wet Chemistry by Method 4500 CN E-2016

QUALITY CONTROL SUMMARY

L1445523-01

Method Blank (MB)

(MB) R3745581-1 12/28/21 14:30

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.00180	0.00500

L1445069-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1445069-02 12/28/21 14:42 • (DUP) R3745581-5 12/28/21 14:43

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

L1445536-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1445536-01 12/28/21 14:55 • (DUP) R3745581-6 12/28/21 14:56

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3745581-2 12/28/21 14:31

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.0965	96.5	87.1-120	

L1445053-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1445053-03 12/28/21 14:36 • (MS) R3745581-3 12/28/21 14:37 • (MSD) R3745581-4 12/28/21 14:38

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	0.00500	ND	0.103	0.000	98.0	1	90.0-110	J6	J3	200	20

L1445536-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1445536-02 12/28/21 14:57 • (MS) R3745581-7 12/28/21 14:58 • (MSD) R3745581-8 12/28/21 14:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.100	0.105	100	105	1	90.0-110			4.88	20

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WG1797616

Wet Chemistry by Method 4500 S2 D-2011

QUALITY CONTROL SUMMARY

L1445523-01

Method Blank (MB)

(MB) R3747054-1 01/03/22 21:06

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.0250	0.0500

Laboratory Control Sample (LCS)

(LCS) R3747054-2 01/03/22 21:06

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.545	109	85.0-115	

Page 64 of 5828

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WG1795243

Wet Chemistry by Method 9040C

QUALITY CONTROL SUMMARY

L1445523-01

L1445523-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1445523-01 12/27/21 16:31 • (DUP) R3745144-3 12/27/21 16:31

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
Corrosivity by pH	7.39	7.38	1	0.135		1

Sample Narrative:

OS: 7.39 at 20.1C

DUP: 7.38 at 19.9C

Laboratory Control Sample (LCS)

(LCS) R3745144-1 12/27/21 16:31

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.01 at 20C

Page 65 of 5828

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WG1794911

Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY

L1445523-01

L1444846-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1444846-01 12/27/21 00:35 • (DUP) R3744823-3 12/27/21 00:35

Analyte	Original Result deg F	DUP Result deg F	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

L1445523-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1445523-01 12/27/21 00:35 • (DUP) R3744823-4 12/27/21 00:35

Analyte	Original Result deg F	DUP Result deg F	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3744823-1 12/27/21 00:35 • (LCSD) R3744823-2 12/27/21 00:35

Analyte	Spike Amount deg F	LCS Result deg F	LCSD Result deg F	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Flashpoint	126	124	130	98.3	103	96.0-104			4.73	10

Page 66 of 5828

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [16]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [14]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

B208

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: clients.hallenvironmental.com

SUB CONTRATOR: Pace TN	COMPANY: PACE TN	PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Mt. Juliet, TN 37122			

U445523

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2112C79-001F	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	12/21/2021 10:15:00 AM	1	RCI, ORP -01
2	2112C79-001G	WDW-1,2,3 & 4 Effluent	500PLNAOH ZNAC	Aqueous	12/21/2021 10:15:00 AM	1	RCI, ORP -01
3	2112C79-001H	WDW-1,2,3 & 4 Effluent	500PL-NaOH	Aqueous	12/21/2021 10:15:00 AM	1	RCI, ORP -02

5528 5948 0150

DKAT
5.3+0=5.3

Sample Receipt Checklist
COC Seal Present/Intact: Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
RAD Screen <0.5 mR/hr: Y N
If Applicable
VOA Zero Headspace: Y N
Pres. Correct/Check: Y N

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 12/22/2021	Time: 9:04 AM	Received By:	Date: 12/23/21	Time: 9:50
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☑ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples _____ °C Attempt to Cool ? _____
Comments: _____

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-64757	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: PBW	Batch ID: 64757	RunNo: 85069							
Prep Date: 12/28/2021	Analysis Date: 1/11/2022	SeqNo: 2993207	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0022		0.002500		87.1	73	119			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		56.3	36.6	84.1			

Sample ID: MB-64757	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: PBW	Batch ID: 64757	RunNo: 85069							
Prep Date: 12/28/2021	Analysis Date: 1/11/2022	SeqNo: 2993208	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0022		0.002500		88.2	73	119			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.4	36.6	84.1			

Sample ID: LCS-64757	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 64757	RunNo: 85069							
Prep Date: 12/28/2021	Analysis Date: 1/11/2022	SeqNo: 2993315	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0022		0.002500		90.0	73	119			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		62.0	36.6	84.1			

Sample ID: LCS-64757	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 64757	RunNo: 85069							
Prep Date: 12/28/2021	Analysis Date: 1/11/2022	SeqNo: 2993316	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0023		0.002500		91.7	73	119			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		62.3	36.6	84.1			

Sample ID: LCSD-64757	SampType: LCSD	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSS02	Batch ID: 64757	RunNo: 85069							
Prep Date: 12/28/2021	Analysis Date: 1/11/2022	SeqNo: 2993320	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0023		0.002500		93.3	73	119	0	0	
Surr: Tetrachloro-m-xylene	0.0014		0.002500		56.2	36.6	84.1	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2112C79**

21-Jan-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: **LCSD-64757**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**	
Client ID: **LCSS02**	Batch ID: **64757**	RunNo: **85069**	
Prep Date: **12/28/2021**	Analysis Date: **1/11/2022**	SeqNo: **2993321**	Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0024		0.002500		94.7	73	119	0	0	
Surr: Tetrachloro-m-xylene	0.0014		0.002500		56.7	36.6	84.1	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2112C79**

21-Jan-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T84811**	RunNo: **84811**
Prep Date:	Analysis Date: **12/27/2021**	SeqNo: **2983267** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.017	0.00023	0.02000	0	86.5	70	130			
1,1-Dichloroethene	0.017	0.00020	0.02000	0	85.8	70	130			
Trichloroethene (TCE)	0.017	0.00020	0.02000	0	82.9	70	130			
Chlorobenzene	0.018	0.00016	0.02000	0	88.3	70	130			
Surr: 1,2-Dichloroethane-d4	0.0094		0.01000		94.4	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		100	70	130			
Surr: Dibromofluoromethane	0.0095		0.01000		95.0	70	130			
Surr: Toluene-d8	0.0093		0.01000		92.7	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T84811**	RunNo: **84811**
Prep Date:	Analysis Date: **12/27/2021**	SeqNo: **2983270** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0090		0.01000		90.0	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		101	70	130			
Surr: Dibromofluoromethane	0.0094		0.01000		94.3	70	130			
Surr: Toluene-d8	0.0094		0.01000		93.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: LCS-64755	SampType: LCS	TestCode: EPA Method 8270C TCLP							
Client ID: LCSW	Batch ID: 64755	RunNo: 84935							
Prep Date: 12/28/2021	Analysis Date: 1/5/2022	SeqNo: 2989262	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.076		0.1000		75.7	15	136			
Surr: 2-Fluorobiphenyl	0.078		0.1000		78.0	15	134			
Surr: 4-Terphenyl-d14	0.12		0.1000		122	15	168			

Sample ID: 2112C79-001BMS	SampType: MS	TestCode: EPA Method 8270C TCLP							
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: 64755	RunNo: 84935							
Prep Date: 12/28/2021	Analysis Date: 1/5/2022	SeqNo: 2989264	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.10	0.00020	0.1000	0.01601	85.0	15.8	101			D
3+4-Methylphenol	0.18	0.00020	0.2000	0.02632	79.2	16.9	97.9			D
2,4-Dinitrotoluene	0.059	0.00020	0.1000	0	59.5	20.1	90.5			D
Hexachlorobenzene	0.085	0.00020	0.1000	0	84.9	34	108			D
Hexachlorobutadiene	0.061	0.00020	0.1000	0	61.4	15	99.7			D
Hexachloroethane	0.071	0.00020	0.1000	0	70.7	15	86.4			D
Nitrobenzene	0.071	0.00020	0.1000	0	70.9	15	109			D
Pentachlorophenol	ND	0.00020	0.1000	0	0	15	130			SD
Pyridine	0.051	0.00020	0.1000	0	50.7	15	82			ED
2,4,5-Trichlorophenol	0.0052	0.00020	0.1000	0	5.25	28.1	105			SD
2,4,6-Trichlorophenol	0.0048	0.00020	0.1000	0	4.76	21.5	110			SD
Cresols, Total	0.35	0.00020	0.3000	0.04232	102	15	127			D
Surr: 2-Fluorophenol	0.0083		0.2000		4.13	15	118			SD
Surr: Phenol-d5	0.049		0.2000		24.5	15	92.9			D
Surr: 2,4,6-Tribromophenol	0.010		0.2000		5.07	15	150			SD
Surr: Nitrobenzene-d5	0.076		0.1000		76.0	15	136			D
Surr: 2-Fluorobiphenyl	0.079		0.1000		78.8	15	134			D
Surr: 4-Terphenyl-d14	0.11		0.1000		107	15	168			D

Sample ID: 2112C79-001BMSD	SampType: MSD	TestCode: EPA Method 8270C TCLP							
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: 64755	RunNo: 84935							
Prep Date: 12/28/2021	Analysis Date: 1/5/2022	SeqNo: 2989265	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.086	0.00020	0.1000	0.01601	69.9	15.8	101	16.2	20	D
3+4-Methylphenol	0.14	0.00020	0.2000	0.02632	55.7	16.9	97.9	29.1	20	RD
2,4-Dinitrotoluene	0.063	0.00020	0.1000	0	62.8	20.1	90.5	5.42	20	D
Hexachlorobenzene	0.092	0.00020	0.1000	0	92.3	34	108	8.35	20	D
Hexachlorobutadiene	0.059	0.00020	0.1000	0	59.0	15	99.7	3.86	20	D
Hexachloroethane	0.067	0.00020	0.1000	0	67.2	15	86.4	5.18	20	D
Nitrobenzene	0.072	0.00020	0.1000	0	71.7	15	109	1.12	20	D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2112C79**

21-Jan-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: **2112C79-001BMSD** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,3 & 4 Efflu** Batch ID: **64755** RunNo: **84935**

Prep Date: **12/28/2021** Analysis Date: **1/5/2022** SeqNo: **2989265** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	ND	0.00020	0.1000	0	0	15	130	0	20	SD
Pyridine	0.049	0.00020	0.1000	0	48.6	15	82	4.15	20	ED
2,4,5-Trichlorophenol	0.0021	0.00020	0.1000	0	2.09	28.1	105	86.2	20	RSD
2,4,6-Trichlorophenol	0.0035	0.00020	0.1000	0	3.52	21.5	110	30.0	20	RSD
Cresols, Total	0.26	0.00020	0.3000	0.04232	74.0	15	127	27.0	20	RD
Surr: 2-Fluorophenol	0.0028		0.2000		1.41	15	118	0	0	SD
Surr: Phenol-d5	0.030		0.2000		15.1	15	92.9	0	0	D
Surr: 2,4,6-Tribromophenol	0.0062		0.2000		3.08	15	150	0	0	SD
Surr: Nitrobenzene-d5	0.073		0.1000		72.8	15	136	0	0	D
Surr: 2-Fluorobiphenyl	0.078		0.1000		77.8	15	134	0	0	D
Surr: 4-Terphenyl-d14	0.11		0.1000		109	15	168	0	0	D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2112C79**

21-Jan-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: **lcs-1 99.3uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R84794**	RunNo: **84794**
Prep Date:	Analysis Date: **12/27/2021**	SeqNo: **2982430** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	99.30	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-64706	SampType: MBLK	TestCode: EPA Method 7470A: Mercury							
Client ID: PBW	Batch ID: 64706	RunNo: 84787							
Prep Date: 12/23/2021	Analysis Date: 12/27/2021	SeqNo: 2982004	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LCSLL-64706	SampType: LCSLL	TestCode: EPA Method 7470A: Mercury							
Client ID: BatchQC	Batch ID: 64706	RunNo: 84787							
Prep Date: 12/23/2021	Analysis Date: 12/27/2021	SeqNo: 2982005	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00017	0.00020	0.0001501	0	115	50	150			J

Sample ID: LCS-64706	SampType: LCS	TestCode: EPA Method 7470A: Mercury							
Client ID: LCSW	Batch ID: 64706	RunNo: 84787							
Prep Date: 12/23/2021	Analysis Date: 12/27/2021	SeqNo: 2982006	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.3	85	115			

Sample ID: 2112C79-001EMS	SampType: MS	TestCode: EPA Method 7470A: Mercury							
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: 64706	RunNo: 84787							
Prep Date: 12/23/2021	Analysis Date: 12/27/2021	SeqNo: 2982150	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.0010	0.005000	0	0	75	125			S

Sample ID: 2112C79-001EMSD	SampType: MSD	TestCode: EPA Method 7470A: Mercury							
Client ID: WDW-1,2,3 & 4 Efflu	Batch ID: 64706	RunNo: 84787							
Prep Date: 12/23/2021	Analysis Date: 12/27/2021	SeqNo: 2982151	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.0010	0.005000	0	0	75	125	0	20	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2112C79**

21-Jan-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A84757**	RunNo: **84757**
Prep Date:	Analysis Date: **12/22/2021**	SeqNo: **2980772** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A84757**	RunNo: **84757**
Prep Date:	Analysis Date: **12/22/2021**	SeqNo: **2980774** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	47	1.0	50.00	0	94.0	80	120			
Magnesium	47	1.0	50.00	0	93.4	80	120			
Potassium	46	1.0	50.00	0	92.8	80	120			
Sodium	46	1.0	50.00	0	92.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: MB-64703	SampType: MBLK	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: PBW	Batch ID: 64703	RunNo: 84926
Prep Date: 12/22/2021	Analysis Date: 1/4/2022	SeqNo: 2989056 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.030								
Barium	ND	0.0020								
Chromium	ND	0.0060								
Silver	ND	0.0050								

Sample ID: LCS-64703	SampType: LCS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: LCSW	Batch ID: 64703	RunNo: 84926
Prep Date: 12/22/2021	Analysis Date: 1/4/2022	SeqNo: 2989063 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.45	0.030	0.5000	0	89.3	80	120			
Barium	0.44	0.0020	0.5000	0	87.2	80	120			
Chromium	0.40	0.0060	0.5000	0	80.0	80	120			
Silver	0.091	0.0050	0.1000	0	90.6	80	120			

Sample ID: LCSD-64703	SampType: LCSD	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: LCSS02	Batch ID: 64703	RunNo: 84926
Prep Date: 12/22/2021	Analysis Date: 1/4/2022	SeqNo: 2989064 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.44	0.030	0.5000	0	88.4	80	120	0.960	20	
Barium	0.44	0.0020	0.5000	0	87.1	80	120	0.0742	20	
Chromium	0.41	0.0060	0.5000	0	81.1	80	120	1.36	20	
Silver	0.090	0.0050	0.1000	0	90.3	80	120	0.388	20	

Sample ID: MB-64703	SampType: MBLK	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: PBW	Batch ID: 64703	RunNo: 84926
Prep Date: 12/22/2021	Analysis Date: 1/4/2022	SeqNo: 2989221 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Selenium	ND	0.050								

Sample ID: LCS-64703	SampType: LCS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: LCSW	Batch ID: 64703	RunNo: 84926
Prep Date: 12/22/2021	Analysis Date: 1/4/2022	SeqNo: 2989223 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.48	0.0020	0.5000	0	96.6	80	120			
Selenium	0.49	0.050	0.5000	0	97.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2112C79

21-Jan-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: mb-1 alk	SampType: mblk	TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R84794	RunNo: 84794							
Prep Date:	Analysis Date: 12/27/2021	SeqNo: 2982456	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-1 alk	SampType: lcs	TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R84794	RunNo: 84794							
Prep Date:	Analysis Date: 12/27/2021	SeqNo: 2982457	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	74.80	20.00	80.00	0	93.5	90	110			

Sample ID: mb-2 alk	SampType: mblk	TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R84794	RunNo: 84794							
Prep Date:	Analysis Date: 12/27/2021	SeqNo: 2982479	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-2 alk	SampType: lcs	TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R84794	RunNo: 84794							
Prep Date:	Analysis Date: 12/27/2021	SeqNo: 2982480	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.32	20.00	80.00	0	94.2	90	110			

Sample ID: mb-3 alk	SampType: mblk	TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R84794	RunNo: 84794							
Prep Date:	Analysis Date: 12/27/2021	SeqNo: 2982502	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-3 alk	SampType: lcs	TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R84794	RunNo: 84794							
Prep Date:	Analysis Date: 12/27/2021	SeqNo: 2982503	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	74.96	20.00	80.00	0	93.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2112C79**
21-Jan-22

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: **2112C79-001CDUP** SampType: **DUP** TestCode: **Specific Gravity**
Client ID: **WDW-1,2,3 & 4 Efflu** Batch ID: **R85017** RunNo: **85017**
Prep Date: Analysis Date: **1/7/2022** SeqNo: **2991233** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.0999	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2112C79**

21-Jan-22

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 4 Inj Well

Sample ID: **MB-64762**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **64762**	RunNo: **84892**
Prep Date: **12/28/2021**	Analysis Date: **12/30/2021**	SeqNo: **2986299** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-64762**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **64762**	RunNo: **84892**
Prep Date: **12/28/2021**	Analysis Date: **12/30/2021**	SeqNo: **2986300** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: Navajo Refining Work Order Number: 2112C79 RcptNo: 1

Received By: Isaiah Ortiz 12/22/2021 7:25:00 AM I-Ox

Completed By: Sean Livingston 12/22/2021 8:57:18 AM S-Lyn

Reviewed By: HPA 12/22/21

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preserved added to bottles? Yes ☑ No ☑ NA ☐ jn 12/22/21.
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☑ No ☐ NA ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 3 2 (<2 or >12 unless noted)
Adjusted? yes
Checked by: jn 12/22/21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks: 0.5ml of HNO3 was added to sample 001E for pH<2. jn 12/22/21

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.5	Good				

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
Standard ☒ Rush

Project Name:
Quarterly WDW-1, 2, 3 & 4 Inj Well

Project #: P.O. # 251841

Project Manager:
Randy Dade

Sampler: Brady Hubbard
On Ice: ☒ Yes ☐ No
Sample Temperature: 0.5°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 2112C79	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane-8081 A
12/21/21	10:15	Liquid	WDW-1, 2, 3 & 4 Effluent	3	Neat/H2SO4	001	X						X	
12/21/21	10:15	Liquid	WDW-1, 2, 3 & 4 Effluent	1	HNO3						X	X		
12/21/21	10:15	Liquid	WDW-1, 2, 3 & 4 Effluent	3	HCL			X						
12/21/21	10:15	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat				X					
12/21/21	10:15	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat					X				
12/21/21	10:15	Liquid	WDW-1, 2, 3 & 4 Effluent	1	Neat									x
			Trip Blank per sample bottle 12/22/21			002								

Date	Time	Relinquished by	Received by	Date	Time
12/21/21	11:30	Brady Hubbard			
12/21/21	1900			12/21/21	1130
				12/22/21	0725

Remarks: Send results to Scott Denton, Mike Holder, and Randy Dade.

pH 6.97, 34.8C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HollyFrontier Navajo Refining LLC
501 East Main, Artesia, New Mexico 88210
Tel: 575-748-3311
hollyfrontier.com

HOLLYFRONTIER.

October 8, 2021

Mr. Carl Chavez, CHMM
New Mexico oil Conservation Division (Albuquerque Office)
NM Energy, Minerals & Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, NM 87113

RE: 2021 4th Quarter (Apr – Jun) Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4
HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2021 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing the various volumes and pressures as required under Permit Condition 2.2.1, Quarterly Reports.

Over the fourth quarter, covering April to June 2021, the average injection pressure for each well was 974 psig for WDW-1, 1,043 psig for WDW-2, 936 psig for WDW-3 and 154 psig for WDW-4. The average flows for each well is 285 gpm for WDW-1, 92 gpm for WDW-2, 129 gpm for WDW-3 and 204 gpm for WDW-4. There were no losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from April 1, 2021 to June 30, 2021. HollyFrontier Navajo Refining LLC has disposed of 2,205,426 barrels of fluid into the four wells during the time period April to June 2021. The volume per well is:

- 888,822 barrels into WDW-1: 30-015-27592
- 285,908 barrels into WDW-2: 30-015-20894
- 393,222 barrels into WDW-3: 30-015-26575
- 637,474 barrels intoWDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully

Kawika Tupou
Environmental Manager
HollyFrontier Navajo Refining LLC,

Page 85 of 5828

2021 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1														47,626,294
Apr-21	936	1,033	792	266	331	186	46	85	25	9,120	11,349	6,377	**273,600**	47,899,894
May-21	956	1,178	847	304	378	262	86	263	35	10,423	12,960	1,200	**323,108**	48,223,002
Jun-21	1,031	1,309	834	284	334	214	153	378	46	9,737	11,451	7,337	**292,114**	48,515,116
Monthly Avg	974			285								**TOTAL**	888,822	
30-015-20894 WDW-2														29,429,340
Apr-21	1,077	1,249	908	96	114	75	92	202	81	3,291	3,909	2,571	**98,743**	29,528,083
May-21	1,017	1,159	942	89	108	80	737	963	557	3,051	3,703	2,743	**94,594**	29,622,677
Jun-21	1,034	1,187	891	90	107	73	826	958	367	3,086	3,669	2,503	**92,571**	29,715,248
Monthly Avg	1,043			92								**TOTAL**	285,908	
30-015-26575 WDW-3														21,281,293
Apr-21	920	1,042	865	126	148	100	300	426	256	4,046	5,074	3,429	**121,371**	21,402,664
May-21	954	1,051	898	129	154	115	420	522	314	4,423	5,280	3,943	**137,109**	21,539,773
Jun-21	924	1,066	818	131	163	97	482	578	271	4,491	5,586	3,326	**134,742**	21,674,515
Monthly Avg	936			129								**TOTAL**	393,222	
30-015-44677 WDW-4														6,263,350
Apr-21	135	151	116	207	245	166	173	225	152	7,097	8,400	5,691	**212,914**	6,476,264
May-21	143	165	129	203	238	180	226	265	175	6,960	8,160	6,171	**215,760**	6,692,024
Jun-21	185	668	135	203	256	63	197	262	85	6,960	8,777	2,160	**208,800**	6,900,824
Monthly Avg	154			204								**TOTAL**	637,474	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	888,822	47,626,294	48,515,116
WDW2	285,908	29,429,340	29,715,248
WDW3	393,222	21,281,293	21,674,515
WDW4	637,474	6,263,350	6,900,824

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

June 17, 2021

Randy Dade
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX:

RE: Quarterly WDW-1, 2, 3, & 4 Inj Well OrderNo.: 2105A94

Dear Randy Dade:

Hall Environmental Analysis Laboratory received 1 sample(s) on 5/26/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2105A94**
Date Reported **6/17/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,3 & 4 Effluent
Project: Quarterly WDW-1, 2, 3, & 4 Inj Well
Collection Date: 5/24/2021 1:30:00 PM
Lab ID: 2105A94-001 **Matrix:** AQUEOUS **Received Date:** 5/26/2021 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **LSB**	
Chlordane	ND	0.00050	0.030		mg/L	1	5/27/2021 3:59:33 PM	60261
Surr: Decachlorobiphenyl	115	0	41.7-129		%Rec	1	5/27/2021 3:59:33 PM	60261
Surr: Tetrachloro-m-xylene	95.0	0	31.8-88.5	S	%Rec	1	5/27/2021 3:59:33 PM	60261
EPA METHOD 300.0: ANIONS							Analyst: **JMT**	
Fluoride	22	1.1	2.0	*	mg/L	20	5/26/2021 5:22:29 PM	R77690
Chloride	390	5.0	10	*	mg/L	20	5/26/2021 5:22:29 PM	R77690
Bromide	0.59	0.25	0.50		mg/L	5	5/26/2021 5:10:08 PM	R77690
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	5/26/2021 5:10:08 PM	R77690
Sulfate	2300	25	50	*	mg/L	100	6/10/2021 12:18:29 PM	R79018
Nitrate+Nitrite as N	0.31	0.11	1.0	J	mg/L	5	6/14/2021 8:32:58 PM	R79060
EPA METHOD 7470: MERCURY							Analyst: **ags**	
Mercury	ND	0.00012	0.020		mg/L	1	5/27/2021 5:11:18 PM	60292
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **ags**	
Calcium	380	0.23	5.0		mg/L	5	6/1/2021 11:53:59 AM	A78776
Magnesium	120	0.097	5.0		mg/L	5	6/1/2021 11:53:59 AM	A78776
Potassium	110	1.0	5.0		mg/L	5	6/1/2021 11:53:59 AM	A78776
Sodium	800	2.6	10		mg/L	10	6/1/2021 12:04:53 PM	A78776
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: **ags**	
Arsenic	ND	0.11	0.15		mg/L	5	6/1/2021 11:58:00 AM	60290
Barium	0.043	0.0053	0.010		mg/L	5	6/1/2021 11:58:00 AM	60290
Cadmium	ND	0.0045	0.010		mg/L	5	6/1/2021 11:58:00 AM	60290
Chromium	ND	0.0070	0.030		mg/L	5	6/1/2021 11:58:00 AM	60290
Lead	ND	0.064	0.10		mg/L	5	6/1/2021 11:58:00 AM	60290
Selenium	ND	0.11	0.25		mg/L	5	6/1/2021 11:58:00 AM	60290
Silver	0.0067	0.0063	0.025	J	mg/L	5	6/1/2021 11:58:00 AM	60290
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.00051	200		mg/L	1	6/7/2021 2:00:51 AM	60263
3+4-Methylphenol	ND	0.00045	200		mg/L	1	6/7/2021 2:00:51 AM	60263
2,4-Dinitrotoluene	ND	0.00062	0.13		mg/L	1	6/7/2021 2:00:51 AM	60263
Hexachlorobenzene	ND	0.00066	0.13		mg/L	1	6/7/2021 2:00:51 AM	60263
Hexachlorobutadiene	ND	0.00082	0.50		mg/L	1	6/7/2021 2:00:51 AM	60263
Hexachloroethane	ND	0.00045	3.0		mg/L	1	6/7/2021 2:00:51 AM	60263
Nitrobenzene	ND	0.00051	2.0		mg/L	1	6/7/2021 2:00:51 AM	60263
Pentachlorophenol	ND	0.00059	100		mg/L	1	6/7/2021 2:00:51 AM	60263
Pyridine	ND	0.00093	5.0		mg/L	1	6/7/2021 2:00:51 AM	60263
2,4,5-Trichlorophenol	ND	0.00062	400		mg/L	1	6/7/2021 2:00:51 AM	60263
2,4,6-Trichlorophenol	ND	0.00043	2.0		mg/L	1	6/7/2021 2:00:51 AM	60263

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2105A94**
Date Reported **6/17/2021**

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,3 & 4 Effluent
Project: Quarterly WDW-1, 2, 3, & 4 Inj Well
Collection Date: 5/24/2021 1:30:00 PM
Lab ID: 2105A94-001 **Matrix:** AQUEOUS **Received Date:** 5/26/2021 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
Cresols, Total	ND	0.00051	200		mg/L	1	6/7/2021 2:00:51 AM	60263
Surr: 2-Fluorophenol	5.18	0	15-91.8	S	%Rec	1	6/7/2021 2:00:51 AM	60263
Surr: Phenol-d5	22.2	0	15-69.6		%Rec	1	6/7/2021 2:00:51 AM	60263
Surr: 2,4,6-Tribromophenol	5.62	0	15-115	S	%Rec	1	6/7/2021 2:00:51 AM	60263
Surr: Nitrobenzene-d5	71.2	0	15-109		%Rec	1	6/7/2021 2:00:51 AM	60263
Surr: 2-Fluorobiphenyl	72.1	0	15-96		%Rec	1	6/7/2021 2:00:51 AM	60263
Surr: 4-Terphenyl-d14	71.9	0	15-133		%Rec	1	6/7/2021 2:00:51 AM	60263
TCLP VOLATILES BY 8260B							Analyst: **BRM**	
Benzene	ND	0.00023	0.00023		mg/L	200	6/1/2021 2:51:36 PM	B78786
1,2-Dichloroethane (EDC)	ND	0.00022	0.00022		mg/L	200	6/1/2021 2:51:36 PM	B78786
2-Butanone	ND	0.0011	0.0011		mg/L	200	6/1/2021 2:51:36 PM	B78786
Carbon Tetrachloride	ND	0.00018	0.00018		mg/L	200	6/1/2021 2:51:36 PM	B78786
Chloroform	ND	0.00013	0.00013		mg/L	200	6/1/2021 2:51:36 PM	B78786
1,4-Dichlorobenzene	ND	0.00021	0.00021		mg/L	200	6/1/2021 2:51:36 PM	B78786
1,1-Dichloroethene	ND	0.00013	0.00013		mg/L	200	6/1/2021 2:51:36 PM	B78786
Tetrachloroethene (PCE)	ND	0.00036	0.00036		mg/L	200	6/1/2021 2:51:36 PM	B78786
Trichloroethene (TCE)	ND	0.00020	0.00020		mg/L	200	6/1/2021 2:51:36 PM	B78786
Vinyl chloride	ND	0.00020	0.00020		mg/L	200	6/1/2021 2:51:36 PM	B78786
Chlorobenzene	ND	0.00014	0.00014		mg/L	200	6/1/2021 2:51:36 PM	B78786
Surr: 1,2-Dichloroethane-d4	100	0	70-130		%Rec	200	6/1/2021 2:51:36 PM	B78786
Surr: 4-Bromofluorobenzene	107	0	70-130		%Rec	200	6/1/2021 2:51:36 PM	B78786
Surr: Dibromofluoromethane	102	0	70-130		%Rec	200	6/1/2021 2:51:36 PM	B78786
Surr: Toluene-d8	99.0	0	70-130		%Rec	200	6/1/2021 2:51:36 PM	B78786
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **CAS**	
Conductivity	5700	10	10		µmhos/c	1	5/28/2021 4:41:04 PM	R78766
SM2320B: ALKALINITY							Analyst: **CAS**	
Bicarbonate (As CaCO3)	498.3	20.00	20.00		mg/L Ca	1	5/28/2021 4:41:04 PM	R78766
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	5/28/2021 4:41:04 PM	R78766
Total Alkalinity (as CaCO3)	498.3	20.00	20.00		mg/L Ca	1	5/28/2021 4:41:04 PM	R78766
SPECIFIC GRAVITY							Analyst: **CAS**	
Specific Gravity	1.002	0	0			1	5/27/2021 1:59:00 PM	R77711
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	4600	40.0	40.0	*D	mg/L	1	5/29/2021 6:48:00 PM	60331

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation informatior

Qualifiers:

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D	Sample Diluted Due to Matrix
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RL	Reporting Limit

ANALYTICAL REPORT

June 16, 2021

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1358881

Samples Received: 05/27/2021

Project Number:

Description:

Report To: Jackie Bolte
4901 Hawkins NE
Albuquerque, NM 87109

Entire Report Reviewed By:

[Preliminary Report]

John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 4

Sr: Sample Results 5

2105A94-001 WDW-1,2,3&4 EFFLUENT L1358881-01 5

Qc: Quality Control Summary 6

Wet Chemistry by Method 2580 6

Wet Chemistry by Method 4500 CN E-2011 7

Wet Chemistry by Method 9034-9030B 8

Wet Chemistry by Method 9040C 9

Wet Chemistry by Method D93/1010A 10

Gl: Glossary of Terms 11

Al: Accreditations & Locations 12

Sc: Sample Chain of Custody 13

SAMPLE SUMMARY

2105A94-001 WDW-1,2,3&4 EFFLUENT L1358881-01 GW

Collected by	Collected date/time	Received date/time
	05/24/21 13:30	05/27/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1680416	1	06/08/21 14:34	06/08/21 14:34	ARD	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2011	WG1683768	1	06/06/21 14:57	06/07/21 20:37	JER	Mt. Juliet, TN
Wet Chemistry by Method 9034-9030B	WG1679021	1	05/28/21 12:38	05/28/21 12:38	BJD	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1680109	1	05/31/21 14:05	05/31/21 14:05	BJD	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1688472	1	06/16/21 00:00	06/16/21 00:00	KAB	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

[Preliminary Report]

John Hawkins
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 9012B.
All Reactive Sulfide results reported in the attached report were determined as totals using method 9034/9030B.

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	122	T8	1	06/08/2021 14:34	WG1680416

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Cyanide	0.0319	J3	0.00500	1	06/07/2021 20:37	WG1683768

Wet Chemistry by Method 9034-9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Sulfide	ND		0.0500	1	05/28/2021 12:38	WG1679021

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
Corrosivity by pH	7.53	T8	1	05/31/2021 14:05	WG1680109

Sample Narrative:

L1358881-01 WG1680109: 7.53 at 21.3C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	deg F			date / time	
Flashpoint	DNF at 170		1	06/16/2021 00:00	WG1688472

Received by OCD: 5/16/2022 2:12:41 PM

L1358881-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1358881-01 06/08/21 14:34 • (DUP) R3664579-3 06/08/21 14:34

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	122	124	1	1.80		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3664579-1 06/08/21 14:34 • (LCSD) R3664579-2 06/08/21 14:34

Analyte	Spike Amount mV	LCS Result mV	LCSD Result mV	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	Diff mV	Diff Limits mV
ORP	106	106	104	99.5	97.6	86.0-105			2.00	20

Released to Imaging: 7/12/2024 10:49:45 AM

QUALITY CONTROL SUMMARY

Wet Chemistry by Method 4500 CN E-2011

L1358881-01

Method Blank (MB)

(MB) R3664255-1 06/07/21 20:18

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.00180	0.00500

L1358881-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1358881-01 06/07/21 20:37 • (DUP) R3664255-5 06/07/21 20:39

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	0.0319	0.0225	1	34.6	J3	20

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3664255-6 06/07/21 20:44

Analyte	Original Result	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide		ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3664255-2 06/07/21 20:19

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.0954	95.4	90.0-117	

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) • (MS) R3664255-3 06/07/21 20:24 • (MSD) R3664255-4 06/07/21 20:25

Analyte	Spike Amount mg/l	Original Result	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100		0.0941	0.0966	94.1	96.6	1	90.0-110			2.62	20

L1358891-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1358891-04 06/07/21 20:46 • (MS) R3664255-7 06/07/21 20:47 • (MSD) R3664255-8 06/07/21 20:48

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.0835	0.0984	83.5	98.4	1	90.0-110	J6		16.4	20

Received by OCD: 5/16/2022 2:12:41 PM

Method Blank (MB)

(MB) R3660519-1 05/28/21 12:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.0250	0.0500

L1358657-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1358657-01 05/28/21 12:35 • (DUP) R3660519-5 05/28/21 12:38

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Sulfide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3660519-2 05/28/21 12:33

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.447	89.4	85.0-115	

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Laboratory Control Sample (LCS)

(LCS) R3661340-1 05/31/21 14:05

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.04 at 21C

Released to Imaging: 7/12/2024 10:49:45 AM

Wet Chemistry by Method D93/1010A

L1358881-01

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3667721-1 06/16/21 00:00 • (LCSD) R3667721-2 06/16/21 00:00

Analyte	Spike Amount deg F	LCS Result deg F	LCSD Result deg F	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Flashpoint	126	131	131	104	104	96.0-104			0.000	10

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Received by OCD: 5/16/2022 2:12:41 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: clients.hallenvironmental.com

SUB CONTRATOR: Pace TN	COMPANY: PACE TN		PHONE: (800) 767-5859	FAX: (615) 758-5859	
ADDRESS: 12065 Lebanon Rd			ACCOUNT #	EMAIL:	
CITY, STATE, ZIP: Mt. Juliet, TN 37122					

L1558881

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS	
1	2105A94-001F	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	5/24/2021 1:30:00 PM	1	RCI, ORP >12	-01
2	2105A94-001G	WDW-1,2,3 & 4 Effluent	500PLNAOH ZNAC	Aqueous	5/24/2021 1:30:00 PM	1	RCI, ORP >12	-01
3	2105A94-001H	WDW-1,2,3 & 4 Effluent	500PL-NaOH	Aqueous	5/24/2021 1:30:00 PM	1	RCI, ORP >12 RCL	-01

B087

Sample Receipt Checklist

COC Seal Present/Intact:	Y N	If Applicable	
COC Signed/Accurate:	Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	Y N	Pres.Correct/Check:	Y N
Correct bottles used:	Y N		
Sufficient volume sent:	Y N		
RAD Screen <0.5 mR/hr:	Y N		

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 5/26/2021	Time: 8:53 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 05/27/21	Time: 09:30

TAT: Standard ☑ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples 4.0 °C Attempt to Cool ? _____

Comments: Cooler

9362 4950 7044

Released to Imaging: 7/12/2024 10:49:45 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2105A94

17-Jun-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R77690	RunNo: 77690							
Prep Date:	Analysis Date: 5/26/2021	SeqNo: 2757900	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R77690	RunNo: 77690							
Prep Date:	Analysis Date: 5/26/2021	SeqNo: 2757901	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	106	90	110			
Chloride	4.7	0.50	5.000	0	93.7	90	110			
Bromide	2.5	0.10	2.500	0	100	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	92.5	90	110			

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R79018	RunNo: 79018							
Prep Date:	Analysis Date: 6/10/2021	SeqNo: 2772021	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R79018	RunNo: 79018							
Prep Date:	Analysis Date: 6/10/2021	SeqNo: 2772022	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.5	0.50	10.00	0	95.3	90	110			

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R79060	RunNo: 79060							
Prep Date:	Analysis Date: 6/14/2021	SeqNo: 2774970	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2105A94
17-Jun-21

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: LCS	SampType: lcs			TestCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batch ID: R79060			RunNo: 79060						
Prep Date:	Analysis Date: 6/14/2021			SeqNo: 2774971		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	96.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2105A94

17-Jun-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: MB-60261	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: PBW	Batch ID: 60261	RunNo: 77720							
Prep Date: 5/26/2021	Analysis Date: 5/27/2021	SeqNo: 2758706	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0025		0.002500		101	41.7	129			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		65.6	31.8	88.5			

Sample ID: MB-60261	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: PBW	Batch ID: 60261	RunNo: 77720							
Prep Date: 5/26/2021	Analysis Date: 5/27/2021	SeqNo: 2758707	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0025		0.002500		101	41.7	129			
Surr: Tetrachloro-m-xylene	0.0018		0.002500		73.5	31.8	88.5			

Sample ID: LCS-60261	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 60261	RunNo: 77720							
Prep Date: 5/26/2021	Analysis Date: 5/27/2021	SeqNo: 2758708	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0027		0.002500		108	41.7	129			
Surr: Tetrachloro-m-xylene	0.0016		0.002500		64.8	31.8	88.5			

Sample ID: LCS-60261	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 60261	RunNo: 77720							
Prep Date: 5/26/2021	Analysis Date: 5/27/2021	SeqNo: 2758709	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0028		0.002500		110	41.7	129			
Surr: Tetrachloro-m-xylene	0.0018		0.002500		73.1	31.8	88.5			

Sample ID: LCSD-60261	SampType: LCSD	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSS02	Batch ID: 60261	RunNo: 77720							
Prep Date: 5/26/2021	Analysis Date: 5/27/2021	SeqNo: 2758711	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0028		0.002500		113	41.7	129	0	0	
Surr: Tetrachloro-m-xylene	0.0019		0.002500		75.3	31.8	88.5	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2105A94

17-Jun-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: LCSD-60261 SampType: LCSD TestCode: EPA Method 8081: Pesticides TCLP

Client ID: LCSS02 Batch ID: 60261 RunNo: 77720

Prep Date: 5/26/2021 Analysis Date: 5/27/2021 SeqNo: 2758712 Units: %Rec

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0029		0.002500		115	41.7	129	0	0	
Surr: Tetrachloro-m-xylene	0.0020		0.002500		81.3	31.8	88.5	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2105A94

17-Jun-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: 100ng lcs SampType: LCS TestCode: TCLP Volatiles by 8260B

Client ID: LCSW Batch ID: B78786 RunNo: 78786

Prep Date: Analysis Date: 6/1/2021 SeqNo: 2762772 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.020	0.00023	0.02000	0	97.6	70	130			
1,1-Dichloroethene	0.019	0.00013	0.02000	0	97.3	70	130			
Trichloroethene (TCE)	0.021	0.00020	0.02000	0	103	70	130			
Chlorobenzene	0.020	0.00014	0.02000	0	97.9	70	130			
Surr: 1,2-Dichloroethane-d4	0.0098		0.01000		98.5	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		106	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		100	70	130			
Surr: Toluene-d8	0.010		0.01000		101	70	130			

Sample ID: mb SampType: MBLK TestCode: TCLP Volatiles by 8260B

Client ID: PBW Batch ID: B78786 RunNo: 78786

Prep Date: Analysis Date: 6/1/2021 SeqNo: 2762774 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.00023								
1,2-Dichloroethane (EDC)	ND	0.00022								
2-Butanone	ND	0.0011								
Carbon Tetrachloride	ND	0.00018								
Chloroform	ND	0.00013								
1,4-Dichlorobenzene	ND	0.00021								
1,1-Dichloroethene	ND	0.00013								
Tetrachloroethene (PCE)	ND	0.00036								
Trichloroethene (TCE)	ND	0.00020								
Vinyl chloride	ND	0.00020								
Chlorobenzene	ND	0.00014								
Surr: 1,2-Dichloroethane-d4	0.0097		0.01000		97.0	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		106	70	130			
Surr: Dibromofluoromethane	0.0099		0.01000		99.0	70	130			
Surr: Toluene-d8	0.010		0.01000		102	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2105A94
17-Jun-21

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: lcs-1 99.5uS eC SampType: lcs TestCode: SM2510B: Specific Conductance
Client ID: LCSW Batch ID: R78766 RunNo: 78766
Prep Date: Analysis Date: 5/28/2021 SeqNo: 2761402 Units: µmhos/cm

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	99.50	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2105A94

17-Jun-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: MB-60292	SampType: MBLK	TestCode: EPA Method 7470: Mercury							
Client ID: PBW	Batch ID: 60292	RunNo: 77719							
Prep Date: 5/26/2021	Analysis Date: 5/27/2021	SeqNo: 2758623	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LLLCS-60292	SampType: LCSLL	TestCode: EPA Method 7470: Mercury							
Client ID: BatchQC	Batch ID: 60292	RunNo: 77719							
Prep Date: 5/26/2021	Analysis Date: 5/27/2021	SeqNo: 2758624	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00013	0.00020	0.0001500	0	84.9	50	150			J

Sample ID: LCS-60292	SampType: LCS	TestCode: EPA Method 7470: Mercury							
Client ID: LCSW	Batch ID: 60292	RunNo: 77719							
Prep Date: 5/26/2021	Analysis Date: 5/27/2021	SeqNo: 2758625	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	101	85	115			

Sample ID: LCSD-60292	SampType: LCSD	TestCode: EPA Method 7470: Mercury							
Client ID: LCSS02	Batch ID: 60292	RunNo: 77719							
Prep Date: 5/26/2021	Analysis Date: 5/27/2021	SeqNo: 2758626	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.1	85	115	1.65	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2105A94

17-Jun-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: MB-a	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: PBW	Batch ID: A78776	RunNo: 78776
Prep Date:	Analysis Date: 6/1/2021	SeqNo: 2762202 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: LCS-a	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: LCSW	Batch ID: A78776	RunNo: 78776
Prep Date:	Analysis Date: 6/1/2021	SeqNo: 2762204 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.1	80	120			
Magnesium	50	1.0	50.00	0	100	80	120			
Potassium	49	1.0	50.00	0	98.1	80	120			
Sodium	48	1.0	50.00	0	96.3	80	120			

Sample ID: LCSD-a	SampType: LCSD	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: LCSS02	Batch ID: A78776	RunNo: 78776
Prep Date:	Analysis Date: 6/1/2021	SeqNo: 2762205 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	100	80	120	1.06	20	
Magnesium	50	1.0	50.00	0	101	80	120	0.870	20	
Potassium	49	1.0	50.00	0	98.8	80	120	0.719	20	
Sodium	48	1.0	50.00	0	96.4	80	120	0.105	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2105A94

17-Jun-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: MB-60290 SampType: MBLK TestCode: EPA 6010B: Total Recoverable Metals

Client ID: PBW Batch ID: 60290 RunNo: 78776

Prep Date: 5/26/2021 Analysis Date: 6/1/2021 SeqNo: 2762144 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.030								
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.020								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: LCS-60290 SampType: LCS TestCode: EPA 6010B: Total Recoverable Metals

Client ID: LCSW Batch ID: 60290 RunNo: 78776

Prep Date: 5/26/2021 Analysis Date: 6/1/2021 SeqNo: 2762146 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.030	0.5000	0	98.4	80	120			
Barium	0.48	0.0020	0.5000	0	95.4	80	120			
Cadmium	0.48	0.0020	0.5000	0	95.9	80	120			
Chromium	0.46	0.0060	0.5000	0	92.6	80	120			
Lead	0.48	0.020	0.5000	0	95.5	80	120			
Selenium	0.50	0.050	0.5000	0	99.5	80	120			
Silver	0.10	0.0050	0.1000	0	99.5	80	120			

Sample ID: LCSD-60290 SampType: LCSD TestCode: EPA 6010B: Total Recoverable Metals

Client ID: LCSS02 Batch ID: 60290 RunNo: 78776

Prep Date: 5/26/2021 Analysis Date: 6/1/2021 SeqNo: 2762150 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.030	0.5000	0	97.5	80	120	0.908	20	
Barium	0.48	0.0020	0.5000	0	96.4	80	120	1.04	20	
Cadmium	0.48	0.0020	0.5000	0	96.9	80	120	1.04	20	
Chromium	0.47	0.0060	0.5000	0	93.8	80	120	1.33	20	
Lead	0.49	0.020	0.5000	0	97.5	80	120	2.08	20	
Selenium	0.49	0.050	0.5000	0	97.4	80	120	2.17	20	
Silver	0.10	0.0050	0.1000	0	99.9	80	120	0.371	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2105A94
17-Jun-21

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: mb-1 alk	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R78766			RunNo: 78766						
Prep Date:	Analysis Date: 5/28/2021			SeqNo: 2761352		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-1 alk	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R78766			RunNo: 78766						
Prep Date:	Analysis Date: 5/28/2021			SeqNo: 2761353		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	74.12	20.00	80.00	0	92.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2105A94

17-Jun-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: MB-60331	SampType: MBLK			TestCode: SM2540C MOD: Total Dissolved Solids						
Client ID: PBW	Batch ID: 60331			RunNo: 78757						
Prep Date: 5/28/2021	Analysis Date: 5/29/2021			SeqNo: 2760960		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: LCS-60331	SampType: LCS			TestCode: SM2540C MOD: Total Dissolved Solids						
Client ID: LCSW	Batch ID: 60331			RunNo: 78757						
Prep Date: 5/28/2021	Analysis Date: 5/29/2021			SeqNo: 2760961		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: Navajo Refining | Work Order Number: 2105A94 | RcptNo: 1

Received By: Juan Rojas 5/26/2021 7:30:00 AM

Completed By: Cheyenne Cason 5/26/2021 8:48:39 AM

Reviewed By: ~~SPA~~ SPA 5.26.21 JR 5/26/21

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☑	No ☐	NA ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 3 1 (<2 or >12 unless noted)

Adjusted? Yes

Checked by: SPA 5.26.21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: ____ Date: ____

By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: ____

Client Instructions: ____

16. Additional remarks: ADDed (0.4 / 0.5) ml HNO_3 to (001D / 001E) For 5PA 5.26.21 ~~ph~~ pH<2, metals analysis.

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.5	Good				

SPA 5.26.21

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

Standard X Rush

Project Name:

Quarterly WDW-1, 2, 3 & 4 Inj Well

Project #: P.O. # 251841

Project Manager:

Randy Dade / Scott Denton

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.6-0.1=1.5

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 2105A94	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
5/24/21	13:30	Liquid	WDW-1, 2, 3 & 4 Effluent	3	Neat/H2SO4	001	X						X	
5/24/21	13:30	Liquid	WDW-1, 2, 3 & 4 Effluent	1	HNO3						X	X		
5/24/21	13:30	Liquid	WDW-1, 2, 3 & 4 Effluent	3	HCL			X						
5/24/21	13:30	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat				X					
5/24/21	13:30	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat					X				
5/24/21	13:30	Liquid	WDW-1, 2, 3 & 4 Effluent	1	Neat									x

Date	Time	Relinquished by	Received by	Date	Time
5-25-21	9:00	Brady Hubbard		5/25/21	900
5/25/21	1900		Jennifer	5/26/21	7:13

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH 7.14, 40.2C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HollyFrontier Navajo Refining LLC
501 East Main, Artesia, New Mexico 88210
Tel: 575-748-3311
hollyfrontier.com

November 1, 2021

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau (Albuquerque Office)
5200 Oakland Avenue, NE
Albuquerque, New Mexico 87113

RE: 2022 1st Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4
HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the First Quarter 2022 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing the volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the First Quarter, the average injection pressure for each well was 1076 psig for WDW-1, 1007 psig for WDW-2, 950 psig for WDW-3 and 154 psig for WDW-4.The average flows were 270 gpm for WDW-1, 85 gpm for WDW-2, 137 gpm for WDW-3 and 197 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from July 1, 2021 to September 30, 2021. Navajo has disposed a total of 2,223,441 barrels of fluid into the four wells during the First Quarter of 2022. The volume per well is:

- 851,555 barrels into WDW-1; 30-015-27592
- 269,109 barrels into WDW-2; 30-015-20894
- 432,308 barrels into WDW-3; 30-015-26575
- 670,469 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully,

Kawika Tupou
Environmental Manager
HollyFrontier Navajo Refining LLC

HollyFrontier Navajo Refining LLC
501 East Main, Artesia, New Mexico 88210
Tel: 575-748-3311
hollyfrontier.com

November 1, 2021

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau (Albuquerque Office)
5200 Oakland Avenue, NE
Albuquerque, New Mexico 87113

RE: 2022 1st Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4
HollyFrontier Navajo Refining LLC

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Respectfully,

Kawika Tupou
Environmental Manager
HollyFrontier Navajo Refining LLC

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2022 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1														48,515,116
Jul-21	1,120	1,182	661	262	345	160	88	160	31	8,982	11,829	5,486	**278,469**	48,793,585
Aug-21	1,129	1,368	733	275	343	121	82	166	16	9,429	11,760	7,269	**292,286**	49,085,871
Sep-21	980	1,276	489	273	333	175	358	1,090	0	9,360	11,417	6,000	**280,800**	49,366,671
Monthly Avg	1,076			270								**TOTAL**	851,555	
30-015-20894 WDW-2														29,715,248
Jul-21	974	1,110	625	84	100	46	902	1,313	353	2,880	3,429	1,577	**89,280**	29,804,528
Aug-21	1,010	1,231	831	85	113	62	1,096	1,439	858	2,914	3,874	2,126	**90,343**	29,894,871
Sep-21	1,037	1,294	930	87	115	67	797	1,026	567	2,983	3,943	2,292	**89,486**	29,984,357
Monthly Avg	1,007			85								**TOTAL**	269,109	
30-015-26575 WDW-3														21,674,515
Jul-21	942	1,028	714	139	159	81	593	774	304	4,766	5,451	2,777	**147,737**	21,822,252
Aug-21	960	1,054	586	140	162	67	689	800	473	4,800	5,554	2,297	**148,800**	21,971,052
Sep-21	948	1,030	763	132	152	87	508	613	397	4,526	5,211	2,983	**135,771**	22,106,823
Monthly Avg	950			137								**TOTAL**	432,308	
30-015-44677 WDW-4														6,900,824
Jul-21	142	159	118	176	218	131	173	249	105	6,034	7,474	4,491	**187,063**	7,087,887
Aug-21	152	190	134	191	277	144	141	227	78	6,549	9,497	4,937	**203,006**	7,290,893
Sep-21	167	192	140	224	279	133	141	206	57	7,680	9,566	4,560	**280,400**	7,571,293
Monthly Avg	154			197								**TOTAL**	670,469	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	851,555	48,515,116	49,366,671
WDW2	269,109	29,715,248	29,984,357
WDW3	432,308	21,674,515	22,106,823
WDW4	670,469	6,900,824	7,571,293
	2,223,441		109,029,144

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

October 22, 2021

Randy Dade
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, 3, & 4 Inj Well OrderNo.: 2109H43

Dear Randy Dade:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/30/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2109H43**
Date Reported: **10/22/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, 3, & 4 Inj Well
Lab ID: 2109H43-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 9/29/2021 8:45:00 AM
Received Date: 9/30/2021 7:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LRN**	
Fluoride	67	0.80	2.0	*	mg/L	20	9/30/2021 5:30:59 PM	R81712
Chloride	510	25	50	*	mg/L	100	10/13/2021 5:43:44 PM	R82036
Nitrogen, Nitrite (As N)	0.20	0.027	0.50	J	mg/L	5	9/30/2021 5:18:07 PM	R81712
Bromide	0.81	0.25	0.50		mg/L	5	9/30/2021 5:18:07 PM	R81712
Nitrogen, Nitrate (As N)	0.90	0.050	0.50		mg/L	5	9/30/2021 5:18:07 PM	R81712
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	9/30/2021 5:18:07 PM	R81712
Sulfate	2300	25	50	*	mg/L	100	10/13/2021 5:43:44 PM	R82036
EPA METHOD 7470A: MERCURY							Analyst: **ags**	
Mercury	ND	0.00012	0.020		mg/L	1	10/15/2021 1:40:01 PM	63313
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **JLF**	
Calcium	340	0.29	5.0		mg/L	5	10/14/2021 6:03:26 PM	A82085
Magnesium	110	0.17	5.0		mg/L	5	10/14/2021 6:03:26 PM	A82085
Potassium	320	1.0	5.0		mg/L	5	10/14/2021 6:03:26 PM	A82085
Sodium	780	21	50		mg/L	50	10/14/2021 6:13:11 PM	A82085
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: **JLF**	
Arsenic	ND	0.022	5.0		mg/L	1	10/14/2021 4:02:48 PM	63056
Barium	0.026	0.0011	100	J	mg/L	1	10/14/2021 4:02:48 PM	63056
Cadmium	ND	0.0012	1.0		mg/L	1	10/14/2021 4:02:48 PM	63056
Chromium	ND	0.0017	5.0		mg/L	1	10/14/2021 4:02:48 PM	63056
Lead	ND	0.013	5.0		mg/L	1	10/14/2021 4:02:48 PM	63056
Selenium	0.075	0.025	1.0	J	mg/L	1	10/13/2021 4:59:31 PM	63056
Silver	0.0066	0.0013	5.0	J	mg/L	1	10/19/2021 3:21:55 PM	63325
TCLP VOLATILES BY 8260B							Analyst: **RAA**	
Benzene	ND	0.00023	0.50		mg/L	200	10/8/2021 1:50:47 AM	T81893
1,2-Dichloroethane (EDC)	ND	0.00025	0.50		mg/L	200	10/8/2021 1:50:47 AM	T81893
2-Butanone	ND	0.0020	200		mg/L	200	10/8/2021 1:50:47 AM	T81893
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	10/8/2021 1:50:47 AM	T81893
Chloroform	ND	0.00013	6.0		mg/L	200	10/8/2021 1:50:47 AM	T81893
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	10/8/2021 1:50:47 AM	T81893
1,1-Dichloroethene	ND	0.00020	0.70		mg/L	200	10/8/2021 1:50:47 AM	T81893
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	10/8/2021 1:50:47 AM	T81893
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	10/8/2021 1:50:47 AM	T81893
Vinyl chloride	ND	0.00032	0.20		mg/L	200	10/8/2021 1:50:47 AM	T81893
Chlorobenzene	ND	0.00016	100		mg/L	200	10/8/2021 1:50:47 AM	T81893
Surr: 1,2-Dichloroethane-d4	91.4	0	70-130		%Rec	200	10/8/2021 1:50:47 AM	T81893
Surr: 4-Bromofluorobenzene	99.0	0	70-130		%Rec	200	10/8/2021 1:50:47 AM	T81893
Surr: Dibromofluoromethane	98.7	0	70-130		%Rec	200	10/8/2021 1:50:47 AM	T81893

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2109H43**
Date Reported: **10/22/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, 3, & 4 Inj Well
Lab ID: 2109H43-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 9/29/2021 8:45:00 AM
Received Date: 9/30/2021 7:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
TCLP VOLATILES BY 8260B							Analyst: **RAA**	
Surr: Toluene-d8	98.0	0	70-130		%Rec	200	10/8/2021 1:50:47 AM	T81893
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **LRN**	
Conductivity	7100	10	10		µmhos/c	1	10/10/2021 12:51:11 P	R81934
SM2320B: ALKALINITY							Analyst: **LRN**	
Bicarbonate (As CaCO3)	404.3	20.00	20.00		mg/L Ca	1	10/6/2021 7:52:25 PM	R81861
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	10/6/2021 7:52:25 PM	R81861
Total Alkalinity (as CaCO3)	404.3	20.00	20.00		mg/L Ca	1	10/6/2021 7:52:25 PM	R81861
SPECIFIC GRAVITY							Analyst: **CAS**	
Specific Gravity	1.005	0	0			1	10/12/2021 4:09:00 PM	R81985
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	4910	40.0	40.0	*D	mg/L	1	10/7/2021 12:55:00 PM	63043

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

ANALYTICAL REPORT

October 12, 2021

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1412711
Samples Received:	10/01/2021
Project Number:	
Description:	

Report To: Andy Freeman
4901 Hawkins NE
Albuquerque, NM 87109

Entire Report Reviewed By: John V Hawkins

John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

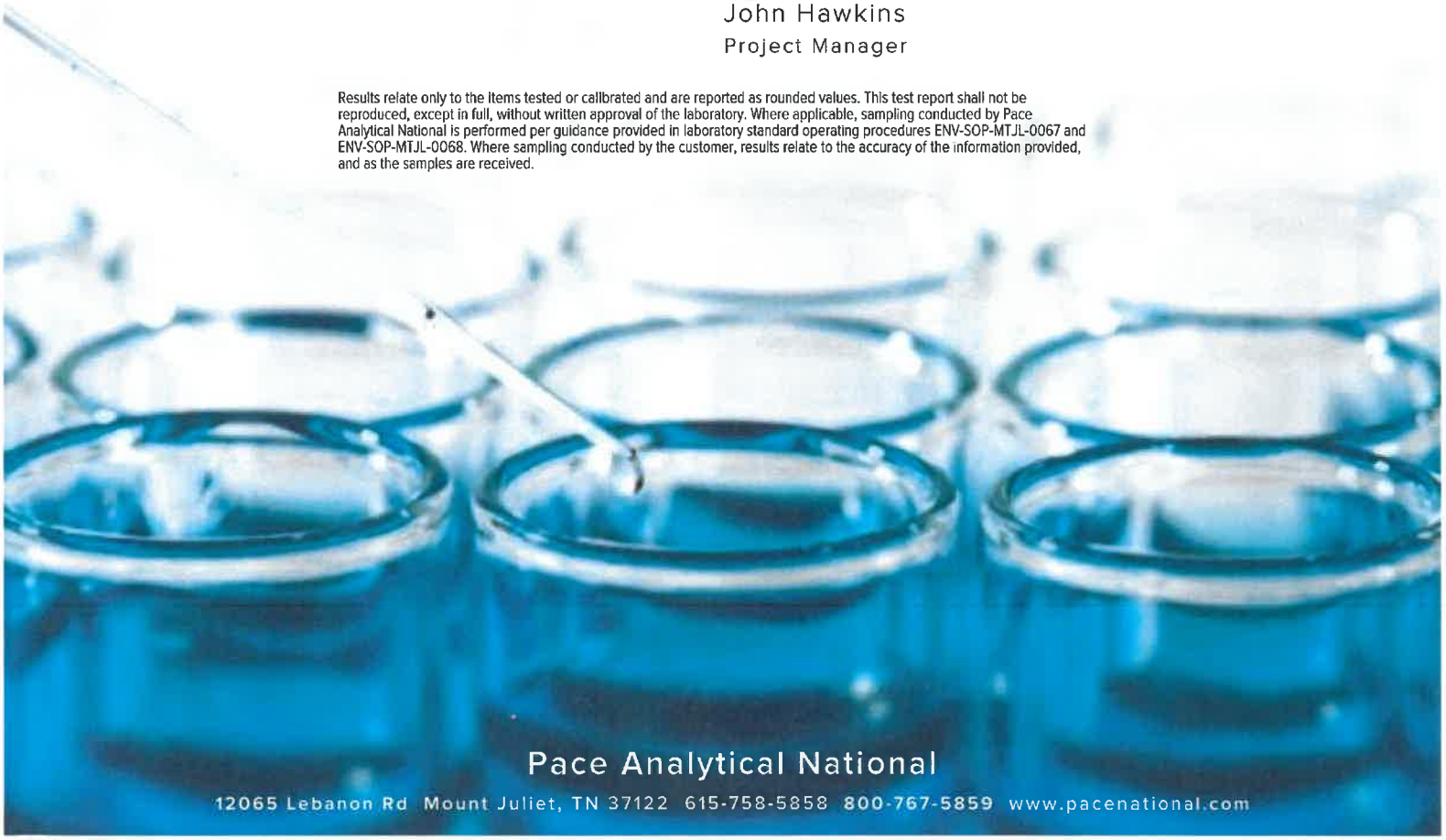

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TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
2109H43-001F WDW-1,2,3 & 4 EFFLUENT L1412711-01	5
2109H43-001G WDW-1,2,3 & 4 EFFLUENT L1412711-02	6
2109H43-001H WDW-1,2,3 & 4 EFFLUENT L1412711-03	7
Qc: Quality Control Summary	8
Wet Chemistry by Method 2580	8
Wet Chemistry by Method 4500 CN E-2011	10
Wet Chemistry by Method 4500 S2 D-2011	11
Gl: Glossary of Terms	12
Al: Accreditations & Locations	13
Sc: Sample Chain of Custody	14

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SAMPLE SUMMARY

2109H43-001F WDW-1,2,3 & 4 EFFLUENT L1412711-01 WW

Collected by | Collected date/time 09/29/21 08:45 | Received date/time 10/01/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500 S2 D-2011	WG1752511	1	10/06/21 17:15	10/06/21 17:15	BMD	Mt. Juliet, TN

2109H43-001G WDW-1,2,3 & 4 EFFLUENT L1412711-02 GW

Collected by | Collected date/time 09/29/21 08:45 | Received date/time 10/01/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1750658	1	10/11/21 18:38	10/11/21 18:38	AMH	Mt. Juliet, TN

2109H43-001H WDW-1,2,3 & 4 EFFLUENT L1412711-03 WW

Collected by | Collected date/time 09/29/21 08:45 | Received date/time 10/01/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500 CN E-2011	WG1751873	1	10/06/21 20:02	10/07/21 18:10	KEG	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

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CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 4500 CN E-2011.
All Reactive Sulfide results reported in the attached report were determined as totals using method 4500 S2 D-2011.

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2109H43-001F WDW-1,2,3 & 4 EFFLUENT

Collected date/time: 09/29/21 08:45

SAMPLE RESULTS - 01

L1412711

Wet Chemistry by Method 4500 S2 D-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	0.121		0.0500	1	10/06/2021 17:15	WG1752511

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2109H43-001G WDW-1,2,3 & 4 EFFLUENT

Collected date/time: 09/29/21 08:45

SAMPLE RESULTS - 02

L1412711

Wet Chemistry by Method 2580

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	158	T8	1	10/11/2021 18:38	WG1750658

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2109H43-001H WDW-1,2,3 & 4 EFFLUENT

Collected date/time: 09/29/21 08:45

SAMPLE RESULTS - 03

L1412711

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0293	J6	0.00500	1	10/07/2021 18:10	WG1751873

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QUALITY CONTROL SUMMARY

L1412711-02

L1411211-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1411211-02 10/11/21 18:38 • (DUP) R3715203-3 10/11/21 18:38

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	184	181	1	2.90		20

L1411211-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1411211-06 10/11/21 18:38 • (DUP) R3715203-4 10/11/21 18:38

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	195	193	1	2.20		20

L1411610-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1411610-01 10/11/21 18:38 • (DUP) R3715203-5 10/11/21 18:38

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	349	350	1	0.900		20

L1411610-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1411610-02 10/11/21 18:38 • (DUP) R3715203-6 10/11/21 18:38

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	335	338	1	3.50		20

L1411610-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1411610-03 10/11/21 18:38 • (DUP) R3715203-7 10/11/21 18:38

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	4.20	6.50	1	2.30		20

L1412711-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1412711-02 10/11/21 18:38 • (DUP) R3715203-8 10/11/21 18:38

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	158	156	1	2.50		20

Page 128 of 5828

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QUALITY CONTROL SUMMARY

L1412711-02

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3715203-1 10/11/21 18:38 • (LCSD) R3715203-2 10/11/21 18:38

Analyte	Spike Amount mV	LCS Result mV	LCSD Result mV	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	Diff mV	Diff Limits mV
ORP	223	223	224	100	101	86.0-105			1.30	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Page 129 of 5828

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QUALITY CONTROL SUMMARY

L1412711-03

Method Blank (MB)

(MB) R3713817-1 10/07/21 17:37

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.00180	0.00500

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3713817-3 10/07/21 18:03

Analyte	Original Result	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide		ND	1	0.000		20

L1412608-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1412608-01 10/07/21 18:08 • (DUP) R3713817-6 10/07/21 18:09

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	200	P1	20

Laboratory Control Sample (LCS)

(LCS) R3713817-2 10/07/21 17:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.0989	98.9	87.1-120	

L1412592-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1412592-01 10/07/21 18:04 • (MS) R3713817-4 10/07/21 18:05 • (MSD) R3713817-5 10/07/21 18:06

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.0948	0.0962	92.8	94.2	1	90.0-110			1.47	20

L1412711-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1412711-03 10/07/21 18:10 • (MS) R3713817-7 10/07/21 18:11 • (MSD) R3713817-8 10/07/21 18:14

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	0.0293	0.0985	0.104	69.2	74.7	1	90.0-110	J6	J6	5.43	20

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WG1752511

Wet Chemistry by Method 4500 S2 D-2011

QUALITY CONTROL SUMMARY

L1412711-01

Method Blank (MB)

(MB) R3713287-1 10/06/21 17:12

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.0250	0.0500

Laboratory Control Sample (LCS)

(LCS) R3713287-2 10/06/21 17:13

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.521	104	85.0-115	

Page 131 of 5828

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.

Released to Imaging: 7/12/2024 10:49:45 AM

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Released to Imaging: 7/12/2024 10:49:45 AM

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Received by OCD: 5/16/2022 2:12:41 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: clients.hallenvironmental.com

J157

SUB CONTRACTOR: Pace TN	COMPANY: PACE TN	PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Mt. Juliet, TN 37122			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2109H43-001F	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	9/29/2021 8:45:00 AM	1	RCI, ORP L1412711-01
2	2109H43-001G	WDW-1,2,3 & 4 Effluent	500PLNAOH ZnAc	Aqueous	9/29/2021 8:45:00 AM	1	RCI, ORP 02
3	2109H43-001H	WDW-1,2,3 & 4 Effluent	500PL-NaOH	Aqueous	9/29/2021 8:45:00 AM	1	RCI, ORP 03

Sample Receipt Checklist

COC Seal Present/Intact:	Y N	If Applicable	
COC Signed/Accurate:	Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	Y N	Pres.Correct/Check:	Y N
Correct bottles used:	Y N		
Sufficient volume sent:	Y N		
RAD Screen <0.5 mR/hr:	Y N		

CHT=3
TB=0

A360
0.3-1=0.2
cool

5300 4295 6724
~~5300 4295~~ 6732

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: Sca	Date: 9/30/2021	Time: 10:59 AM	Received By: T. Robertson	Date: 10/1/21	Time: 900
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☑ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool ? _____

Comments: _____

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109H43**

22-Oct-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R81712**	RunNo: **81712**
Prep Date:	Analysis Date: **9/30/2021**	SeqNo: **2888826** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R81712**	RunNo: **81712**
Prep Date:	Analysis Date: **9/30/2021**	SeqNo: **2888827** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Nitrogen, Nitrite (As N)	0.99	0.10	1.000	0	99.3	90	110			
Bromide	2.5	0.10	2.500	0	100	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	92.1	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R82036**	RunNo: **82036**
Prep Date:	Analysis Date: **10/13/2021**	SeqNo: **2905216** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R82036**	RunNo: **82036**
Prep Date:	Analysis Date: **10/13/2021**	SeqNo: **2905217** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.0	90	110			
Sulfate	9.9	0.50	10.00	0	98.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109H43**

22-Oct-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T81893**	RunNo: **81893**
Prep Date:	Analysis Date: **10/7/2021**	SeqNo: **2897891** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.019	0.00023	0.02000	0	95.9	70	130			
1,1-Dichloroethene	0.018	0.00020	0.02000	0	91.1	70	130			
Trichloroethene (TCE)	0.018	0.00020	0.02000	0	88.3	70	130			
Chlorobenzene	0.019	0.00016	0.02000	0	94.3	70	130			
Surr: 1,2-Dichloroethane-d4	0.0096		0.01000		95.7	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		105	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		99.5	70	130			
Surr: Toluene-d8	0.010		0.01000		99.8	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T81893**	RunNo: **81893**
Prep Date:	Analysis Date: **10/7/2021**	SeqNo: **2897893** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0099		0.01000		99.3	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		103	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		99.8	70	130			
Surr: Toluene-d8	0.010		0.01000		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109H43**

22-Oct-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: **lcs-1 98.7uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R81934**	RunNo: **81934**
Prep Date:	Analysis Date: **10/10/2021**	SeqNo: **2900042** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	10	98.70	0	103	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109H43**

22-Oct-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: **MB-63313**	SampType: **MBLK**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **PBW**	Batch ID: **63313**	RunNo: **82102**							
Prep Date: **10/14/2021**	Analysis Date: **10/15/2021**	SeqNo: **2907933**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LLLCS-63313**	SampType: **LCSLL**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **BatchQC**	Batch ID: **63313**	RunNo: **82102**							
Prep Date: **10/14/2021**	Analysis Date: **10/15/2021**	SeqNo: **2907934**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.000079	0.00020	0.0001500	0	52.7	50	150			J

Sample ID: **LCS-63313**	SampType: **LCS**	TestCode: **EPA Method 7470A: Mercury**							
Client ID: **LCSW**	Batch ID: **63313**	RunNo: **82102**							
Prep Date: **10/14/2021**	Analysis Date: **10/15/2021**	SeqNo: **2907935**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.1	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109H43**

22-Oct-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A82085**	RunNo: **82085**
Prep Date:	Analysis Date: **10/14/2021**	SeqNo: **2907425** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A82085**	RunNo: **82085**
Prep Date:	Analysis Date: **10/14/2021**	SeqNo: **2907427** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	100	80	120			
Magnesium	50	1.0	50.00	0	99.8	80	120			
Potassium	49	1.0	50.00	0	97.5	80	120			
Sodium	48	1.0	50.00	0	96.6	80	120			

Sample ID: **2109H43-001DMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **A82085**	RunNo: **82085**
Prep Date:	Analysis Date: **10/14/2021**	SeqNo: **2907447** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	580	5.0	250.0	341.1	95.7	75	125			E
Magnesium	360	5.0	250.0	114.0	99.1	75	125			
Potassium	560	5.0	250.0	316.0	98.7	75	125			E

Sample ID: **2109H43-001DMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **A82085**	RunNo: **82085**
Prep Date:	Analysis Date: **10/14/2021**	SeqNo: **2907448** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	580	5.0	250.0	341.1	96.5	75	125	0.341	20	E
Magnesium	360	5.0	250.0	114.0	100	75	125	0.722	20	
Potassium	570	5.0	250.0	316.0	101	75	125	1.01	20	E

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109H43**

22-Oct-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: **MB-63056**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **63056**	RunNo: **82038**
Prep Date: **10/5/2021**	Analysis Date: **10/13/2021**	SeqNo: **2905325** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.030								
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								

Sample ID: **LCS-63056**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **63056**	RunNo: **82038**
Prep Date: **10/5/2021**	Analysis Date: **10/13/2021**	SeqNo: **2905327** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.54	0.030	0.5000	0	107	80	120			
Barium	0.51	0.0020	0.5000	0	102	80	120			
Cadmium	0.48	0.0020	0.5000	0	95.9	80	120			
Chromium	0.51	0.0060	0.5000	0	102	80	120			
Selenium	0.51	0.050	0.5000	0	101	80	120			

Sample ID: **2109H43-001EMS**	SampType: **MS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **63056**	RunNo: **82038**
Prep Date: **10/5/2021**	Analysis Date: **10/13/2021**	SeqNo: **2905341** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.46	0.050	0.5000	0.07475	76.5	75	125			

Sample ID: **2109H43-001EMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **WDW-1,2,3 & 4 Efflu**	Batch ID: **63056**	RunNo: **82038**
Prep Date: **10/5/2021**	Analysis Date: **10/13/2021**	SeqNo: **2905342** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.46	0.050	0.5000	0.07475	76.2	75	125	0.285	20	

Sample ID: **MB-63056**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **63056**	RunNo: **82085**
Prep Date: **10/5/2021**	Analysis Date: **10/14/2021**	SeqNo: **2907365** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.020								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109H43**

22-Oct-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: **LCS-63056** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **63056** RunNo: **82085**
Prep Date: **10/5/2021** Analysis Date: **10/14/2021** SeqNo: **2907367** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.47	0.020	0.5000	0	94.5	80	120			

Sample ID: **2109H43-001EMS** SampType: **MS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **WDW-1,2,3 & 4 Efflu** Batch ID: **63056** RunNo: **82085**
Prep Date: **10/5/2021** Analysis Date: **10/14/2021** SeqNo: **2907378** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.39	0.0020	0.5000	0.02615	72.8	75	125			S
Cadmium	0.36	0.0020	0.5000	0	72.5	75	125			S
Chromium	0.35	0.0060	0.5000	0	69.9	75	125			S
Lead	0.36	0.020	0.5000	0	72.1	75	125			S

Sample ID: **2109H43-001EMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **WDW-1,2,3 & 4 Efflu** Batch ID: **63056** RunNo: **82085**
Prep Date: **10/5/2021** Analysis Date: **10/14/2021** SeqNo: **2907379** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.39	0.0020	0.5000	0.02615	72.4	75	125	0.437	20	S
Cadmium	0.36	0.0020	0.5000	0	72.8	75	125	0.423	20	S
Chromium	0.35	0.0060	0.5000	0	70.1	75	125	0.246	20	S
Lead	0.37	0.020	0.5000	0	73.5	75	125	1.92	20	S

Sample ID: **MB-63325** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **63325** RunNo: **82212**
Prep Date: **10/14/2021** Analysis Date: **10/19/2021** SeqNo: **2913501** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.0050								

Sample ID: **LCS-63325** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **63325** RunNo: **82212**
Prep Date: **10/14/2021** Analysis Date: **10/19/2021** SeqNo: **2913503** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.094	0.0050	0.1000	0	94.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109H43**

22-Oct-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R81861**	RunNo: **81861**							
Prep Date:	Analysis Date: **10/6/2021**	SeqNo: **2896168**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R81861**	RunNo: **81861**							
Prep Date:	Analysis Date: **10/6/2021**	SeqNo: **2896169**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	74.60	20.00	80.00	0	93.3	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R81861**	RunNo: **81861**							
Prep Date:	Analysis Date: **10/6/2021**	SeqNo: **2896191**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R81861**	RunNo: **81861**							
Prep Date:	Analysis Date: **10/6/2021**	SeqNo: **2896192**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	74.92	20.00	80.00	0	93.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109H43**

22-Oct-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: **2109H43-001CDUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,3 & 4 Efflu** Batch ID: **R81985** RunNo: **81985**

Prep Date: Analysis Date: **10/12/2021** SeqNo: **2902683** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.007	0						0.159	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109H43**

22-Oct-21

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, 3, & 4 Inj Well

Sample ID: **MB-63043**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **63043**	RunNo: **81865**
Prep Date: **10/5/2021**	Analysis Date: **10/7/2021**	SeqNo: **2896382** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-63043**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **63043**	RunNo: **81865**
Prep Date: **10/5/2021**	Analysis Date: **10/7/2021**	SeqNo: **2896383** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: Navajo Refining Work Order Number: 2109H43 RcptNo: 1

Received By: Cheyenne Cason 9/30/2021 7:40:00 AM

Completed By: Sean Livingston 9/30/2021 10:56:39 AM

Reviewed By: JA 9/30/21

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☑ NA ☐
   Samples not frozen.
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐ KPA 9/30/21
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 3 3 (<2 or >12 unless noted)
Adjusted? yes
Checked by: KPA 9/30/21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks: Added 0.5 ml to sample 001E of HNO3. Zinc Acetate/sodium Did not pH. - KPA 9/30/21

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	-0.6	Good				

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
Standard ✗ Rush

Project Name:
Quarterly WDW-1, 2, 3 & 4 Inj Well

Project #: P.O. # 251841

Project Manager:
Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☒ Yes ☐ No

Sample Temperature: -0.6 - 0 = -0.6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 2109443	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
9/29/21	8:45	Liquid	WDW-1, 2, 3 & 4 Effluent	3	Neat/H2SO4	001	X						X	
9/29/21	8:45	Liquid	WDW-1, 2, 3 & 4 Effluent	1	HNO3						X	X		
9/29/21	8:45	Liquid	WDW-1, 2, 3 & 4 Effluent	3	HCL			X						
9/29/21	8:45	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat				X					
9/29/21	8:45	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat					X				
9/29/21	8:45	Liquid	WDW-1, 2, 3 & 4 Effluent	1	Neat									x

Date:	Time:	Relinquished by:	Received by:	Date	Time
9-29-21	1:30	Brady Hubbard	[illegible]	9/30/21	0740
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, and Randy Dade.
Sample not frozen cnc 9/30/21
pH 7.06, 38.0C
No Bottles for 8270/8081 JC 9-30-21

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

UICI – 8 - 1

Quarterly Injection Reports (2)

2020

From: Dade, Randy
To: Chavez, Carl J, EMNRD; Denton, Scott; Combs, Robert
Cc: Dade, Randy
Subject: [EXT] 2020 1st Quarter Injection Report July to September
Date: Tuesday, November 3, 2020 1:59:36 PM
Attachments: 1Q Jul - Sept INJECTION 2020.xlsx
Rpt_2009F63_Quarterly_WDW-1,_2,_&_3__Inj_Well_Final_v1.pdf
2020 1st Quarter Injection Report Cover Letter.pdf

Carl,

Please find attached the 2020 First Quarter Cover Letter and Injection report for HollyFrontier. This report covers the period of July 1, 2020 through September 30, 2020. Also attached is the Well Injection Analytical Report. If you have any comments or questions, please call.

Thanks again for your help, Randy

Lewis R. (Randy) Dade
Environmental Specialist
The HollyFrontier Companies
501 E. Main / P.O. Box 159
Artesia, NM 88210 / 88211-0159
575-746-5281 (o)
575-703-4735 (c)
575-746-5451 (f)
Email: Lewis.Dade@hollyfrontier.com

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HOLLYFRONTIER.

November 03, 2020

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau (Albuquerque Office)
5200 Oakland Avenue, NE
Albuquerque, New Mexico 87113

RE: 2020 1st Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4
HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the first quarter 2020 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing the volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for each well was 1109 psig for WDW-1, 1054 psig for WDW-2, 966 psig for WDW-3 and 106 psig for WDW-4.The average flows were 131 gpm for WDW-1, 62 gpm for WDW-2, 86 gpm for WDW-3 and 166 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from July 1, 2020 to September 30, 2020. Navajo has disposed a total of 1,405,473 barrels of fluid into the four wells during the first quarter of 2020. The volume per well is:

- 412,936 barrels into WDW-1; 30-015-27592
- 195,498 barrels into WDW-2; 30-015-20894
- 271,920 barrels into WDW-3; 30-015-26575
- 525,119 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Released to Imaging: 7/12/2024 10:49:45 AM

2020 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												45,933,781
Jul-20	1,205	123	133	103	461	660	329	4,217	4,560	3,531	**130,731**	46,064,512
Aug-20	1,031	131	150	96	266	397	104	4,491	5,143	3,291	**139,234**	46,203,746
Sep-20	1,092	139	163	125	202	343	119	4,766	5,589	4,286	**142,971**	46,346,717
Monthly Avg	1,109	131								**TOTAL**	412,936	
30-015-20894 WDW-2												28,792,996
Jul-20	1,069	59	85	32	725	1,166	458	2,023	2,914	1,097	**62,709**	28,855,705
Aug-20	1,056	63	78	49	488	868	191	2,160	2,674	1,680	**66,960**	28,922,665
Sep-20	1,037	64	77	54	232	375	130	2,194	2,640	1,851	**65,829**	28,988,494
Monthly Avg	1,054	62								**TOTAL**	195,498	
30-015-26575 WDW-3												20,521,419
Jul-20	971	76	97	15	744	949	582	2,606	3,326	514	**80,777**	20,602,196
Aug-20	940	85	122	51	541	867	316	2,914	4,183	1,749	**90,343**	20,692,539
Sep-20	987	98	142	55	371	520	240	3,360	4,869	1,886	**100,800**	20,793,339
Monthly Avg	966	86								**TOTAL**	271,920	
30-015-44677 WDW-4												4,617,362
Jul-20	110	179	225	115	178	262	99	6,137	7,714	3,121	**190,251**	4,807,613
Aug-20	109	167	230	84	184	249	66	5,726	7,886	2,880	**177,497**	4,985,110
Sep-20	99	153	213	0	151	224	75	5,246	7,269	0	**157,371**	5,142,481
Monthly Avg	106	166								**TOTAL**	525,119	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	412,936	45,933,781	46,346,717
WDW2	195,498	28,792,996	28,988,494
WDW3	271,920	20,521,419	20,793,339
WDW4	525,119	4,617,362	5,142,481

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

October 19, 2020

Robert Combs

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX:

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 2009F63

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 9/25/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2009F63**
Date Reported: **10/19/2020**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 2009F63-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,3 & 4 Effluent
Collection Date: 9/24/2020 7:05:00 AM
Received Date: 9/25/2020 9:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **JME**	
Chlordane	ND	0.00050	0.030		mg/L	1	10/14/2020 1:45:21 PM	55595
Surr: Decachlorobiphenyl	57.3	0	38.2-102		%Rec	1	10/14/2020 1:45:21 PM	55595
Surr: Tetrachloro-m-xylene	52.6	0	32.3-92.4		%Rec	1	10/14/2020 1:45:21 PM	55595
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	28	0.87	2.0	*	mg/L	20	9/25/2020 4:25:04 PM	R72192
Chloride	860	25	50	*	mg/L	100	10/9/2020 6:35:44 PM	A72576
Nitrogen, Nitrite (As N)	0.26	0.070	0.50	J	mg/L	5	9/25/2020 3:47:51 PM	R72192
Bromide	1.3	0.25	0.50		mg/L	5	9/25/2020 3:47:51 PM	R72192
Nitrogen, Nitrate (As N)	0.79	0.10	0.50		mg/L	5	9/25/2020 3:47:51 PM	R72192
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	9/25/2020 3:47:51 PM	R72192
Sulfate	2400	25	50	*	mg/L	100	10/9/2020 6:35:44 PM	A72576
EPA METHOD 7470: MERCURY							Analyst: **VP**	
Mercury	ND	0.00012	0.00020		mg/L	1	10/5/2020 6:14:41 PM	55637
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **pmf**	
Calcium	390	0.46	10		mg/L	10	9/29/2020 5:27:12 AM	A72243
Magnesium	130	0.097	5.0		mg/L	5	9/29/2020 5:20:50 AM	A72243
Potassium	360	2.1	10		mg/L	10	9/29/2020 5:27:12 AM	A72243
Sodium	1000	5.3	20		mg/L	20	9/28/2020 5:36:49 AM	A72203
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: **pmf**	
Arsenic	0.029	0.022	5.0	J	mg/L	1	10/2/2020 3:50:44 AM	55452
Barium	0.042	0.0011	100	J	mg/L	1	10/2/2020 3:50:44 AM	55452
Cadmium	ND	0.00090	1.0		mg/L	1	10/2/2020 3:50:44 AM	55452
Chromium	ND	0.0014	5.0		mg/L	1	10/2/2020 3:50:44 AM	55452
Lead	ND	0.013	5.0		mg/L	1	10/2/2020 5:22:03 AM	55452
Selenium	0.027	0.021	1.0	J	mg/L	1	10/7/2020 2:56:29 PM	55452
Silver	0.0038	0.0013	5.0	J	mg/L	1	10/2/2020 3:50:44 AM	55452
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.0033	200		mg/L	1	10/2/2020 1:03:39 AM	55549
3+4-Methylphenol	ND	0.0042	200		mg/L	1	10/2/2020 1:03:39 AM	55549
2,4-Dinitrotoluene	ND	0.0045	0.13		mg/L	1	10/2/2020 1:03:39 AM	55549
Hexachlorobenzene	ND	0.0033	0.13		mg/L	1	10/2/2020 1:03:39 AM	55549
Hexachlorobutadiene	ND	0.018	0.50		mg/L	1	10/2/2020 1:03:39 AM	55549
Hexachloroethane	ND	0.0038	3.0		mg/L	1	10/2/2020 1:03:39 AM	55549
Nitrobenzene	ND	0.0035	2.0		mg/L	1	10/2/2020 1:03:39 AM	55549
Pentachlorophenol	ND	0.0077	100		mg/L	1	10/2/2020 1:03:39 AM	55549
Pyridine	ND	0.0047	5.0		mg/L	1	10/2/2020 1:03:39 AM	55549
2,4,5-Trichlorophenol	ND	0.0038	400		mg/L	1	10/2/2020 1:03:39 AM	55549

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2009F63**
Date Reported: **10/19/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,3 & 4 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 9/24/2020 7:05:00 AM
Lab ID: 2009F63-001 **Matrix:** AQUEOUS **Received Date:** 9/25/2020 9:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2,4,6-Trichlorophenol	ND	0.0036	2.0		mg/L	1	10/2/2020 1:03:39 AM	55549
Cresols, Total	ND	0.0063	200		mg/L	1	10/2/2020 1:03:39 AM	55549
Surr: 2-Fluorophenol	52.3	0	15-81.1		%Rec	1	10/2/2020 1:03:39 AM	55549
Surr: Phenol-d5	39.5	0	15-61.1		%Rec	1	10/2/2020 1:03:39 AM	55549
Surr: 2,4,6-Tribromophenol	37.1	0	17.2-108		%Rec	1	10/2/2020 1:03:39 AM	55549
Surr: Nitrobenzene-d5	62.4	0	18.7-120		%Rec	1	10/2/2020 1:03:39 AM	55549
Surr: 2-Fluorobiphenyl	60.6	0	23.6-103		%Rec	1	10/2/2020 1:03:39 AM	55549
Surr: 4-Terphenyl-d14	63.1	0	24.1-105		%Rec	1	10/2/2020 1:03:39 AM	55549
TCLP VOLATILES BY 8260B							Analyst: **RAA**	
Benzene	ND	0.00023	0.50		mg/L	200	9/30/2020 9:54:00 PM	T72272
1,2-Dichloroethane (EDC)	ND	0.00022	0.50		mg/L	200	9/30/2020 9:54:00 PM	T72272
2-Butanone	ND	0.0011	200		mg/L	200	9/30/2020 9:54:00 PM	T72272
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	9/30/2020 9:54:00 PM	T72272
Chloroform	ND	0.00013	6.0		mg/L	200	9/30/2020 9:54:00 PM	T72272
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	9/30/2020 9:54:00 PM	T72272
1,1-Dichloroethene	ND	0.00013	0.70		mg/L	200	9/30/2020 9:54:00 PM	T72272
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	9/30/2020 9:54:00 PM	T72272
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	9/30/2020 9:54:00 PM	T72272
Vinyl chloride	ND	0.00020	0.20		mg/L	200	9/30/2020 9:54:00 PM	T72272
Chlorobenzene	ND	0.00014	100		mg/L	200	9/30/2020 9:54:00 PM	T72272
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	200	9/30/2020 9:54:00 PM	T72272
Surr: 4-Bromofluorobenzene	97.5	0	70-130		%Rec	200	9/30/2020 9:54:00 PM	T72272
Surr: Dibromofluoromethane	103	0	70-130		%Rec	200	9/30/2020 9:54:00 PM	T72272
Surr: Toluene-d8	100	0	70-130		%Rec	200	9/30/2020 9:54:00 PM	T72272
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **MH**	
Conductivity	7700	10	10		µmhos/c	1	9/28/2020 2:21:02 PM	R72211
SM2320B: ALKALINITY							Analyst: **MH**	
Bicarbonate (As CaCO3)	474.4	20.00	20.00		mg/L Ca	1	9/28/2020 2:21:02 PM	R72211
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	9/28/2020 2:21:02 PM	R72211
Total Alkalinity (as CaCO3)	474.4	20.00	20.00		mg/L Ca	1	9/28/2020 2:21:02 PM	R72211
SPECIFIC GRAVITY							Analyst: **JRR**	
Specific Gravity	1.000	0	0			1	10/5/2020 8:18:00 AM	R72378
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **MH**	
Total Dissolved Solids	5850	40.0	40.0	*D	mg/L	1	10/1/2020 3:11:00 PM	55560

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2009F63**
Date Reported: **10/19/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 2009F63-002
Matrix: TRIP BLANK
Received Date: 9/25/2020 9:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
TCLP VOLATILES BY 8260B							Analyst: **RAA**	
Benzene	ND	0.00023	0.50		mg/L	1	9/30/2020 10:18:00 PM	T72272
1,2-Dichloroethane (EDC)	ND	0.00022	0.50		mg/L	1	9/30/2020 10:18:00 PM	T72272
2-Butanone	ND	0.0011	200		mg/L	1	9/30/2020 10:18:00 PM	T72272
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	1	9/30/2020 10:18:00 PM	T72272
Chloroform	ND	0.00013	6.0		mg/L	1	9/30/2020 10:18:00 PM	T72272
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	1	9/30/2020 10:18:00 PM	T72272
1,1-Dichloroethene	ND	0.00013	0.70		mg/L	1	9/30/2020 10:18:00 PM	T72272
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	1	9/30/2020 10:18:00 PM	T72272
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	1	9/30/2020 10:18:00 PM	T72272
Vinyl chloride	ND	0.00020	0.20		mg/L	1	9/30/2020 10:18:00 PM	T72272
Chlorobenzene	ND	0.00014	100		mg/L	1	9/30/2020 10:18:00 PM	T72272
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	9/30/2020 10:18:00 PM	T72272
Surr: 4-Bromofluorobenzene	98.8	0	70-130		%Rec	1	9/30/2020 10:18:00 PM	T72272
Surr: Dibromofluoromethane	105	0	70-130		%Rec	1	9/30/2020 10:18:00 PM	T72272
Surr: Toluene-d8	100	0	70-130		%Rec	1	9/30/2020 10:18:00 PM	T72272

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

October 07, 2020

Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1267162
Samples Received:	09/26/2020
Project Number:	
Description:	

Report To: Jackie Bolte
4901 Hawkins NE
Albuquerque, NM 87109

Entire Report Reviewed By: John V Hawkins

John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 4

Sr: Sample Results 5

2009F63-001EFG WDW-1,2,3&4 EFFLUENT L1267162-01 5

Qc: Quality Control Summary 6

Wet Chemistry by Method 2580 6

Wet Chemistry by Method 4500 CN E-2011 7

Wet Chemistry by Method 9034-9030B 8

Wet Chemistry by Method 9040C 9

Wet Chemistry by Method D93/1010A 10

Gl: Glossary of Terms 11

Al: Accreditations & Locations 12

Sc: Sample Chain of Custody 13

SAMPLE SUMMARY

2009F63-001EFG WDW-1,2,3&4 EFFLUENT L1267162-01 GW

Collected by	Collected date/time	Received date/time
	09/24/20 07:05	09/26/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1552078	1	09/30/20 20:30	09/30/20 20:30	JIC	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2011	WG1554573	1	10/06/20 10:00	10/06/20 17:15	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9034-9030B	WG1551353	1	09/29/20 19:53	09/29/20 19:53	MJA	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1552343	1	10/01/20 21:41	10/01/20 21:41	JIC	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1553014	1	10/02/20 16:00	10/02/20 16:00	CO	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 9012B.
All Reactive Sulfide results reported in the attached report were determined as totals using method 9034/9030B.

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	171	T8	1	09/30/2020 20:30	WG1552078

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Cyanide	0.0379		0.00500	1	10/06/2020 17:15	WG1554573

Wet Chemistry by Method 9034-9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Sulfide	ND		0.0500	1	09/29/2020 19:53	WG1551353

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
Corrosivity by pH	7.53	T8	1	10/01/2020 21:41	WG1552343

Sample Narrative:

L1267162-01 WG1552343: 7.53 at 21.7C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	deg F			date / time	
Flashpoint	DNF at 170		1	10/02/2020 16:00	WG1553014

L1264912-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1264912-03 09/30/20 20:30 • (DUP) R3576362-3 09/30/20 20:30

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	202	200	1	2.70		20

L1264912-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1264912-16 09/30/20 20:30 • (DUP) R3576362-4 09/30/20 20:30

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	198	188	1	9.70		20

L1264916-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1264916-04 09/30/20 20:30 • (DUP) R3576362-5 09/30/20 20:30

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	179	198	1	18.8		20

L1267162-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1267162-01 09/30/20 20:30 • (DUP) R3576362-6 09/30/20 20:30

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	171	170	1	1.50		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3576362-1 09/30/20 20:30 • (LCSD) R3576362-2 09/30/20 20:30

Analyte	Spike Amount mV	LCS Result mV	LCSD Result mV	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	Diff mV	Diff Limits mV
ORP	228	227	226	99.4	99.3	86.0-105			0.300	20

Method Blank (MB)

(MB) R3578499-1 10/06/20 16:50

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.00180	0.00500

L1265051-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1265051-02 10/06/20 17:00 • (DUP) R3578499-3 10/06/20 17:01

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

L1267710-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1267710-01 10/06/20 17:23 • (DUP) R3578499-6 10/06/20 17:24

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3578499-2 10/06/20 16:51

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.0991	99.1	90.0-117	

L1267358-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1267358-02 10/06/20 17:16 • (MS) R3578499-4 10/06/20 17:17 • (MSD) R3578499-5 10/06/20 17:18

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.0954	0.0980	95.4	98.0	1	90.0-110			2.69	20

L1267710-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1267710-02 10/06/20 17:25 • (MS) R3578499-7 10/06/20 17:32 • (MSD) R3578499-8 10/06/20 17:33

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.0951	0.0926	95.1	92.6	1	90.0-110			2.66	20

Method Blank (MB)

(MB) R3575879-1 09/29/20 19:35

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.00650	0.0500

Laboratory Control Sample (LCS)

(LCS) R3575879-2 09/29/20 19:37

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.545	109	85.0-115	

Laboratory Control Sample (LCS)

(LCS) R3576829-1 10/01/20 21:41

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.03 at 21.6C

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3577260-1 10/02/20 16:00 • (LCSD) R3577260-2 10/02/20 16:00

Analyte	Spike Amount deg F	LCS Result deg F	LCSD Result deg F	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Flashpoint	126	125	127	98.8	100	96.0-104			1.59	10

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
T8	Sample(s) received past/too close to holding time expiration.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

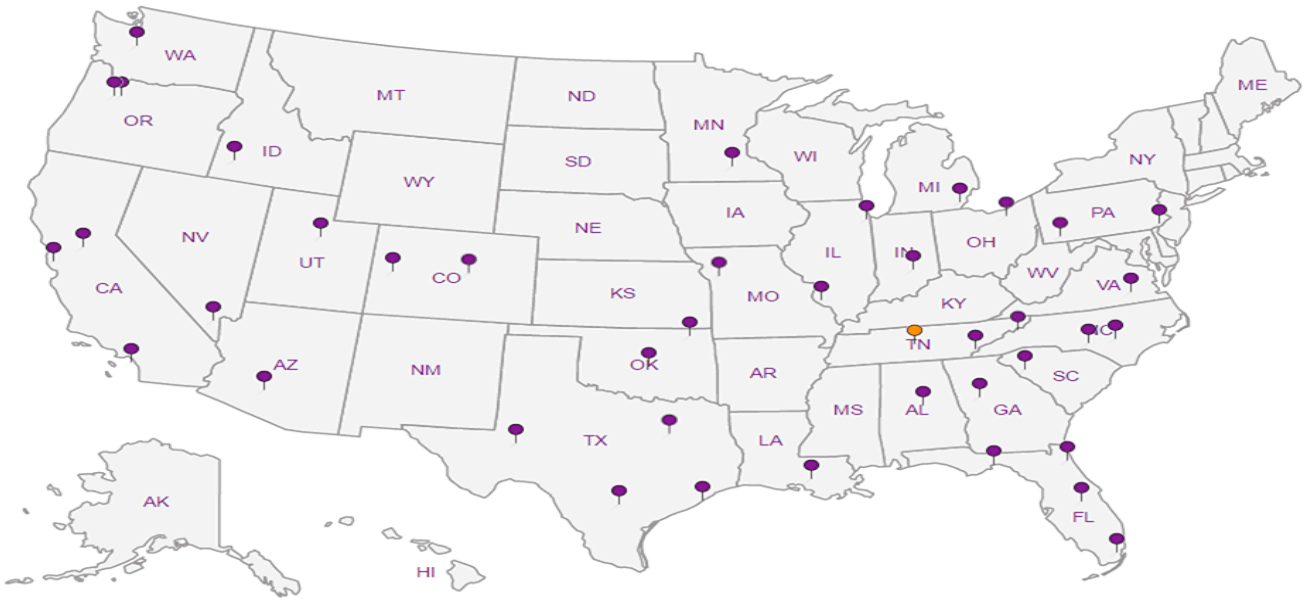
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: clients.hallenvironmental.com

H013

SUB CONTRATOR: Pace TN	COMPANY: PACE TN		PHONE: (800) 767-5859	FAX: (615) 758-5859	
ADDRESS: 12065 Lebanon Rd			ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP: Mt. Juliet, TN 37122					

L1267162

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2009F63-001E	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	9/24/2020 7:05:00 AM	1	Reactivity, Corrosivity, and Ignitability, ORP -01
2	2009F63-001F	WDW-1,2,3 & 4 Effluent	500PLNAOH ZNAC	Aqueous	9/24/2020 7:05:00 AM	1	Reactivity, Corrosivity, and Ignitability
3	2009F63-001G	WDW-1,2,3 & 4 Effluent	500PL-NaOH	Aqueous	9/24/2020 7:05:00 AM	1	Reactivity, Corrosivity, and Ignitability

Sample Receipt Checklist

COC Seal Present/Intact: ~~Y~~ N — If Applicable
COC Signed/Accurate: ~~Y~~ N — VOA Zero Headspace: Y N
Bottles arrive intact: ~~Y~~ N — Pres.Correct/Check: ~~Y~~ N
Correct bottles used: ~~Y~~ N
Sufficient volume sent: ~~Y~~ N
RAD Screen <0.5 mR/hr: ~~Y~~ N

1.6-.1=1.5 ~~5~~ AM COCSI

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: EM	Date: 9/25/2020	Time: 11:14 AM	Received By:	Date: 9-28	Time: 900
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool ? _____

Comments: _____

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2009F63**
19-Oct-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R72192**	RunNo: **72192**							
Prep Date:	Analysis Date: **9/25/2020**	SeqNo: **2531067**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R72192**	RunNo: **72192**							
Prep Date:	Analysis Date: **9/25/2020**	SeqNo: **2531068**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	93.9	90	110			
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	93.4	90	110			
Bromide	2.4	0.10	2.500	0	94.3	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	95.9	90	110			
Phosphorus, Orthophosphate (As P	4.5	0.50	5.000	0	90.3	90	110			

Sample ID: **2009F63-001AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **WDW-1,2,3 & 4 Effl**	Batch ID: **R72192**	RunNo: **72192**							
Prep Date:	Analysis Date: **9/25/2020**	SeqNo: **2531080**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	3.9	0.50	5.000	0.2560	73.1	61.9	108			
Bromide	13	0.50	12.50	1.319	92.2	85.1	105			
Nitrogen, Nitrate (As N)	13	0.50	12.50	0.7880	94.2	88.3	109			
Phosphorus, Orthophosphate (As P	19	2.5	25.00	0	74.7	68.1	110			

Sample ID: **2009F63-001AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **WDW-1,2,3 & 4 Effl**	Batch ID: **R72192**	RunNo: **72192**							
Prep Date:	Analysis Date: **9/25/2020**	SeqNo: **2531081**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	3.9	0.50	5.000	0.2560	73.2	61.9	108	0.192	20	
Bromide	13	0.50	12.50	1.319	93.1	85.1	105	0.946	20	
Nitrogen, Nitrate (As N)	13	0.50	12.50	0.7880	94.6	88.3	109	0.409	20	
Phosphorus, Orthophosphate (As P	19	2.5	25.00	0	74.2	68.1	110	0.596	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2009F63**
19-Oct-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **A72576**	RunNo: **72576**							
Prep Date:	Analysis Date: **10/9/2020**	SeqNo: **2548341**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **A72576**	RunNo: **72576**							
Prep Date:	Analysis Date: **10/9/2020**	SeqNo: **2548342**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.2	90	110			
Sulfate	9.2	0.50	10.00	0	92.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2009F63**
19-Oct-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-55595** SampType: **MBLK** TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW** Batch ID: **55595** RunNo: **72665**
Prep Date: **10/1/2020** Analysis Date: **10/14/2020** SeqNo: **2552301** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0019		0.002500		74.1	38.2	102			
Surr: Tetrachloro-m-xylene	0.0017		0.002500		68.3	32.3	92.4			

Sample ID: **MB-55595** SampType: **MBLK** TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW** Batch ID: **55595** RunNo: **72665**
Prep Date: **10/1/2020** Analysis Date: **10/14/2020** SeqNo: **2552302** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0019		0.002500		74.1	38.2	102			
Surr: Tetrachloro-m-xylene	0.0017		0.002500		69.9	32.3	92.4			

Sample ID: **LCS-55595** SampType: **LCS** TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW** Batch ID: **55595** RunNo: **72665**
Prep Date: **10/1/2020** Analysis Date: **10/14/2020** SeqNo: **2552303** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0024		0.002500		94.3	38.2	102			
Surr: Tetrachloro-m-xylene	0.0021		0.002500		82.2	32.3	92.4			

Sample ID: **LCSD-55595** SampType: **LCSD** TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02** Batch ID: **55595** RunNo: **72665**
Prep Date: **10/1/2020** Analysis Date: **10/14/2020** SeqNo: **2552304** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0023		0.002500		91.2	38.2	102	0	0	
Surr: Tetrachloro-m-xylene	0.0020		0.002500		79.1	32.3	92.4	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2009F63**
19-Oct-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW** Batch ID: **T72272** RunNo: **72272**
Prep Date: Analysis Date: **9/30/2020** SeqNo: **2536355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.022	0.00023	0.02000	0	108	70	130			
1,1-Dichloroethene	0.018	0.00013	0.02000	0	90.0	70	130			
Trichloroethene (TCE)	0.019	0.00020	0.02000	0	93.0	70	130			
Chlorobenzene	0.020	0.00014	0.02000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		103	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		99.7	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		99.6	70	130			
Surr: Toluene-d8	0.0099		0.01000		98.5	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW** Batch ID: **T72272** RunNo: **72272**
Prep Date: Analysis Date: **9/30/2020** SeqNo: **2536356** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0091		0.01000		90.8	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		102	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		101	70	130			
Surr: Toluene-d8	0.0098		0.01000		98.0	70	130			

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2009F63**
19-Oct-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **lcs-1 99.2uS eC**	SampType: **lcs**		TestCode: **SM2510B: Specific Conductance**		
Client ID: **LCSW**	Batch ID: **R72211**		RunNo: **72211**		
Prep Date:	Analysis Date: **9/28/2020**		SeqNo: **2532015**	Units: **µmhos/cm**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	98	10	99.20	0	98.7	85	115			

Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2009F63**
19-Oct-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-55637** SampType: **MBLK** TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW** Batch ID: **55637** RunNo: **72435**
Prep Date: **10/5/2020** Analysis Date: **10/5/2020** SeqNo: **2541693** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCSLL-55637** SampType: **LCSLL** TestCode: **EPA Method 7470: Mercury**
Client ID: **BatchQC** Batch ID: **55637** RunNo: **72435**
Prep Date: **10/5/2020** Analysis Date: **10/5/2020** SeqNo: **2541694** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00012	0.00020	0.0001500	0	80.2	50	150			J

Sample ID: **LCS-55637** SampType: **LCS** TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW** Batch ID: **55637** RunNo: **72435**
Prep Date: **10/5/2020** Analysis Date: **10/5/2020** SeqNo: **2541695** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.9	80	120			

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2009F63**
19-Oct-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB** SampType: **MBLK** TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW** Batch ID: **A72203** RunNo: **72203**
Prep Date: Analysis Date: **9/28/2020** SeqNo: **2531414** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID: **LCS** SampType: **LCS** TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW** Batch ID: **A72203** RunNo: **72203**
Prep Date: Analysis Date: **9/28/2020** SeqNo: **2531416** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	49	1.0	50.00	0	98.2	80	120			

Sample ID: **LCSD** SampType: **LCSD** TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSS02** Batch ID: **A72203** RunNo: **72203**
Prep Date: Analysis Date: **9/28/2020** SeqNo: **2531417** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	50	1.0	50.00	0	99.5	80	120	1.34	20	

Sample ID: **2009F63-001BMS** SampType: **MS** TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **WDW-1,2,3 & 4 Effl** Batch ID: **A72243** RunNo: **72243**
Prep Date: Analysis Date: **9/29/2020** SeqNo: **2533392** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	380	5.0	250.0	132.8	100	75	125			

Sample ID: **2009F63-001BMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **WDW-1,2,3 & 4 Effl** Batch ID: **A72243** RunNo: **72243**
Prep Date: Analysis Date: **9/29/2020** SeqNo: **2533393** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	380	5.0	250.0	132.8	99.1	75	125	0.760	20	

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2009F63**
19-Oct-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-55452** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **55452** RunNo: **72243**
Prep Date: **9/25/2020** Analysis Date: **9/29/2020** SeqNo: **2533349** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.030								
Barium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.020								
Silver	ND	0.0050								

Sample ID: **LCS-55452** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **55452** RunNo: **72243**
Prep Date: **9/25/2020** Analysis Date: **9/29/2020** SeqNo: **2533351** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.45	0.030	0.5000	0	90.4	80	120			
Barium	0.47	0.0020	0.5000	0	94.1	80	120			
Chromium	0.46	0.0060	0.5000	0	91.7	80	120			
Lead	0.47	0.020	0.5000	0	94.9	80	120			
Silver	0.095	0.0050	0.1000	0	95.4	80	120			

Sample ID: **MB-55452** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **55452** RunNo: **72287**
Prep Date: **9/25/2020** Analysis Date: **9/30/2020** SeqNo: **2535107** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Selenium	ND	0.050								

Sample ID: **LCS-55452** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **55452** RunNo: **72287**
Prep Date: **9/25/2020** Analysis Date: **9/30/2020** SeqNo: **2535109** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.45	0.0020	0.5000	0	89.4	80	120			
Selenium	0.47	0.050	0.5000	0	94.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2009F63**
19-Oct-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R72211**	RunNo: **72211**							
Prep Date:	Analysis Date: **9/28/2020**	SeqNo: **2531976**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R72211**	RunNo: **72211**							
Prep Date:	Analysis Date: **9/28/2020**	SeqNo: **2531977**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.28	20.00	80.00	0	96.6	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R72211**	RunNo: **72211**							
Prep Date:	Analysis Date: **9/28/2020**	SeqNo: **2531999**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R72211**	RunNo: **72211**							
Prep Date:	Analysis Date: **9/28/2020**	SeqNo: **2532000**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.44	20.00	80.00	0	96.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2009F63**
19-Oct-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-55560**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **PBW**	Batch ID: **55560**	RunNo: **72322**							
Prep Date: **9/30/2020**	Analysis Date: **10/1/2020**	SeqNo: **2536564**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-55560**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **LCSW**	Batch ID: **55560**	RunNo: **72322**							
Prep Date: **9/30/2020**	Analysis Date: **10/1/2020**	SeqNo: **2536565**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	964	20.0	1000	0	96.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **Navajo Refining** Work Order Number: **2009F63** RcptNo: 1

Received By: **Emily Mocho** **9/25/2020 9:50:00 AM**

Completed By: **Emily Mocho** **9/25/2020 11:09:36 AM**

Reviewed By: EM 9/25/20

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☑ NA ☐
5. Sample(s) in proper container(s)? Not frozen Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☑ No ☐ NA ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: (3) (1) (<2 or >12 unless noted)

Adjusted? NO

Checked by: EM 9/25/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	-1.4	Good	No			

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standar ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: -1.4 +0=-1.4

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 2009F63	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
9/24/20	7:05	Liquid	WDW-1, 2, 3 & 4 Effluent	3	Neat/H2SO4	001	X						X	X
9/24/20	7:05	Liquid	WDW-1, 2, 3 & 4 Effluent	1	HNO3						X	X		
9/24/20	7:05	Liquid	WDW-1, 2, 3 & 4 Effluent	3	HCL			X						
9/24/20	7:05	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat				X					
9/24/20	7:05	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
9.24.20	10:00	Brady Hubbard	EM courier	9/25/20	9:50
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade. NOT FROZEN EM 9/25/20

pH 7.40, 37.6C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HOLLYFRONTIER.

July 28, 2020

Mr. Carl Chavez, CHMM
New Mexico Oil Conservation Division (Albuquerque Office)
Energy, Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, NM 87113

RE: 2020 4th Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4 HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2020 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for each well was 1133 psig for WDW-1, 1074 psig for WDW-2, 1078 psig for WDW-3 and 101 psig for WDW-4.The average flows were 153 gpm for WDW-1, 51 gpm for WDW-2, 61 gpm for WDW-3 and 171 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from April 1, 2020 to June 30, 2020. Navajo has disposed a total of 1,609,602 barrels of fluid into the four wells during the fourth quarter of 2020. The volume per well is:

- 498,475 barrels into WDW-1; 30-015-27592
- 160,007 barrels into WDW-2; 30-015-20894
- 156,685 barrels into WDW-3; 30-015-26575
- 794,435 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

2020 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												
Apr-20	1,205	134	153	120	531	707	391	4,594	5,246	4,114	**157,371**	45,592,677
May-20	1,094	169	224	121	453	658	341	5,794	7,680	4,149	**179,614**	45,772,291
Jun-20	1,099	157	189	121	473	687	300	5,383	6,480	4,149	**161,490**	45,933,781
Monthly Avg	1,133	153								**TOTAL**	498,475	
30-015-20894 WDW-2												
Apr-20	1,109	52	68	25	792	944	628	1,783	2,331	857	**53,486**	28,686,485
May-20	1,049	47	62	40	763	886	657	1,611	2,126	1,371	**49,941**	28,736,416
Jun-20	1,064	55	90	0	622	952	345	1,886	3,086	0	**56,580**	28,792,996
Monthly Avg	1,074	51								**TOTAL**	160,007	
30-015-26575 WDW-3											20,364,734	
Apr-20	992	66	84	39	753	838	655	2,263	2,880	1,337	**45,703**	20,410,437
May-20	982	58	85	19	691	793	556	1,989	2,914	651	**39,771**	20,450,208
Jun-20	979	58	96	0	644	892	350	1,989	3,291	0	**71,211**	20,521,419
Monthly Avg	1,078	61								**TOTAL**	156,685	
30-015-44677 WDW-4												
Apr-20	110	197	247	138	189	265	112	6,754	8,469	4,731	**262,526**	4,085,453
May-20	97	159	203	101	199	265	118	3,326	6,960	3,463	**239,623**	4,325,076
Jun-20	97	158	202	92	189	265	95	3,326	6,926	3,154	**292,286**	4,617,362
Monthly Avg	101	171								**TOTAL**	794,435	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	498,475	45,435,306	45,933,781
WDW2	160,007	28,632,989	28,792,996
WDW3	156,685	20,364,734	20,521,419
WDW4	794,435	3,822,927	4,617,362

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

July 23, 2020

Robert Combs

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX:

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 2007093

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/2/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2007093**
Date Reported: **7/23/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,3 & 4 Effluent
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date: 6/30/2020 9:05:00 AM
Lab ID: 2007093-001 **Matrix:** AQUEOUS **Received Date:** 7/2/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	44	0.87	2.0	*	mg/L	20	7/6/2020 2:23:56 PM	R70144
Chloride	440	25	50	*	mg/L	100	7/9/2020 1:11:08 AM	R70207
Bromide	ND	0.25	0.50		mg/L	5	7/6/2020 2:11:04 PM	R70144
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	7/6/2020 2:11:04 PM	R70144
Sulfate	3400	25	50	*	mg/L	100	7/9/2020 1:11:08 AM	R70207
Nitrate+Nitrite as N	0.54	0.061	1.0	J	mg/L	5	7/6/2020 3:41:10 PM	R70144
EPA METHOD 7470: MERCURY							Analyst: **JLF**	
Mercury	ND	0.00012	0.00020		mg/L	1	7/7/2020 4:35:05 PM	53531
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **ELS**	
Calcium	430	0.23	5.0		mg/L	5	7/6/2020 11:43:52 AM	A70109
Magnesium	140	0.097	5.0		mg/L	5	7/6/2020 11:43:52 AM	A70109
Potassium	290	1.0	5.0		mg/L	5	7/6/2020 11:43:52 AM	A70109
Sodium	1300	5.3	20		mg/L	20	7/6/2020 11:51:54 AM	A70109
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: **ELS**	
Arsenic	0.028	0.022	0.030	J	mg/L	1	7/8/2020 1:08:57 PM	53551
Barium	0.053	0.0011	0.0020		mg/L	1	7/8/2020 1:08:57 PM	53551
Cadmium	ND	0.00090	0.0020		mg/L	1	7/8/2020 1:08:57 PM	53551
Chromium	0.0021	0.0014	0.0060	J	mg/L	1	7/8/2020 1:08:57 PM	53551
Lead	ND	0.013	0.020		mg/L	1	7/8/2020 1:08:57 PM	53551
Selenium	ND	0.021	0.050		mg/L	1	7/8/2020 1:08:57 PM	53551
Silver	0.0068	0.0013	0.0050		mg/L	1	7/9/2020 10:46:38 AM	53551
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.033	2000		mg/L	1	7/22/2020 10:36:15 PM	53528
3+4-Methylphenol	ND	0.042	2000		mg/L	1	7/22/2020 10:36:15 PM	53528
2,4-Dinitrotoluene	ND	0.045	1.3		mg/L	1	7/22/2020 10:36:15 PM	53528
Hexachlorobenzene	ND	0.033	1.3		mg/L	1	7/22/2020 10:36:15 PM	53528
Hexachlorobutadiene	ND	0.18	5.0		mg/L	1	7/22/2020 10:36:15 PM	53528
Hexachloroethane	ND	0.038	30		mg/L	1	7/22/2020 10:36:15 PM	53528
Nitrobenzene	ND	0.035	20		mg/L	1	7/22/2020 10:36:15 PM	53528
Pentachlorophenol	ND	0.077	1000		mg/L	1	7/22/2020 10:36:15 PM	53528
Pyridine	ND	0.047	50		mg/L	1	7/22/2020 10:36:15 PM	53528
2,4,5-Trichlorophenol	ND	0.038	4000		mg/L	1	7/22/2020 10:36:15 PM	53528
2,4,6-Trichlorophenol	ND	0.036	20		mg/L	1	7/22/2020 10:36:15 PM	53528
Cresols, Total	ND	0.063	2000		mg/L	1	7/22/2020 10:36:15 PM	53528
Surr: 2-Fluorophenol	43.1	0	15-81.1		%Rec	1	7/22/2020 10:36:15 PM	53528
Surr: Phenol-d5	33.2	0	15-61.1		%Rec	1	7/22/2020 10:36:15 PM	53528
Surr: 2,4,6-Tribromophenol	62.3	0	17.2-108		%Rec	1	7/22/2020 10:36:15 PM	53528

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2007093**
Date Reported: **7/23/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,3 & 4 Effluent
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date: 6/30/2020 9:05:00 AM
Lab ID: 2007093-001 **Matrix:** AQUEOUS **Received Date:** 7/2/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
Surr: Nitrobenzene-d5	53.1	0	18.7-120		%Rec	1	7/22/2020 10:36:15 PM	53528
Surr: 2-Fluorobiphenyl	39.0	0	23.6-103		%Rec	1	7/22/2020 10:36:15 PM	53528
Surr: 4-Terphenyl-d14	78.1	0	24.1-105		%Rec	1	7/22/2020 10:36:15 PM	53528
TCLP VOLATILES BY 8260B							Analyst: **RAA**	
Benzene	ND	0.00023	0.50		mg/L	200	7/3/2020 9:01:00 AM	T70092
1,2-Dichloroethane (EDC)	ND	0.00022	0.50		mg/L	200	7/3/2020 9:01:00 AM	T70092
2-Butanone	ND	0.0011	200		mg/L	200	7/3/2020 9:01:00 AM	T70092
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	7/3/2020 9:01:00 AM	T70092
Chloroform	ND	0.00013	6.0		mg/L	200	7/3/2020 9:01:00 AM	T70092
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	7/3/2020 9:01:00 AM	T70092
1,1-Dichloroethene	ND	0.00013	0.70		mg/L	200	7/3/2020 9:01:00 AM	T70092
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	7/3/2020 9:01:00 AM	T70092
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	7/3/2020 9:01:00 AM	T70092
Vinyl chloride	ND	0.00020	0.20		mg/L	200	7/3/2020 9:01:00 AM	T70092
Chlorobenzene	ND	0.00014	100		mg/L	200	7/3/2020 9:01:00 AM	T70092
Surr: 1,2-Dichloroethane-d4	100	0	70-130		%Rec	200	7/3/2020 9:01:00 AM	T70092
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	200	7/3/2020 9:01:00 AM	T70092
Surr: Dibromofluoromethane	99.0	0	70-130		%Rec	200	7/3/2020 9:01:00 AM	T70092
Surr: Toluene-d8	102	0	70-130		%Rec	200	7/3/2020 9:01:00 AM	T70092
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	8000	10	10		µmhos/c	1	7/7/2020 1:55:42 PM	R70195
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	600.2	20.00	20.00		mg/L Ca	1	7/7/2020 1:55:42 PM	R70195
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	7/7/2020 1:55:42 PM	R70195
Total Alkalinity (as CaCO3)	600.2	20.00	20.00		mg/L Ca	1	7/7/2020 1:55:42 PM	R70195
SPECIFIC GRAVITY							Analyst: **JRR**	
Specific Gravity	1.006	0	0			1	7/17/2020 9:28:00 AM	R70411
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	5830	200	200	*D	mg/L	1	7/8/2020 6:10:00 PM	53532

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 13, 2020

Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1236410
Samples Received:	07/03/2020
Project Number:	
Description:	

Report To: Jackie Bolte
4901 Hawkins NE
Albuquerque, NM 87109

Entire Report Reviewed By:

John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

TABLE OF CONTENTS

Cp: Cover Page 1
Tc: Table of Contents 2
Ss: Sample Summary 3
Cn: Case Narrative 4
Sr: Sample Results 5
2007093-001E WDW-1,2,3&4 EFFLUENT L1236410-01 5
2007093-001F WDW-1,2,3&4 EFFLUENT L1236410-02 6
2007093-001G WDW-1,2,3&4 EFFLUENT L1236410-03 7
Qc: Quality Control Summary 8
Wet Chemistry by Method 2580 8
Wet Chemistry by Method 4500 CN E-2011 9
Wet Chemistry by Method 4500H+ B-2011 10
Wet Chemistry by Method 9034-9030B 11
Wet Chemistry by Method D93/1010A 12
Gl: Glossary of Terms 13
Al: Accreditations & Locations 14
Sc: Sample Chain of Custody 15

2007093-001E WDW-1,2,3&4 EFFLUENT L1236410-01 WW

Collected by | Collected date/time 06/30/20 09:05 | Received date/time 07/03/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1504658	1	07/07/20 05:39	07/07/20 05:39	AKA	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG1504187	1	07/06/20 18:00	07/06/20 18:00	KEG	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1506806	1	07/11/20 19:15	07/11/20 19:15	JIC	Mt. Juliet, TN

2007093-001F WDW-1,2,3&4 EFFLUENT L1236410-02 WW

Collected by | Collected date/time 06/30/20 09:05 | Received date/time 07/03/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9034-9030B	WG1504791	1	07/07/20 15:24	07/07/20 15:24	SL	Mt. Juliet, TN

2007093-001G WDW-1,2,3&4 EFFLUENT L1236410-03 WW

Collected by | Collected date/time 06/30/20 09:05 | Received date/time 07/03/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500 CN E-2011	WG1507317	1	07/11/20 09:00	07/11/20 13:49	SDL	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 9012B.
All Reactive Sulfide results reported in the attached report were determined as totals using method 9034/9030B.

Received by OCD: 5/16/2022 2:12:41 PM

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	53.0	Q	1	07/07/2020 05:39	WG1504658

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
Corrosivity by pH	7.77	T8	1	07/06/2020 18:00	WG1504187

Sample Narrative:

L1236410-01 WG1504187: 7.77 at 23.4C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	deg F			date / time	
Flashpoint	DNF at 170		1	07/11/2020 19:15	WG1506806

Released to Imaging: 7/12/2024 10:49:45 AM

Wet Chemistry by Method 9034-9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Sulfide	0.0840		0.0500	1	07/07/2020 15:24	WG1504791

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Cyanide	0.0585		0.00500	1	07/11/2020 13:49	WG1507317

L1236077-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1236077-01 07/07/20 05:39 • (DUP) R3546691-2 07/07/20 05:39

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	37.7	55.8	1	18.1		20

Laboratory Control Sample (LCS)

(LCS) R3546691-1 07/07/20 05:39

Analyte	Spike Amount mV	LCS Result mV	LCS Rec. %	Rec. Limits %	LCS Qualifier
ORP	228	226	99.0	86.0-105	

Method Blank (MB)

(MB) R3548467-1 07/11/20 13:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.00180	0.00500

L1236173-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1236173-02 07/11/20 13:39 • (DUP) R3548467-3 07/11/20 13:40

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

L1238167-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1238167-01 07/11/20 14:07 • (DUP) R3548467-8 07/11/20 14:08

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3548467-2 07/11/20 13:35

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.110	110	90.0-110	

L1236175-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1236175-02 07/11/20 13:41 • (MS) R3548467-4 07/11/20 13:42 • (MSD) R3548467-5 07/11/20 13:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.102	0.102	102	102	1	75.0-125			0.000	20

L1236410-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1236410-03 07/11/20 13:49 • (MS) R3548467-6 07/11/20 13:50 • (MSD) R3548467-7 07/11/20 13:51

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	0.0585	0.142	0.139	83.5	80.5	1	75.0-125			2.14	20

Received by OCD: 5/16/2022 2:12:41 PM

Laboratory Control Sample (LCS)

(LCS) R3546621-1 07/06/20 18:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.04 at 22.7C

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

WG1504791

QUALITY CONTROL SUMMARY

L1236410-02

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 9034-9030B

Method Blank (MB)

(MB) R3547698-1 07/07/20 14:56

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.00650	0.0500

Laboratory Control Sample (LCS)

(LCS) R3547698-2 07/07/20 14:56

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.473	94.6	85.0-115	

Released to Imaging: 7/12/2024 10:49:45 AM

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3548542-1 07/11/20 19:15 • (LCSD) R3548542-2 07/11/20 19:15

Analyte	Spike Amount deg F	LCS Result deg F	LCSD Result deg F	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Flashpoint	126	127	125	101	99.1	96.0-104			1.59	10

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.
T8	Sample(s) received past/too close to holding time expiration.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

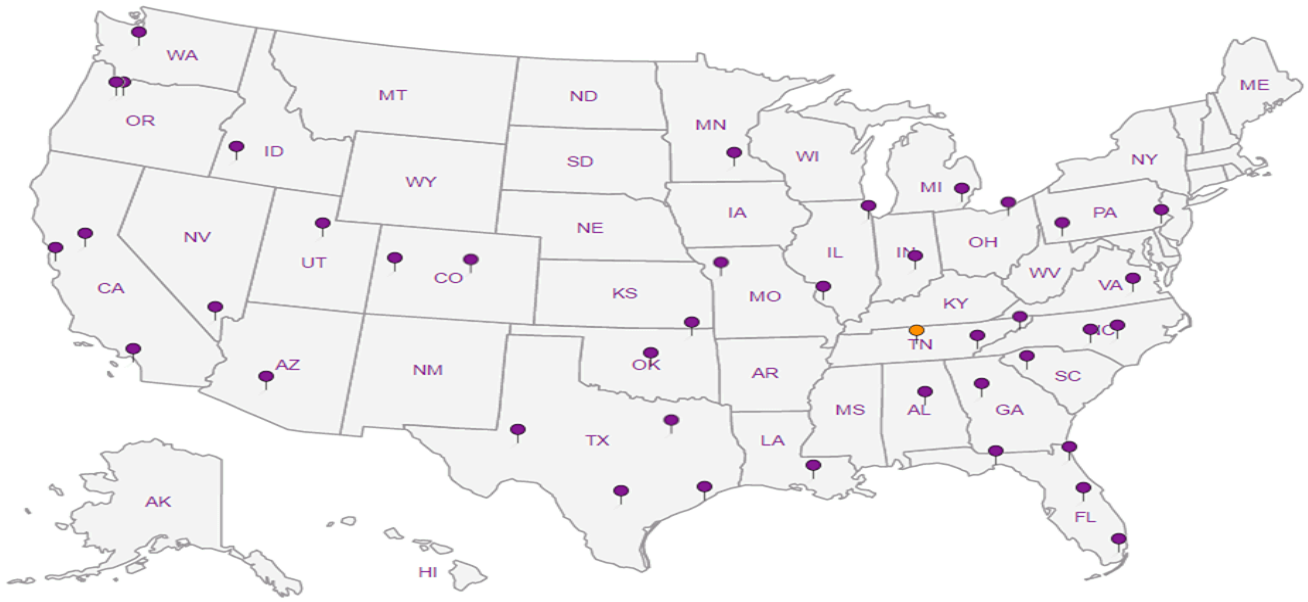
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Received by OCD: 5/16/2022 2:12:41 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

C107

L1234410

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: clients.hallenvironmental.com

SUB CONTRATOR:	Pace TN	COMPANY: PACE TN	PHONE: (800) 767-5859	FAX: (615) 758-5859	
ADDRESS:	12065 Lebanon Rd		ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP:	Mt. Juliet, TN 37122				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS	
1	2007093-001E	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	6/30/2020 9:05:00 AM	1	Reactivity, Corrosivity, and Ignitability, ORP	-01
2	2007093-001F	WDW-1,2,3 & 4 Effluent	500PLNAOH ZNAC	Aqueous	6/30/2020 9:05:00 AM	1	Reactivity, Corrosivity, and Ignitability >12 RCV	-02
3	2007093-001G	WDW-1,2,3 & 4 Effluent	500PL-NaOH	Aqueous	6/30/2020 9:05:00 AM	1	Reactivity, Corrosivity, and Ignitability >12 RCV	-03

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: EM	Date: 7/2/2020	Time: 1:13 PM	Received By:	Date: 7/3/20	Time: 8:30
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples 1.2+0=1.2 °C NM Attempt to Cool ?
Comments:

1749 9998 5682 Total = 2

Released to Imaging: 7/12/2024 10:49:45 AM

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: HALLENVANM	L1236410	
Cooler Received/Opened On: 7/9/20 Temperature:	1.2	
Received By: Cole Medley		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?		✓	

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R70144** RunNo: **70144**
Prep Date: Analysis Date: **7/6/2020** SeqNo: **2437459** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R70144** RunNo: **70144**
Prep Date: Analysis Date: **7/6/2020** SeqNo: **2437460** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.46	0.10	0.5000	0	91.4	90	110			
Bromide	2.4	0.10	2.500	0	97.2	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	93.0	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	95.9	90	110			

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R70207** RunNo: **70207**
Prep Date: Analysis Date: **7/8/2020** SeqNo: **2439817** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R70207** RunNo: **70207**
Prep Date: Analysis Date: **7/8/2020** SeqNo: **2439818** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.6	90	110			
Sulfate	9.7	0.50	10.00	0	97.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **100ng lcs2** SampType: **LCS** TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW** Batch ID: **T70092** RunNo: **70092**
Prep Date: Analysis Date: **7/3/2020** SeqNo: **2435469** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.019	0.015	0.02000	0	93.9	70	130			
1,1-Dichloroethene	0.019	0.015	0.02000	0	95.6	70	130			
Trichloroethene (TCE)	0.017	0.015	0.02000	0	85.0	70	130			
Chlorobenzene	0.020	0.015	0.02000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	0.0098		0.01000		97.9	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		100	70	130			
Surr: Dibromofluoromethane	0.0095		0.01000		95.3	70	130			
Surr: Toluene-d8	0.010		0.01000		102	70	130			

Sample ID: **mb2** SampType: **MBLK** TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW** Batch ID: **T70092** RunNo: **70092**
Prep Date: Analysis Date: **7/3/2020** SeqNo: **2435470** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0098		0.01000		98.0	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		102	70	130			
Surr: Dibromofluoromethane	0.0097		0.01000		97.0	70	130			
Surr: Toluene-d8	0.010		0.01000		102	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **mb-53528** SampType: **MBLK** TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW** Batch ID: **53528** RunNo: **70542**
Prep Date: **7/7/2020** Analysis Date: **7/22/2020** SeqNo: **2453803** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.13		0.2000		67.3	15	81.1			
Surr: Phenol-d5	0.10		0.2000		52.1	15	61.1			
Surr: 2,4,6-Tribromophenol	0.15		0.2000		74.1	17.2	108			
Surr: Nitrobenzene-d5	0.078		0.1000		77.9	18.7	120			
Surr: 2-Fluorobiphenyl	0.059		0.1000		59.0	23.6	103			
Surr: 4-Terphenyl-d14	0.11		0.1000		114	24.1	105			S

Sample ID: **lcs-53528** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW** Batch ID: **53528** RunNo: **70542**
Prep Date: **7/7/2020** Analysis Date: **7/22/2020** SeqNo: **2453804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.077	0.0010	0.1000	0	76.5	33.8	121			
3+4-Methylphenol	0.16	0.0010	0.2000	0	81.8	33.6	109			
2,4-Dinitrotoluene	0.055	0.0010	0.1000	0	54.8	50.4	124			
Hexachlorobenzene	0.088	0.0010	0.1000	0	88.1	50.1	120			
Hexachlorobutadiene	0.043	0.0010	0.1000	0	42.5	16.1	103			
Hexachloroethane	0.042	0.0010	0.1000	0	42.3	15	94.2			
Nitrobenzene	0.087	0.0010	0.1000	0	87.4	32.4	125			
Pentachlorophenol	0.080	0.0010	0.1000	0	79.7	44.6	114			
Pyridine	0.011	0.0010	0.1000	0	11.2	15	67			S
2,4,5-Trichlorophenol	0.082	0.0010	0.1000	0	81.9	49.4	118			
2,4,6-Trichlorophenol	0.083	0.0010	0.1000	0	82.6	50.3	116			
Cresols, Total	0.24	0.0010	0.3000	0	80.0	33.8	109			
Surr: 2-Fluorophenol	0.12		0.2000		61.5	15	81.1			
Surr: Phenol-d5	0.092		0.2000		45.8	15	61.1			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		72.4	17.2	108			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **lcs-53528** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW** Batch ID: **53528** RunNo: **70542**
Prep Date: **7/7/2020** Analysis Date: **7/22/2020** SeqNo: **2453804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.080		0.1000		80.5	18.7	120			
Surr: 2-Fluorobiphenyl	0.060		0.1000		59.6	23.6	103			
Surr: 4-Terphenyl-d14	0.11		0.1000		108	24.1	105			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **Ics-1 99.5uS eC**	SampType: **Ics**		TestCode: **SM2510B: Specific Conductance**		
Client ID: **LCSW**	Batch ID: **R70195**		RunNo: **70195**		
Prep Date:	Analysis Date: **7/7/2020**		SeqNo: **2439134**	Units: **µmhos/cm**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	10	99.50	0	99.8	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **MB-53531**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **53531**	RunNo: **70152**							
Prep Date: **7/7/2020**	Analysis Date: **7/7/2020**	SeqNo: **2437876**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LLLCS-53531**	SampType: **LCSLL**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **BatchQC**	Batch ID: **53531**	RunNo: **70152**							
Prep Date: **7/7/2020**	Analysis Date: **7/7/2020**	SeqNo: **2437877**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00014	0.00020	0.0001500	0	96.1	50	150			J

Sample ID: **LCS-53531**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **53531**	RunNo: **70152**							
Prep Date: **7/7/2020**	Analysis Date: **7/7/2020**	SeqNo: **2437878**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **MB** SampType: **MBLK** TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW** Batch ID: **A70109** RunNo: **70109**
Prep Date: Analysis Date: **7/6/2020** SeqNo: **2436395** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS** SampType: **LCS** TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW** Batch ID: **A70109** RunNo: **70109**
Prep Date: Analysis Date: **7/6/2020** SeqNo: **2436396** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.3	80	120			
Magnesium	50	1.0	50.00	0	99.4	80	120			
Potassium	49	1.0	50.00	0	97.8	80	120			
Sodium	49	1.0	50.00	0	98.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **MB-53551** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **53551** RunNo: **70197**
Prep Date: **7/7/2020** Analysis Date: **7/8/2020** SeqNo: **2439313** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.030								
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.020								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-53551** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **53551** RunNo: **70197**
Prep Date: **7/7/2020** Analysis Date: **7/8/2020** SeqNo: **2439314** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.45	0.030	0.5000	0	89.1	80	120			
Barium	0.47	0.0020	0.5000	0	93.1	80	120			
Cadmium	0.46	0.0020	0.5000	0	92.8	80	120			
Chromium	0.45	0.0060	0.5000	0	89.1	80	120			
Lead	0.45	0.020	0.5000	0	90.6	80	120			
Selenium	0.45	0.050	0.5000	0	90.1	80	120			
Silver	0.095	0.0050	0.1000	0	95.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R70195**	RunNo: **70195**							
Prep Date:	Analysis Date: **7/7/2020**	SeqNo: **2439098**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R70195**	RunNo: **70195**							
Prep Date:	Analysis Date: **7/7/2020**	SeqNo: **2439099**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.40	20.00	80.00	0	95.5	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R70195**	RunNo: **70195**							
Prep Date:	Analysis Date: **7/7/2020**	SeqNo: **2439121**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R70195**	RunNo: **70195**							
Prep Date:	Analysis Date: **7/7/2020**	SeqNo: **2439122**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.32	20.00	80.00	0	96.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **2007093-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**
Client ID: **WDW-1,2,3 & 4 Effl** Batch ID: **R70411** RunNo: **70411**
Prep Date: Analysis Date: **7/17/2020** SeqNo: **2447669** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.008	0						0.159	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **MB-53532**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **PBW**	Batch ID: **53532**	RunNo: **70189**							
Prep Date: **7/7/2020**	Analysis Date: **7/8/2020**	SeqNo: **2438885**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-53532**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **LCSW**	Batch ID: **53532**	RunNo: **70189**							
Prep Date: **7/7/2020**	Analysis Date: **7/8/2020**	SeqNo: **2438886**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	995	20.0	1000	0	99.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **Navajo Refining** Work Order Number: **2007093** RcptNo: **1**

Received By: **Emily Mocho** **7/2/2020 8:00:00 AM**

Completed By: **Emily Mocho** **7/2/2020 8:44:04 AM**

Reviewed By: LB 7/2/20

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☑ ~~No ☑~~ EM 7/2/20 NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 3 (<2 or >12 unless noted)
Adjusted? 1 yes
Checked by: EM 7/2/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks: Added 0.5 mL HNO_3 to 001H for pH < 2 for metals analysis EM 7/2/20

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Not Present			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: 2.6 ±0 = 2.6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 2007093	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
6/30/20	9:05	Liquid	WDW-1, 2, 3 & 4 Effluent	3	Neat/H2SO4	-001	X						X	
6/30/20	9:05	Liquid	WDW-1, 2, 3 & 4 Effluent	1	HNO3						X	X		
6/30/20	9:05	Liquid	WDW-1, 2, 3 & 4 Effluent	3	HCL			X						
6/30/20	9:05	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat				X					
6/30/20	9:05	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
7-1-20	9:30	Brady Hubbard	EKM Courier	7/2/20	8:00

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH 7.63, 41.4C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

2020 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												45,933,781
Jul-20	1,205	123	133	103	461	660	329	4,217	4,560	3,531	**130,731**	46,064,512
Aug-20	1,031	131	150	96	266	397	104	4,491	5,143	3,291	**139,234**	46,203,746
Sep-20	1,092	139	163	125	202	343	119	4,766	5,589	4,286	**142,971**	46,346,717
Monthly Avg	1,109	131								**TOTAL**	412,936	
30-015-20894 WDW-2												28,792,996
Jul-20	1,069	59	85	32	725	1,166	458	2,023	2,914	1,097	**62,709**	28,855,705
Aug-20	1,056	63	78	49	488	868	191	2,160	2,674	1,680	**66,960**	28,922,665
Sep-20	1,037	64	77	54	232	375	130	2,194	2,640	1,851	**65,829**	28,988,494
Monthly Avg	1,054	62								**TOTAL**	195,498	
30-015-26575 WDW-3												20,521,419
Jul-20	971	76	97	15	744	949	582	2,606	3,326	514	**80,777**	20,602,196
Aug-20	940	85	122	51	541	867	316	2,914	4,183	1,749	**90,343**	20,692,539
Sep-20	987	98	142	55	371	520	240	3,360	4,869	1,886	**100,800**	20,793,339
Monthly Avg	966	86								**TOTAL**	271,920	
30-015-44677 WDW-4												4,617,362
Jul-20	110	179	225	115	178	262	99	6,137	7,714	3,121	**190,251**	4,807,613
Aug-20	109	167	230	84	184	249	66	5,726	7,886	2,880	**177,497**	4,985,110
Sep-20	99	153	213	0	151	224	75	5,246	7,269	0	**157,371**	5,142,481
Monthly Avg	106	166								**TOTAL**	525,119	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	412,936	45,933,781	46,346,717
WDW2	195,498	28,792,996	28,988,494
WDW3	271,920	20,521,419	20,793,339
WDW4	525,119	4,617,362	5,142,481

UICI – 8 - 1

Quarterly Injection Reports (2)

2020

HOLLYFRONTIER.

July 28, 2020

Mr. Carl Chavez, CHMM
New Mexico Oil Conservation Division (Albuquerque Office)
Energy, Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, NM 87113

RE: 2020 4th Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4 HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2020 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for each well was 1133 psig for WDW-1, 1074 psig for WDW-2, 1078 psig for WDW-3 and 101 psig for WDW-4.The average flows were 153 gpm for WDW-1, 51 gpm for WDW-2, 61 gpm for WDW-3 and 171 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from April 1, 2020 to June 30, 2020. Navajo has disposed a total of 1,609,602 barrels of fluid into the four wells during the fourth quarter of 2020. The volume per well is:

- 498,475 barrels into WDW-1; 30-015-27592
- 160,007 barrels into WDW-2; 30-015-20894
- 156,685 barrels into WDW-3; 30-015-26575
- 794,435 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

2020 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												
Apr-20	1,205	134	153	120	531	707	391	4,594	5,246	4,114	**157,371**	45,592,677
May-20	1,094	169	224	121	453	658	341	5,794	7,680	4,149	**179,614**	45,772,291
Jun-20	1,099	157	189	121	473	687	300	5,383	6,480	4,149	**161,490**	45,933,781
Monthly Avg	1,133	153								**TOTAL**	498,475	
30-015-20894 WDW-2												
Apr-20	1,109	52	68	25	792	944	628	1,783	2,331	857	**53,486**	28,686,485
May-20	1,049	47	62	40	763	886	657	1,611	2,126	1,371	**49,941**	28,736,416
Jun-20	1,064	55	90	0	622	952	345	1,886	3,086	0	**56,580**	28,792,996
Monthly Avg	1,074	51								**TOTAL**	160,007	
30-015-26575 WDW-3											20,364,734	
Apr-20	992	66	84	39	753	838	655	2,263	2,880	1,337	**45,703**	20,410,437
May-20	982	58	85	19	691	793	556	1,989	2,914	651	**39,771**	20,450,208
Jun-20	979	58	96	0	644	892	350	1,989	3,291	0	**71,211**	20,521,419
Monthly Avg	1,078	61								**TOTAL**	156,685	
30-015-44677 WDW-4												
Apr-20	110	197	247	138	189	265	112	6,754	8,469	4,731	**262,526**	4,085,453
May-20	97	159	203	101	199	265	118	3,326	6,960	3,463	**239,623**	4,325,076
Jun-20	97	158	202	92	189	265	95	3,326	6,926	3,154	**292,286**	4,617,362
Monthly Avg	101	171								**TOTAL**	794,435	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	498,475	45,435,306	45,933,781
WDW2	160,007	28,632,989	28,792,996
WDW3	156,685	20,364,734	20,521,419
WDW4	794,435	3,822,927	4,617,362

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

July 23, 2020

Robert Combs

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX:

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 2007093

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/2/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2007093**
Date Reported: **7/23/2020**

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,3 & 4 Effluent
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date: 6/30/2020 9:05:00 AM
Lab ID: 2007093-001 **Matrix:** AQUEOUS **Received Date:** 7/2/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	44	0.87	2.0	*	mg/L	20	7/6/2020 2:23:56 PM	R70144
Chloride	440	25	50	*	mg/L	100	7/9/2020 1:11:08 AM	R70207
Bromide	ND	0.25	0.50		mg/L	5	7/6/2020 2:11:04 PM	R70144
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	7/6/2020 2:11:04 PM	R70144
Sulfate	3400	25	50	*	mg/L	100	7/9/2020 1:11:08 AM	R70207
Nitrate+Nitrite as N	0.54	0.061	1.0	J	mg/L	5	7/6/2020 3:41:10 PM	R70144
EPA METHOD 7470: MERCURY							Analyst: **JLF**	
Mercury	ND	0.00012	0.00020		mg/L	1	7/7/2020 4:35:05 PM	53531
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **ELS**	
Calcium	430	0.23	5.0		mg/L	5	7/6/2020 11:43:52 AM	A70109
Magnesium	140	0.097	5.0		mg/L	5	7/6/2020 11:43:52 AM	A70109
Potassium	290	1.0	5.0		mg/L	5	7/6/2020 11:43:52 AM	A70109
Sodium	1300	5.3	20		mg/L	20	7/6/2020 11:51:54 AM	A70109
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: **ELS**	
Arsenic	0.028	0.022	0.030	J	mg/L	1	7/8/2020 1:08:57 PM	53551
Barium	0.053	0.0011	0.0020		mg/L	1	7/8/2020 1:08:57 PM	53551
Cadmium	ND	0.00090	0.0020		mg/L	1	7/8/2020 1:08:57 PM	53551
Chromium	0.0021	0.0014	0.0060	J	mg/L	1	7/8/2020 1:08:57 PM	53551
Lead	ND	0.013	0.020		mg/L	1	7/8/2020 1:08:57 PM	53551
Selenium	ND	0.021	0.050		mg/L	1	7/8/2020 1:08:57 PM	53551
Silver	0.0068	0.0013	0.0050		mg/L	1	7/9/2020 10:46:38 AM	53551
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.033	2000		mg/L	1	7/22/2020 10:36:15 PM	53528
3+4-Methylphenol	ND	0.042	2000		mg/L	1	7/22/2020 10:36:15 PM	53528
2,4-Dinitrotoluene	ND	0.045	1.3		mg/L	1	7/22/2020 10:36:15 PM	53528
Hexachlorobenzene	ND	0.033	1.3		mg/L	1	7/22/2020 10:36:15 PM	53528
Hexachlorobutadiene	ND	0.18	5.0		mg/L	1	7/22/2020 10:36:15 PM	53528
Hexachloroethane	ND	0.038	30		mg/L	1	7/22/2020 10:36:15 PM	53528
Nitrobenzene	ND	0.035	20		mg/L	1	7/22/2020 10:36:15 PM	53528
Pentachlorophenol	ND	0.077	1000		mg/L	1	7/22/2020 10:36:15 PM	53528
Pyridine	ND	0.047	50		mg/L	1	7/22/2020 10:36:15 PM	53528
2,4,5-Trichlorophenol	ND	0.038	4000		mg/L	1	7/22/2020 10:36:15 PM	53528
2,4,6-Trichlorophenol	ND	0.036	20		mg/L	1	7/22/2020 10:36:15 PM	53528
Cresols, Total	ND	0.063	2000		mg/L	1	7/22/2020 10:36:15 PM	53528
Surr: 2-Fluorophenol	43.1	0	15-81.1		%Rec	1	7/22/2020 10:36:15 PM	53528
Surr: Phenol-d5	33.2	0	15-61.1		%Rec	1	7/22/2020 10:36:15 PM	53528
Surr: 2,4,6-Tribromophenol	62.3	0	17.2-108		%Rec	1	7/22/2020 10:36:15 PM	53528

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2007093**
Date Reported: **7/23/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,3 & 4 Effluent
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date: 6/30/2020 9:05:00 AM
Lab ID: 2007093-001 **Matrix:** AQUEOUS **Received Date:** 7/2/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
Surr: Nitrobenzene-d5	53.1	0	18.7-120		%Rec	1	7/22/2020 10:36:15 PM	53528
Surr: 2-Fluorobiphenyl	39.0	0	23.6-103		%Rec	1	7/22/2020 10:36:15 PM	53528
Surr: 4-Terphenyl-d14	78.1	0	24.1-105		%Rec	1	7/22/2020 10:36:15 PM	53528
TCLP VOLATILES BY 8260B							Analyst: **RAA**	
Benzene	ND	0.00023	0.50		mg/L	200	7/3/2020 9:01:00 AM	T70092
1,2-Dichloroethane (EDC)	ND	0.00022	0.50		mg/L	200	7/3/2020 9:01:00 AM	T70092
2-Butanone	ND	0.0011	200		mg/L	200	7/3/2020 9:01:00 AM	T70092
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	7/3/2020 9:01:00 AM	T70092
Chloroform	ND	0.00013	6.0		mg/L	200	7/3/2020 9:01:00 AM	T70092
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	7/3/2020 9:01:00 AM	T70092
1,1-Dichloroethene	ND	0.00013	0.70		mg/L	200	7/3/2020 9:01:00 AM	T70092
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	7/3/2020 9:01:00 AM	T70092
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	7/3/2020 9:01:00 AM	T70092
Vinyl chloride	ND	0.00020	0.20		mg/L	200	7/3/2020 9:01:00 AM	T70092
Chlorobenzene	ND	0.00014	100		mg/L	200	7/3/2020 9:01:00 AM	T70092
Surr: 1,2-Dichloroethane-d4	100	0	70-130		%Rec	200	7/3/2020 9:01:00 AM	T70092
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	200	7/3/2020 9:01:00 AM	T70092
Surr: Dibromofluoromethane	99.0	0	70-130		%Rec	200	7/3/2020 9:01:00 AM	T70092
Surr: Toluene-d8	102	0	70-130		%Rec	200	7/3/2020 9:01:00 AM	T70092
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	8000	10	10		µmhos/c	1	7/7/2020 1:55:42 PM	R70195
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	600.2	20.00	20.00		mg/L Ca	1	7/7/2020 1:55:42 PM	R70195
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	7/7/2020 1:55:42 PM	R70195
Total Alkalinity (as CaCO3)	600.2	20.00	20.00		mg/L Ca	1	7/7/2020 1:55:42 PM	R70195
SPECIFIC GRAVITY							Analyst: **JRR**	
Specific Gravity	1.006	0	0			1	7/17/2020 9:28:00 AM	R70411
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	5830	200	200	*D	mg/L	1	7/8/2020 6:10:00 PM	53532

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 13, 2020

Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1236410
Samples Received:	07/03/2020
Project Number:	
Description:	

Report To: Jackie Bolte
4901 Hawkins NE
Albuquerque, NM 87109

Entire Report Reviewed By:

John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 4

Sr: Sample Results 5

2007093-001E WDW-1,2,3&4 EFFLUENT L1236410-01 5

2007093-001F WDW-1,2,3&4 EFFLUENT L1236410-02 6

2007093-001G WDW-1,2,3&4 EFFLUENT L1236410-03 7

Qc: Quality Control Summary 8

Wet Chemistry by Method 2580 8

Wet Chemistry by Method 4500 CN E-2011 9

Wet Chemistry by Method 4500H+ B-2011 10

Wet Chemistry by Method 9034-9030B 11

Wet Chemistry by Method D93/1010A 12

Gl: Glossary of Terms 13

Al: Accreditations & Locations 14

Sc: Sample Chain of Custody 15

2007093-001E WDW-1,2,3&4 EFFLUENT L1236410-01 WW

			Collected by	Collected date/time	Received date/time	
				06/30/20 09:05	07/03/20 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1504658	1	07/07/20 05:39	07/07/20 05:39	AKA	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG1504187	1	07/06/20 18:00	07/06/20 18:00	KEG	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1506806	1	07/11/20 19:15	07/11/20 19:15	JIC	Mt. Juliet, TN

2007093-001F WDW-1,2,3&4 EFFLUENT L1236410-02 WW

			Collected by	Collected date/time	Received date/time	
				06/30/20 09:05	07/03/20 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9034-9030B	WG1504791	1	07/07/20 15:24	07/07/20 15:24	SL	Mt. Juliet, TN

2007093-001G WDW-1,2,3&4 EFFLUENT L1236410-03 WW

			Collected by	Collected date/time	Received date/time	
				06/30/20 09:05	07/03/20 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500 CN E-2011	WG1507317	1	07/11/20 09:00	07/11/20 13:49	SDL	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 9012B.
All Reactive Sulfide results reported in the attached report were determined as totals using method 9034/9030B.

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	53.0	Q	1	07/07/2020 05:39	WG1504658

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
Corrosivity by pH	7.77	T8	1	07/06/2020 18:00	WG1504187

Sample Narrative:

L1236410-01 WG1504187: 7.77 at 23.4C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	deg F			date / time	
Flashpoint	DNF at 170		1	07/11/2020 19:15	WG1506806

Wet Chemistry by Method 9034-9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Sulfide	0.0840		0.0500	1	07/07/2020 15:24	WG1504791

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Cyanide	0.0585		0.00500	1	07/11/2020 13:49	WG1507317

Received by OCD: 5/16/2022 2:12:41 PM

L1236077-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1236077-01 07/07/20 05:39 • (DUP) R3546691-2 07/07/20 05:39

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	37.7	55.8	1	18.1		20

Laboratory Control Sample (LCS)

(LCS) R3546691-1 07/07/20 05:39

Analyte	Spike Amount mV	LCS Result mV	LCS Rec. %	Rec. Limits %	LCS Qualifier
ORP	228	226	99.0	86.0-105	

Released to Imaging: 7/12/2024 10:49:45 AM

Method Blank (MB)

(MB) R3548467-1 07/11/20 13:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Cyanide	U		0.00180	0.00500

L1236173-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1236173-02 07/11/20 13:39 • (DUP) R3548467-3 07/11/20 13:40

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

L1238167-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1238167-01 07/11/20 14:07 • (DUP) R3548467-8 07/11/20 14:08

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Cyanide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3548467-2 07/11/20 13:35

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	0.100	0.110	110	90.0-110	

L1236175-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1236175-02 07/11/20 13:41 • (MS) R3548467-4 07/11/20 13:42 • (MSD) R3548467-5 07/11/20 13:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	ND	0.102	0.102	102	102	1	75.0-125			0.000	20

L1236410-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1236410-03 07/11/20 13:49 • (MS) R3548467-6 07/11/20 13:50 • (MSD) R3548467-7 07/11/20 13:51

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Cyanide	0.100	0.0585	0.142	0.139	83.5	80.5	1	75.0-125			2.14	20

Received by OCD: 5/16/2022 2:12:41 PM

Laboratory Control Sample (LCS)

(LCS) R3546621-1 07/06/20 18:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.04 at 22.7C

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Method Blank (MB)

(MB) R3547698-1 07/07/20 14:56

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Reactive Sulfide	U		0.00650	0.0500

Laboratory Control Sample (LCS)

(LCS) R3547698-2 07/07/20 14:56

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	0.500	0.473	94.6	85.0-115	

Released to Imaging: 7/12/2024 10:49:45 AM

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3548542-1 07/11/20 19:15 • (LCSD) R3548542-2 07/11/20 19:15

Analyte	Spike Amount deg F	LCS Result deg F	LCSD Result deg F	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Flashpoint	126	127	125	101	99.1	96.0-104			1.59	10

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.
T8	Sample(s) received past/too close to holding time expiration.

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

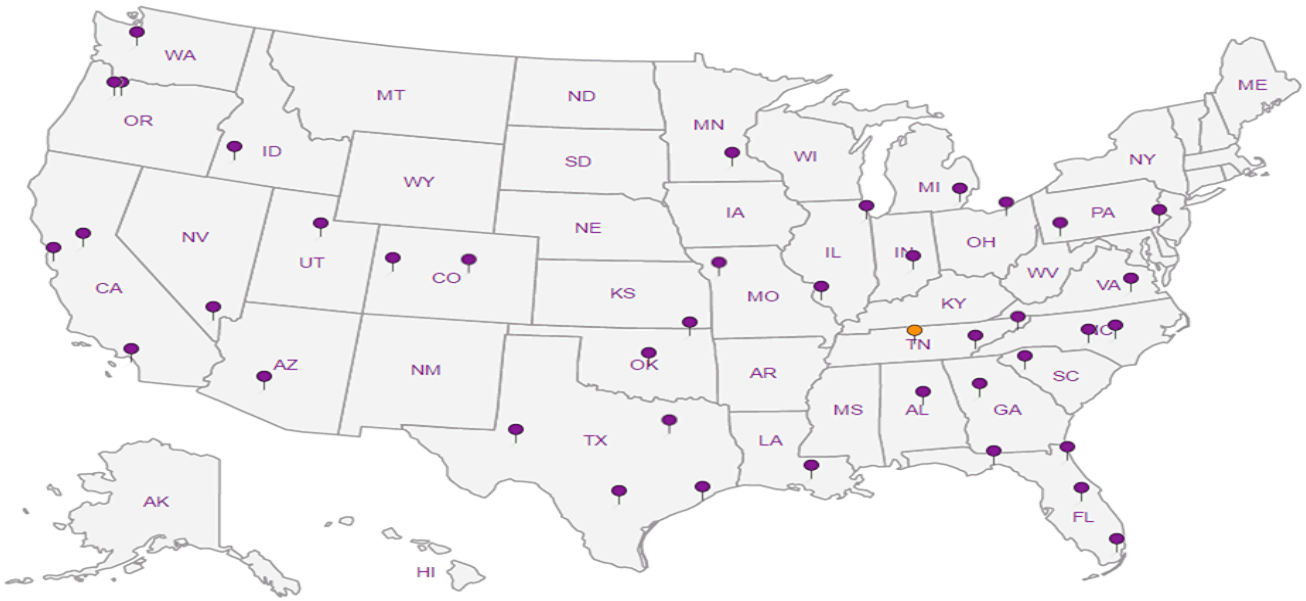
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Received by OCD: 5/16/2022 2:12:41 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

C107

L1234410

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: clients.hallenvironmental.com

SUB CONTRATOR:	Pace TN	COMPANY: PACE TN	PHONE: (800) 767-5859	FAX: (615) 758-5859	
ADDRESS:	12065 Lebanon Rd		ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP:	Mt. Juliet, TN 37122				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS	
1	2007093-001E	WDW-1,2,3 & 4 Effluent	500HDPE	Aqueous	6/30/2020 9:05:00 AM	1	Reactivity, Corrosivity, and Ignitability, ORP	-01
2	2007093-001F	WDW-1,2,3 & 4 Effluent	500PLNAOH ZNAC	Aqueous	6/30/2020 9:05:00 AM	1	Reactivity, Corrosivity, and Ignitability >12 RCV	-02
3	2007093-001G	WDW-1,2,3 & 4 Effluent	500PL-NaOH	Aqueous	6/30/2020 9:05:00 AM	1	Reactivity, Corrosivity, and Ignitability >12 RCV	-03

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: EM	Date: 7/2/2020	Time: 1:13 PM	Received By:	Date: 7/3/20	Time: 8:30
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples 1.2+0=1.2 °C NM Attempt to Cool ?
Comments:

1745 9998 5682 Total 2

Released to Imaging: 7/12/2024 10:49:45 AM

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: HALLENVANM	L1236410	
Cooler Received/Opened On: 7/9/20 Temperature:	1.2	
Received By: Cole Medley		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?		✓	

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R70144** RunNo: **70144**
Prep Date: Analysis Date: **7/6/2020** SeqNo: **2437459** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R70144** RunNo: **70144**
Prep Date: Analysis Date: **7/6/2020** SeqNo: **2437460** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.46	0.10	0.5000	0	91.4	90	110			
Bromide	2.4	0.10	2.500	0	97.2	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	93.0	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	95.9	90	110			

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R70207** RunNo: **70207**
Prep Date: Analysis Date: **7/8/2020** SeqNo: **2439817** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R70207** RunNo: **70207**
Prep Date: Analysis Date: **7/8/2020** SeqNo: **2439818** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.6	90	110			
Sulfate	9.7	0.50	10.00	0	97.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **100ng lcs2** SampType: **LCS** TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW** Batch ID: **T70092** RunNo: **70092**
Prep Date: Analysis Date: **7/3/2020** SeqNo: **2435469** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.019	0.015	0.02000	0	93.9	70	130			
1,1-Dichloroethene	0.019	0.015	0.02000	0	95.6	70	130			
Trichloroethene (TCE)	0.017	0.015	0.02000	0	85.0	70	130			
Chlorobenzene	0.020	0.015	0.02000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	0.0098		0.01000		97.9	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		100	70	130			
Surr: Dibromofluoromethane	0.0095		0.01000		95.3	70	130			
Surr: Toluene-d8	0.010		0.01000		102	70	130			

Sample ID: **mb2** SampType: **MBLK** TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW** Batch ID: **T70092** RunNo: **70092**
Prep Date: Analysis Date: **7/3/2020** SeqNo: **2435470** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0098		0.01000		98.0	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		102	70	130			
Surr: Dibromofluoromethane	0.0097		0.01000		97.0	70	130			
Surr: Toluene-d8	0.010		0.01000		102	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **mb-53528** SampType: **MBLK** TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW** Batch ID: **53528** RunNo: **70542**
Prep Date: **7/7/2020** Analysis Date: **7/22/2020** SeqNo: **2453803** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.13		0.2000		67.3	15	81.1			
Surr: Phenol-d5	0.10		0.2000		52.1	15	61.1			
Surr: 2,4,6-Tribromophenol	0.15		0.2000		74.1	17.2	108			
Surr: Nitrobenzene-d5	0.078		0.1000		77.9	18.7	120			
Surr: 2-Fluorobiphenyl	0.059		0.1000		59.0	23.6	103			
Surr: 4-Terphenyl-d14	0.11		0.1000		114	24.1	105			S

Sample ID: **lcs-53528** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW** Batch ID: **53528** RunNo: **70542**
Prep Date: **7/7/2020** Analysis Date: **7/22/2020** SeqNo: **2453804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.077	0.0010	0.1000	0	76.5	33.8	121			
3+4-Methylphenol	0.16	0.0010	0.2000	0	81.8	33.6	109			
2,4-Dinitrotoluene	0.055	0.0010	0.1000	0	54.8	50.4	124			
Hexachlorobenzene	0.088	0.0010	0.1000	0	88.1	50.1	120			
Hexachlorobutadiene	0.043	0.0010	0.1000	0	42.5	16.1	103			
Hexachloroethane	0.042	0.0010	0.1000	0	42.3	15	94.2			
Nitrobenzene	0.087	0.0010	0.1000	0	87.4	32.4	125			
Pentachlorophenol	0.080	0.0010	0.1000	0	79.7	44.6	114			
Pyridine	0.011	0.0010	0.1000	0	11.2	15	67			S
2,4,5-Trichlorophenol	0.082	0.0010	0.1000	0	81.9	49.4	118			
2,4,6-Trichlorophenol	0.083	0.0010	0.1000	0	82.6	50.3	116			
Cresols, Total	0.24	0.0010	0.3000	0	80.0	33.8	109			
Surr: 2-Fluorophenol	0.12		0.2000		61.5	15	81.1			
Surr: Phenol-d5	0.092		0.2000		45.8	15	61.1			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		72.4	17.2	108			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **lcs-53528** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW** Batch ID: **53528** RunNo: **70542**
Prep Date: **7/7/2020** Analysis Date: **7/22/2020** SeqNo: **2453804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.080		0.1000		80.5	18.7	120			
Surr: 2-Fluorobiphenyl	0.060		0.1000		59.6	23.6	103			
Surr: 4-Terphenyl-d14	0.11		0.1000		108	24.1	105			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **lcs-1 99.5uS eC**	SampType: **lcs**		TestCode: **SM2510B: Specific Conductance**		
Client ID: **LCSW**	Batch ID: **R70195**		RunNo: **70195**		
Prep Date:	Analysis Date: **7/7/2020**		SeqNo: **2439134**	Units: **µmhos/cm**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	10	99.50	0	99.8	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **MB-53531** SampType: **MBLK** TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW** Batch ID: **53531** RunNo: **70152**
Prep Date: **7/7/2020** Analysis Date: **7/7/2020** SeqNo: **2437876** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LLLCS-53531** SampType: **LCSLL** TestCode: **EPA Method 7470: Mercury**
Client ID: **BatchQC** Batch ID: **53531** RunNo: **70152**
Prep Date: **7/7/2020** Analysis Date: **7/7/2020** SeqNo: **2437877** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00014	0.00020	0.0001500	0	96.1	50	150			J

Sample ID: **LCS-53531** SampType: **LCS** TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW** Batch ID: **53531** RunNo: **70152**
Prep Date: **7/7/2020** Analysis Date: **7/7/2020** SeqNo: **2437878** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A70109**	RunNo: **70109**
Prep Date:	Analysis Date: **7/6/2020**	SeqNo: **2436395** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A70109**	RunNo: **70109**
Prep Date:	Analysis Date: **7/6/2020**	SeqNo: **2436396** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.3	80	120			
Magnesium	50	1.0	50.00	0	99.4	80	120			
Potassium	49	1.0	50.00	0	97.8	80	120			
Sodium	49	1.0	50.00	0	98.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **MB-53551** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **53551** RunNo: **70197**
Prep Date: **7/7/2020** Analysis Date: **7/8/2020** SeqNo: **2439313** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.030								
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.020								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-53551** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **53551** RunNo: **70197**
Prep Date: **7/7/2020** Analysis Date: **7/8/2020** SeqNo: **2439314** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.45	0.030	0.5000	0	89.1	80	120			
Barium	0.47	0.0020	0.5000	0	93.1	80	120			
Cadmium	0.46	0.0020	0.5000	0	92.8	80	120			
Chromium	0.45	0.0060	0.5000	0	89.1	80	120			
Lead	0.45	0.020	0.5000	0	90.6	80	120			
Selenium	0.45	0.050	0.5000	0	90.1	80	120			
Silver	0.095	0.0050	0.1000	0	95.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R70195**	RunNo: **70195**							
Prep Date:	Analysis Date: **7/7/2020**	SeqNo: **2439098**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R70195**	RunNo: **70195**							
Prep Date:	Analysis Date: **7/7/2020**	SeqNo: **2439099**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.40	20.00	80.00	0	95.5	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R70195**	RunNo: **70195**							
Prep Date:	Analysis Date: **7/7/2020**	SeqNo: **2439121**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R70195**	RunNo: **70195**							
Prep Date:	Analysis Date: **7/7/2020**	SeqNo: **2439122**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.32	20.00	80.00	0	96.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **2007093-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**
Client ID: **WDW-1,2,3 & 4 Effl** Batch ID: **R70411** RunNo: **70411**
Prep Date: Analysis Date: **7/17/2020** SeqNo: **2447669** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.008	0						0.159	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2007093**
23-Jul-20

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID: **MB-53532**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **PBW**	Batch ID: **53532**	RunNo: **70189**							
Prep Date: **7/7/2020**	Analysis Date: **7/8/2020**	SeqNo: **2438885**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-53532**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **LCSW**	Batch ID: **53532**	RunNo: **70189**							
Prep Date: **7/7/2020**	Analysis Date: **7/8/2020**	SeqNo: **2438886**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	995	20.0	1000	0	99.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **Navajo Refining** Work Order Number: **2007093** RcptNo: **1**

Received By: **Emily Mocho** **7/2/2020 8:00:00 AM**

Completed By: **Emily Mocho** **7/2/2020 8:44:04 AM**

Reviewed By: LB 7/2/20

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☑	No ☑ EM 7/2/20	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 3 (<2 or >12 unless noted)

Adjusted? 1 yes

Checked by: EM 7/2/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks: Added 0.5 mL HNO_3 to 001H for pH < 2 for metals analysis EM 7/2/20

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Not Present			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: 2.6 ±0 = 2.6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 2007093	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
6/30/20	9:05	Liquid	WDW-1, 2, 3 & 4 Effluent	3	Neat/H2SO4	-001	X						X	
6/30/20	9:05	Liquid	WDW-1, 2, 3 & 4 Effluent	1	HNO3						X	X		
6/30/20	9:05	Liquid	WDW-1, 2, 3 & 4 Effluent	3	HCL			X						
6/30/20	9:05	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat				X					
6/30/20	9:05	Liquid	WDW-1, 2, 3 & 4 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
7-1-20	9:30	Brady Hubbard	EKM Courier	7/2/20	8:00

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH 7.63, 41.4C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

QUARTERLY INJECTION REPORTS

HOLLYFRONTIER.

May 15, 2020

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7018 0040 0000 9065 6688

RE: 2020 1st Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4
HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the first quarter 2020 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing the volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for each well was 1139 psig for WDW-1, 1164 psig for WDW-2, 1078 psig for WDW-3 and 118 psig for WDW-4.The average flows were 124 gpm for WDW-1, 45 gpm for WDW-2, 50 gpm for WDW-3 and 254 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from January 1, 2020 to March 31, 2020. Navajo has disposed a total of 1,477,645 barrels of fluid into the four wells during the first quarter of 2020. The volume per well is:

- 387,737 barrels into WDW-1; 30-015-27592
- 138,788 barrels into WDW-2; 30-015-20894
- 156,685 barrels into WDW-3; 30-015-26575
- 794,435 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Released to Imaging: 7/12/2024 10:49:45 AM

Page 252 of 5828

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

2020 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												
Jan-20	1,182	128	145	107	515	631	432	4,389	4,971	3,669	**136,046**	45,183,615
Feb-20	1,154	127	142	113	495	644	335	4,354	4,869	3,874	**126,274**	45,309,889
Mar-20	1,082	118	134	100	534	692	368	4,046	4,594	3,429	**125,417**	45,435,306
Monthly Avg	1,139	124								**TOTAL**	387,737	
30-015-20894 WDW-2												
Jan-20	1,189	33	46	0	549	661	408	1,131	1,577	0	**35,074**	28,529,275
Feb-20	1,185	53	65	31	580	790	349	1,817	2,229	1,063	**52,697**	28,581,972
Mar-20	1,119	48	72	14	669	1,068	410	1,646	2,469	480	**51,017**	28,632,989
Monthly Avg	1,164	45								**TOTAL**	138,788	
30-015-26575 WDW-3												
Jan-20	1,107	43	87	0	634	752	509	1,474	2,983	0	**45,703**	20,253,752
Feb-20	1,075	40	89	0	592	729	497	1,371	3,051	0	**39,771**	20,293,523
Mar-20	1,051	67	90	45	761	932	604	2,297	3,086	1,543	**71,211**	20,364,734
Monthly Avg	1,078	50								**TOTAL**	156,685	
30-015-44677 WDW-4												
Jan-20	107	247	307	153	194	245	111	8,469	10,526	5,246	**262,526**	3,291,018
Feb-20	119	241	302	171	187	252	107	8,263	10,354	5,863	**239,623**	3,530,641
Mar-20	127	275	325	219	212	266	113	9,429	11,143	7,509	**292,286**	3,822,927
Monthly Avg	118	254								**TOTAL**	794,435	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	387,737	45,047,569	45,435,306
WDW2	138,788	28,494,201	28,632,989
WDW3	156,685	20,208,049	20,364,734
WDW4	794,435	3,028,492	3,822,927

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 15, 2020

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX:

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 2003D28

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/31/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2003D28**
Date Reported: **4/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 2003D28-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,& 3 Effluent
Collection Date: 3/29/2020 3:10:00 PM
Received Date: 3/31/2020 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	9.8	0.11	0.50	*	mg/L	5	4/6/2020 1:26:22 PM	R67896
Chloride	730	25	50	*	mg/L	100	4/7/2020 9:12:28 PM	R67927
Bromide	2.5	0.25	0.50		mg/L	5	4/6/2020 1:26:22 PM	R67896
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	4/6/2020 1:26:22 PM	R67896
Sulfate	2100	25	50	*	mg/L	100	4/7/2020 9:12:28 PM	R67927
Nitrate+Nitrite as N	0.56	0.12	1.0	J	mg/L	5	4/6/2020 1:52:08 PM	R67896
EPA METHOD 7470: MERCURY							Analyst: **pmf**	
Mercury	ND	0.00012	0.020		mg/L	1	4/6/2020 5:09:26 AM	51574
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **ELS**	
Calcium	310	0.23	5.0		mg/L	5	4/2/2020 10:12:08 AM	A67781
Magnesium	120	0.097	5.0		mg/L	5	4/2/2020 10:12:08 AM	A67781
Potassium	88	0.21	1.0		mg/L	1	4/2/2020 10:10:06 AM	A67781
Sodium	1200	5.3	20		mg/L	20	4/2/2020 10:18:14 AM	A67781
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: **ELS**	
Arsenic	0.032	0.022	5.0	J	mg/L	1	4/9/2020 1:11:18 PM	51501
Barium	0.039	0.0011	100	J	mg/L	1	4/9/2020 1:11:18 PM	51501
Cadmium	ND	0.00090	1.0		mg/L	1	4/9/2020 1:11:18 PM	51501
Chromium	ND	0.0014	5.0		mg/L	1	4/9/2020 1:11:18 PM	51501
Lead	ND	0.013	5.0		mg/L	1	4/9/2020 1:11:18 PM	51501
Selenium	ND	0.021	1.0		mg/L	1	4/9/2020 1:11:18 PM	51501
Silver	0.0081	0.0013	5.0	J	mg/L	1	4/9/2020 1:11:18 PM	51501
EPA METHOD 8270C TCLP							Analyst: **DAM**	
2-Methylphenol	ND	0.036	2000		mg/L	1	4/5/2020 1:30:03 PM	51488
3+4-Methylphenol	ND	0.046	2000		mg/L	1	4/5/2020 1:30:03 PM	51488
2,4-Dinitrotoluene	ND	0.034	1.3		mg/L	1	4/5/2020 1:30:03 PM	51488
Hexachlorobenzene	ND	0.034	1.3		mg/L	1	4/5/2020 1:30:03 PM	51488
Hexachlorobutadiene	ND	0.042	5.0		mg/L	1	4/5/2020 1:30:03 PM	51488
Hexachloroethane	ND	0.040	30		mg/L	1	4/5/2020 1:30:03 PM	51488
Nitrobenzene	ND	0.040	20		mg/L	1	4/5/2020 1:30:03 PM	51488
Pentachlorophenol	ND	0.076	1000		mg/L	1	4/5/2020 1:30:03 PM	51488
Pyridine	ND	0.034	50		mg/L	1	4/5/2020 1:30:03 PM	51488
2,4,5-Trichlorophenol	ND	0.043	4000		mg/L	1	4/5/2020 1:30:03 PM	51488
2,4,6-Trichlorophenol	ND	0.036	20		mg/L	1	4/5/2020 1:30:03 PM	51488
Cresols, Total	ND	0.063	2000		mg/L	1	4/5/2020 1:30:03 PM	51488
Surr: 2-Fluorophenol	46.2	0	15-81.1		%Rec	1	4/5/2020 1:30:03 PM	51488
Surr: Phenol-d5	34.6	0	15-61.1		%Rec	1	4/5/2020 1:30:03 PM	51488
Surr: 2,4,6-Tribromophenol	60.0	0	17.2-108		%Rec	1	4/5/2020 1:30:03 PM	51488

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2003D28**
Date Reported: **4/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 2003D28-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,& 3 Effluent
Collection Date: 3/29/2020 3:10:00 PM
Received Date: 3/31/2020 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C TCLP							Analyst: **DAM**	
Surr: Nitrobenzene-d5	59.4	0	18.7-120		%Rec	1	4/5/2020 1:30:03 PM	51488
Surr: 2-Fluorobiphenyl	57.2	0	23.6-103		%Rec	1	4/5/2020 1:30:03 PM	51488
Surr: 4-Terphenyl-d14	66.2	0	24.1-105		%Rec	1	4/5/2020 1:30:03 PM	51488
TCLP VOLATILES BY 8260B							Analyst: **RAA**	
Benzene	ND	0.00023	0.50		mg/L	200	4/6/2020 4:18:00 PM	R67944
1,2-Dichloroethane (EDC)	ND	0.00022	0.50		mg/L	200	4/6/2020 4:18:00 PM	R67944
2-Butanone	ND	0.0011	200		mg/L	200	4/6/2020 4:18:00 PM	R67944
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	200	4/6/2020 4:18:00 PM	R67944
Chloroform	ND	0.00013	6.0		mg/L	200	4/6/2020 4:18:00 PM	R67944
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	200	4/6/2020 4:18:00 PM	R67944
1,1-Dichloroethene	ND	0.00013	0.70		mg/L	200	4/6/2020 4:18:00 PM	R67944
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	200	4/6/2020 4:18:00 PM	R67944
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	200	4/6/2020 4:18:00 PM	R67944
Vinyl chloride	ND	0.00020	0.20		mg/L	200	4/6/2020 4:18:00 PM	R67944
Chlorobenzene	ND	0.00014	100		mg/L	200	4/6/2020 4:18:00 PM	R67944
Surr: 1,2-Dichloroethane-d4	99.1	0	70-130		%Rec	200	4/6/2020 4:18:00 PM	R67944
Surr: 4-Bromofluorobenzene	98.0	0	70-130		%Rec	200	4/6/2020 4:18:00 PM	R67944
Surr: Dibromofluoromethane	99.3	0	70-130		%Rec	200	4/6/2020 4:18:00 PM	R67944
Surr: Toluene-d8	99.5	0	70-130		%Rec	200	4/6/2020 4:18:00 PM	R67944
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **vfs**	
Conductivity	6800	5.0	5.0		µmhos/c	1	4/1/2020 1:57:01 PM	R67769
SM2320B: ALKALINITY							Analyst: **vfs**	
Bicarbonate (As CaCO3)	1100	20.00	20.00		mg/L Ca	1	4/1/2020 1:57:01 PM	R67769
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	4/1/2020 1:57:01 PM	R67769
Total Alkalinity (as CaCO3)	1100	20.00	20.00		mg/L Ca	1	4/1/2020 1:57:01 PM	R67769
SPECIFIC GRAVITY							Analyst: **JRR**	
Specific Gravity	1.001	0	0			1	4/8/2020 10:27:00 AM	R67933
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	5120	100	100	*D	mg/L	1	4/7/2020 12:15:00 PM	51573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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RL	Reporting Limit

Analytical Report
Lab Order **2003D28**
Date Reported: **4/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 2003D28-002 **Matrix:** TRIP BLANK **Received Date:** 3/31/2020 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
TCLP VOLATILES BY 8260B							Analyst: **RAA**	
Benzene	ND	0.00023	0.50		mg/L	1	4/6/2020 4:41:00 PM	R67944
1,2-Dichloroethane (EDC)	ND	0.00022	0.50		mg/L	1	4/6/2020 4:41:00 PM	R67944
2-Butanone	ND	0.0011	200		mg/L	1	4/6/2020 4:41:00 PM	R67944
Carbon Tetrachloride	ND	0.00018	0.50		mg/L	1	4/6/2020 4:41:00 PM	R67944
Chloroform	ND	0.00013	6.0		mg/L	1	4/6/2020 4:41:00 PM	R67944
1,4-Dichlorobenzene	ND	0.00021	7.5		mg/L	1	4/6/2020 4:41:00 PM	R67944
1,1-Dichloroethene	ND	0.00013	0.70		mg/L	1	4/6/2020 4:41:00 PM	R67944
Tetrachloroethene (PCE)	ND	0.00036	0.70		mg/L	1	4/6/2020 4:41:00 PM	R67944
Trichloroethene (TCE)	ND	0.00020	0.50		mg/L	1	4/6/2020 4:41:00 PM	R67944
Vinyl chloride	ND	0.00020	0.20		mg/L	1	4/6/2020 4:41:00 PM	R67944
Chlorobenzene	ND	0.00014	100		mg/L	1	4/6/2020 4:41:00 PM	R67944
Surr: 1,2-Dichloroethane-d4	96.9	0	70-130		%Rec	1	4/6/2020 4:41:00 PM	R67944
Surr: 4-Bromofluorobenzene	97.2	0	70-130		%Rec	1	4/6/2020 4:41:00 PM	R67944
Surr: Dibromofluoromethane	97.4	0	70-130		%Rec	1	4/6/2020 4:41:00 PM	R67944
Surr: Toluene-d8	100	0	70-130		%Rec	1	4/6/2020 4:41:00 PM	R67944

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

April 09, 2020

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1205046

Samples Received: 04/02/2020

Project Number:

Description:

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

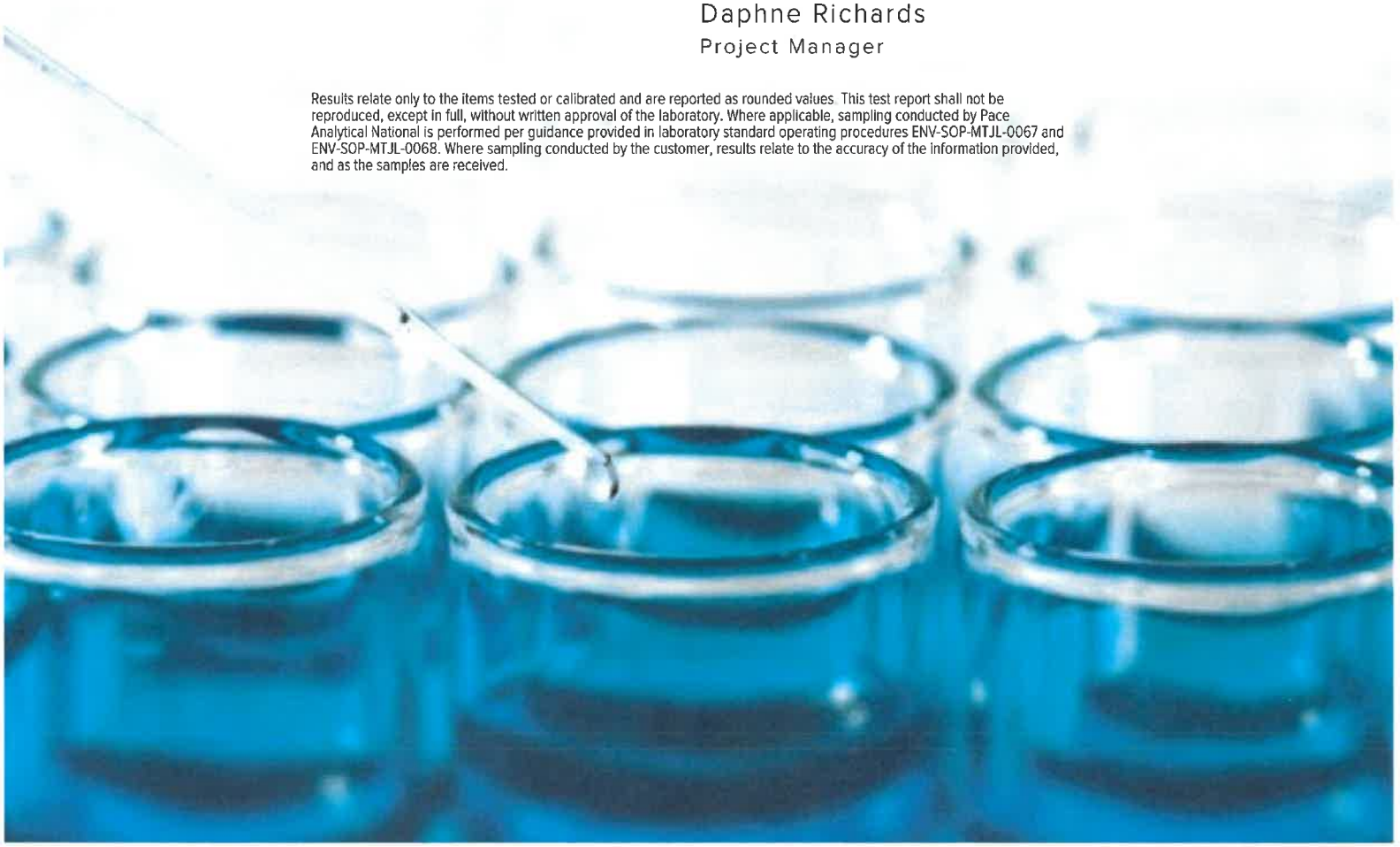

TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 4

Sr: Sample Results 5

2003D28-001E WDW-1,2,& 3 EFFLUENT L1205046-01 5

Qc: Quality Control Summary 6

Wet Chemistry by Method 2580 6

Wet Chemistry by Method 4500 CN E-2011 7

Wet Chemistry by Method 4500H+ B-2011 8

Wet Chemistry by Method 9034-9030B 9

Wet Chemistry by Method D93/1010A 10

Gl: Glossary of Terms 11

Al: Accreditations & Locations 12

Sc: Sample Chain of Custody 13

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.

	Collected by	Collected date/time	Received date/time
2003D28-001E WDW-1,2,& 3 EFFLUENT L1205046-01 WW		03/29/20 15:10	04/02/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2580	WG1456366	1	04/08/20 18:02	04/08/20 18:02	MJA	Mt. Juliet, TN
Wet Chemistry by Method 4500 CN E-2011	WG1456178	1	04/06/20 12:33	04/06/20 17:53	BAM	Mt. Juliet, TN
Wet Chemistry by Method 4500H+ B-2011	WG1455623	1	04/06/20 09:38	04/06/20 09:38	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9034-9030B	WG1456076	1	04/06/20 16:29	04/06/20 16:29	MJA	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG1456365	1	04/08/20 12:35	04/08/20 12:35	SL	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 9012B.

All Reactive Sulfide results reported in the attached report were determined as totals using method 9034/9030B.

2003D28-001E WDW-1,2,& 3 EFFLUENT

Collected date/time: 03/29/20 15:10

SAMPLE RESULTS - 01

L1205046

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	mV				
ORP	102	T8	1	04/08/2020 18:02	WG1456366

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Reactive Cyanide	0.0110		0.00500	1	04/06/2020 17:53	WG1456178

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
Corrosivity by pH	7.84	T8	1	04/06/2020 09:38	WG1455623

Sample Narrative:

L1205046-01 WG1455623: 7.84 at 20.1C

Wet Chemistry by Method 9034-9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Reactive Sulfide	0.0960	T8	0.0500	1	04/06/2020 16:29	WG1456076

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	deg F				
Flashpoint	DNF at 170		1	04/08/2020 12:35	WG1456365

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Released to Imaging: 7/12/2021 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

L1205046-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1205046-01 04/08/20 18:02 • (DUP) R3516856-2 04/08/20 18:02

Analyte	Original Result mV	DUP Result mV	Dilution	DUP Diff mV	DUP Qualifier	DUP Diff Limits mV
ORP	102	98.4	1	3.80		20

Laboratory Control Sample (LCS)

(LCS) R3516856-1 04/08/20 18:02

Analyte	Spike Amount mV	LCS Result mV	LCS Rec. %	Rec. Limits %	LCS Qualifier
ORP	92.0	95.1	103	86.0-105	

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Received by OCD: 5/16/2022 2:12:41 PM

Method Blank (MB)

(MB) R3516058-1 04/06/20 17:37

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Reactive Cyanide	U		0.00180	0.00500

L1204930-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1204930-02 04/06/20 17:50 • (DUP) R3516058-3 04/06/20 17:51

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Reactive Cyanide	ND	0.000	1	0.000		20

L1205197-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1205197-02 04/06/20 17:59 • (DUP) R3516058-6 04/06/20 18:02

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Reactive Cyanide	ND	0.00433	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3516058-2 04/06/20 17:38

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Reactive Cyanide	0.100	0.101	101	90.0-110	

L1205146-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1205146-03 04/06/20 17:54 • (MS) R3516058-4 04/06/20 17:55 • (MSD) R3516058-5 04/06/20 17:56

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.0910	0.0926	91.0	92.6	1	75.0-125			1.74	20

L1205422-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1205422-02 04/06/20 18:08 • (MS) R3516058-7 04/06/20 18:09 • (MSD) R3516058-8 04/06/20 18:10

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.0940	0.0974	94.0	97.4	1	75.0-125			3.55	20

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QUALITY CONTROL SUMMARY

L1205046-01

Laboratory Control Sample (LCS)

(LCS) R3515806-1 04/06/20 09:38

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	10.1	101	99.0-101	

Sample Narrative:
LCS: 10.05 at 19.5C

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Method Blank (MB)

(MB) R3516034-1 04/06/20 16:24

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Reactive Sulfide	U		0.00650	0.0500

Laboratory Control Sample (LCS)

(LCS) R3516034-2 04/06/20 16:24

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Reactive Sulfide	0.500	0.533	107	85.0-115	

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Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3516840-1 04/08/20 12:35 • (LCSD) R3516840-2 04/08/20 12:35

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	deg F	deg F	deg F	%	%	%			%	%
Flashpoint	82.0	82.9	82.9	101	101	97.0-103			0.000	10

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
T8	Sample(s) received past/too close to holding time expiration.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.

PROJECT: SDG: DATE/TIME: PAGE:

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR: PACE TN	COMPANY: PACE TN		PHONE: (800) 767-5859	FAX: (615) 758-5859	
ADDRESS: 12065 Lebanon Rd			ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP: Mt. Juliet, TN 37122					

L1205046

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2003D28-001E	WDW-1,2,& 3 Effluent	500HDPE	Aqueous	3/29/2020 3:10:00 PM	3	RCI and Oxidation Reduction Potential 7/2

-01

F022

SPECIAL INSTRUCTIONS / COMMENTS: 4510 1668 9388

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 3/31/2020	Time: 12:30 PM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: L. Walter 4/2/20	Date:	Time: 08:30

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples 5.1 0=5 uncorr 4.3 Attempt to Cool ?
RAD SCREEN: <0.5 mR/hr
Comments:

Page 269 of 5828

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Received by OCD: 5/16/2022 2:12:41 PM

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: HALLENVANM	L1205046	
Cooler Received/Opened On: 4 / 2 / 20 Temperature:	.5	
Received By: Lakeacher Webster		
Signature: L. Webster		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?			
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?		✓	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2003D28**

15-Apr-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R67896**	RunNo: **67896**
Prep Date:	Analysis Date: **4/6/2020**	SeqNo: **2345848** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R67896**	RunNo: **67896**
Prep Date:	Analysis Date: **4/6/2020**	SeqNo: **2345849** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	95.5	90	110			
Bromide	2.4	0.10	2.500	0	97.6	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.8	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.7	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R67927**	RunNo: **67927**
Prep Date:	Analysis Date: **4/7/2020**	SeqNo: **2347021** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R67927**	RunNo: **67927**
Prep Date:	Analysis Date: **4/7/2020**	SeqNo: **2347022** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.9	90	110			
Sulfate	9.7	0.50	10.00	0	96.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2003D28**

15-Apr-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **TCLP Volatiles by 8260B**

Client ID: **LCSW** Batch ID: **R67944** RunNo: **67944**

Prep Date: Analysis Date: **4/6/2020** SeqNo: **2347927** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.020	0.00023	0.02000	0	102	70	130			
1,1-Dichloroethene	0.020	0.00013	0.02000	0	101	70	130			
Trichloroethene (TCE)	0.020	0.00020	0.02000	0	98.3	70	130			
Chlorobenzene	0.022	0.00014	0.02000	0	110	70	130			
Surr: 1,2-Dichloroethane-d4	0.0098		0.01000		98.2	70	130			
Surr: 4-Bromofluorobenzene	0.0099		0.01000		98.7	70	130			
Surr: Dibromofluoromethane	0.0098		0.01000		98.0	70	130			
Surr: Toluene-d8	0.010		0.01000		101	70	130			

Sample ID: **MB** SampType: **MBLK** TestCode: **TCLP Volatiles by 8260B**

Client ID: **PBW** Batch ID: **R67944** RunNo: **67944**

Prep Date: Analysis Date: **4/6/2020** SeqNo: **2347928** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		100	70	130			
Surr: 4-Bromofluorobenzene	0.0099		0.01000		98.9	70	130			
Surr: Dibromofluoromethane	0.0099		0.01000		98.7	70	130			
Surr: Toluene-d8	0.010		0.01000		100	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2003D28**

15-Apr-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **lcs-1 98.7uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R67769**	RunNo: **67769**
Prep Date:	Analysis Date: **4/1/2020**	SeqNo: **2340424** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	98.70	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2003D28**

15-Apr-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-51574**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **51574**	RunNo: **67868**							
Prep Date: **4/6/2020**	Analysis Date: **4/6/2020**	SeqNo: **2344284**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCSLL-51574**	SampType: **LCSLL**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **BatchQC**	Batch ID: **51574**	RunNo: **67868**							
Prep Date: **4/6/2020**	Analysis Date: **4/6/2020**	SeqNo: **2344285**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00019	0.00020	0.0001500	0	125	50	150			J

Sample ID: **LCS-51574**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **51574**	RunNo: **67868**							
Prep Date: **4/6/2020**	Analysis Date: **4/6/2020**	SeqNo: **2344286**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2003D28**

15-Apr-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A67781**	RunNo: **67781**
Prep Date:	Analysis Date: **4/2/2020**	SeqNo: **2341007** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A67781**	RunNo: **67781**
Prep Date:	Analysis Date: **4/2/2020**	SeqNo: **2341010** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	50	1.0	50.00	0	100	80	120			
Potassium	48	1.0	50.00	0	96.5	80	120			
Sodium	50	1.0	50.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2003D28**

15-Apr-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-51501**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **51501**	RunNo: **68001**
Prep Date: **4/2/2020**	Analysis Date: **4/9/2020**	SeqNo: **2349954** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.030								
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.020								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-51501**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **51501**	RunNo: **68001**
Prep Date: **4/2/2020**	Analysis Date: **4/9/2020**	SeqNo: **2349955** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.030	0.5000	0	98.9	80	120			
Barium	0.49	0.0020	0.5000	0	97.3	80	120			
Cadmium	0.48	0.0020	0.5000	0	96.9	80	120			
Chromium	0.49	0.0060	0.5000	0	97.2	80	120			
Lead	0.48	0.020	0.5000	0	96.9	80	120			
Selenium	0.47	0.050	0.5000	0	94.4	80	120			
Silver	0.097	0.0050	0.1000	0	96.8	80	120			

Sample ID: **LCSD-51501**	SampType: **LCSD**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSS02**	Batch ID: **51501**	RunNo: **68001**
Prep Date: **4/2/2020**	Analysis Date: **4/9/2020**	SeqNo: **2349956** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.030	0.5000	0	100	80	120	1.32	20	
Barium	0.48	0.0020	0.5000	0	96.6	80	120	0.736	20	
Cadmium	0.48	0.0020	0.5000	0	96.8	80	120	0.0877	20	
Chromium	0.48	0.0060	0.5000	0	96.8	80	120	0.366	20	
Lead	0.48	0.020	0.5000	0	96.0	80	120	0.897	20	
Selenium	0.47	0.050	0.5000	0	94.8	80	120	0.443	20	
Silver	0.098	0.0050	0.1000	0	97.7	80	120	1.01	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2003D28**

15-Apr-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R67769**	RunNo: **67769**
Prep Date:	Analysis Date: **4/1/2020**	SeqNo: **2340399** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R67769**	RunNo: **67769**
Prep Date:	Analysis Date: **4/1/2020**	SeqNo: **2340400** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.60	20.00	80.00	0	97.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2003D28**

15-Apr-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-51573**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **51573**	RunNo: **67903**
Prep Date: **4/5/2020**	Analysis Date: **4/7/2020**	SeqNo: **2346133** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-51573**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **51573**	RunNo: **67903**
Prep Date: **4/5/2020**	Analysis Date: **4/7/2020**	SeqNo: **2346134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 2003D28 RcptNo: 1

Received By: Isaiah Ortiz 3/31/2020 8:50:00 AM I-Ox

Completed By: John Caldwell 3/31/2020 12:40:10 PM JohnCaldwell

Reviewed By: JR 3/31/20

Chain of Custody

1. Is Chain of Custody sufficiently complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☑	No ☐	NA ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 3 2 (<2 or >12 unless noted)
Adjusted? Yes
Checked by: JO 3/31/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks: For metals analysis added 0.5mL HNO_3 to sample -001D for proper pH level. JO 3/31/20

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.6	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: .7 -0.1 |+-| 1.6°

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 2003028	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
3.29.20	15:10	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
3.29.20	15:10	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
3.29.20	15:10	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
3.29.20	15:10	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
3.29.20	15:10	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				
			TB			-002								

Date	Time	Relinquished by	Received by	Date	Time
3.30.20	14:00	Brady Hubbard	Fedex	3/31/20	0850

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

7.57 pH, 39.1°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

JAN 29 2020 PM02:32

HOLLYFRONTIER.

January 27, 2020

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7018 1130 0000 9712 7371

RE: 2019 4th Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4 HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2019 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for each well was 1160 psig for WDW-1, 1192 psig for WDW-2, 1061 psig for WDW-3 and 103 psig for WDW-4.The average flows were 122 gpm for WDW-1, 41 gpm for WDW-2, 54 gpm for WDW-3 and 237 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from October 1, 2019 to December 31, 2019. Navajo has disposed a total of 1,433,315 barrels of fluid into the four wells during the fourth quarter of 2019. The volume per well is:

- 383,451 barrels into WDW-1; 30-015-27592
- 130,286 barrels into WDW-2; 30-015-20894
- 171,600 barrels into WDW-3; 30-015-26575
- 747,978 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2019 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1											**Previous Quar**	44,664,118
Oct-19	1,117	118	135	109	472	638	342	125,417	143,486	115,851	**125,417**	44,789,535
Nov-19	1,246	131	147	118	538	700	352	134,743	151,200	121,371	**134,743**	44,924,278
Dec-19	1,117	116	146	102	535	794	338	123,291	155,177	108,411	**123,291**	45,047,569
Monthly Avg	1,160	122								**TOTAL**	383,451	
30-015-20894 WDW-2											**Previous Quar**	28,363,915
Oct-19	1,142	44	78	24	510	766	342	46,766	82,903	25,509	**46,766**	28,410,681
Nov-19	1,227	44	83	4	581	805	380	45,257	85,371	4,114	**45,257**	28,455,938
Dec-19	1,207	36	48	23	511	693	388	38,263	51,017	24,446	**38,263**	28,494,201
Monthly Avg	1,192	41								**TOTAL**	130,286	
30-015-26575 WDW-3											**Previous Quar**	20,036,449
Oct-19	1,033	64	97	6	356	615	210	69,086	103,097	6,377	**69,086**	20,105,535
Nov-19	1,052	48	118	2	530	693	416	49,371	121,371	2,057	**49,371**	20,154,906
Dec-19	1,097	50	92	9	570	713	416	53,143	97,783	9,566	**53,143**	20,208,049
Monthly Avg	1,061	54								**TOTAL**	171,600	
30-015-44677 WDW-4											**Previous Quar**	2,280,514
Oct-19	100	233	318	100	126	177	92	247,646	337,989	106,286	**247,646**	2,528,160
Nov-19	100	225	294	135	177	248	119	231,429	302,400	138,857	**231,429**	2,759,589
Dec-19	109	253	323	182	162	246	105	268,903	343,303	193,440	**268,903**	3,028,492
Monthly Avg	103	237								**TOTAL**	747,978	

	Q4 Disposal bbls	Max Flow gpm
WDW-1	383,451	143
WDW-2	130,286	70
WDW-3	171,600	102
WDW-4	747,978	312

	Total BBLS	Beginning Volume	Ending Volume
WDW1	383,451	44,664,118	45,047,569
WDW2	130,286	28,363,915	28,494,201
WDW3	171,600	20,036,449	20,208,049
WDW4	747,978	2,280,514	3,028,492

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Received by OCD: 5/16/2022 2:12:41 PM

District I
1625 North French, Hobbs, NM 88241
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos, Aztec, NM 84710

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South Saint Francis Drive
Santa Fe, NM 87505
OPERATOR'S MONTHLY REPORT

Form C-115 First Page
Revised January 22, 2004
Instruction on Reverse Side
1 ☐ Amended Report

2 Operator NAVAJO REFINERY CO.	3 OGRID: 15694	12/2019
5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210		6 Page 1 of 4

		INJECTION			PRODUCTION					DISPOSITION OF OIL, GAS, AND WATER						
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 CODE 1	9 Volume	10 Pressure	11 CODE 2	12 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 CODE 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	123,291	1,117	W												
30-015-20894 WDW - 2	D	38,263	1,207	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	53,143	1,097	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	268,903	109	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

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District I
1625 North French, Hobbs, NM 88241
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos, Aztec, NM 84710

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South Saint Francis Drive
Santa Fe, NM 87505
OPERATOR'S MONTHLY REPORT

Form C-115 First Page
Revised January 22, 2004
Instruction on Reverse Side
1 ☐ Amended Report

2 Operator NAVAJO REFINERY CO. | 3 OGRID: 15694 | 11/2019
5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210 | 6 Page 1 of 4

7 POOL NO. AND NAME / Property No. and Name / Well No. & U-L-S-T-R / API No.	8 CODE 1	INJECTION 9 Volume	INJECTION 10 Pressure	11 CODE 2	PRODUCTION 12 Barrels of Oil/condensate produced	PRODUCTION 13 Barrels of water produced	PRODUCTION 14 MCF Gas Produced	PRODUCTION 15 Days Produced	16 CODE 3	DISPOSITION OF OIL, GAS, AND WATER 17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	134,743	1,246	W												
30-015-20894 WDW - 2	D	45,257	1,227	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	49,371	1,052	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	231,429	100	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

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OPERATOR'S MONTHLY REPORT

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2 Operator NAVAJO REFINERY CO.	3 OGRID: 15694	10/2019
5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210		6 Page 1 of 4

		INJECTION			PRODUCTION					DISPOSITION OF OIL, GAS, AND WATER						
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 CODE 1	9 Volume	10 Pressure	11 CODE 2	12 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 CODE 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	125,417	1,117	W												
30-015-20894 WDW - 2	D	46,766	1,142	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	69,086	1,033	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	247,646	100	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 23, 2020

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 2001084

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/3/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **2001084**
Date: **1/23/2020**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Analytical Notes for EPA Method 8270:
The laboratory control spike (LCS) recovery for pentachlorophenol was slightly low.

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Analytical Report
Lab Order **2001084**
Date Reported: **1/23/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 2001084-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/30/2019 1:35:00 PM
Received Date: 1/3/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **JME**
Chlordane	ND	0.030		mg/L	1	1/14/2020 12:21:38 PM
Surr: Decachlorobiphenyl	77.0	29.4-99.8		%Rec	1	1/14/2020 12:21:38 PM
Surr: Tetrachloro-m-xylene	70.3	20.7-100		%Rec	1	1/14/2020 12:21:38 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Fluoride	10	0.50	*	mg/L	5	1/3/2020 6:22:56 PM
Chloride	620	25	*	mg/L	50	1/8/2020 6:53:02 PM
Bromide	0.88	0.50		mg/L	5	1/3/2020 6:22:56 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	1/3/2020 6:22:56 PM
Sulfate	2200	25	*	mg/L	50	1/8/2020 6:53:02 PM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/8/2020 7:05:55 PM
EPA METHOD 7470: MERCURY						Analyst: **pmf**
Mercury	ND	0.020		mg/L	1	1/7/2020 4:56:36 PM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: **ELS**
Calcium	420	5.0		mg/L	5	1/9/2020 11:44:43 AM
Magnesium	130	5.0		mg/L	5	1/9/2020 11:44:43 AM
Potassium	52	5.0		mg/L	5	1/9/2020 11:44:43 AM
Sodium	650	10		mg/L	10	1/13/2020 9:07:35 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**
Arsenic	ND	5.0		mg/L	1	1/9/2020 8:33:50 AM
Barium	ND	100		mg/L	1	1/9/2020 8:33:50 AM
Cadmium	ND	1.0		mg/L	1	1/9/2020 8:33:50 AM
Chromium	ND	5.0		mg/L	1	1/9/2020 8:33:50 AM
Lead	ND	5.0		mg/L	1	1/9/2020 8:33:50 AM
Selenium	ND	1.0		mg/L	1	1/9/2020 8:33:50 AM
Silver	ND	5.0		mg/L	1	1/9/2020 8:33:50 AM
EPA METHOD 8270C TCLP						Analyst: **JDC**
2-Methylphenol	ND	200		mg/L	1	1/7/2020 1:06:40 PM
3+4-Methylphenol	ND	200		mg/L	1	1/7/2020 1:06:40 PM
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/7/2020 1:06:40 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/7/2020 1:06:40 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/7/2020 1:06:40 PM
Hexachloroethane	ND	3.0		mg/L	1	1/7/2020 1:06:40 PM
Nitrobenzene	ND	2.0		mg/L	1	1/7/2020 1:06:40 PM
Pentachlorophenol	ND	100		mg/L	1	1/7/2020 1:06:40 PM
Pyridine	ND	5.0		mg/L	1	1/7/2020 1:06:40 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/7/2020 1:06:40 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/7/2020 1:06:40 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Received by OCD: 5/16/2022 2:12:41 PM
Page 288 of 582

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Analytical Report
Lab Order **2001084**
Date Reported: **1/23/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 2001084-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/30/2019 1:35:00 PM
Received Date: 1/3/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C TCLP						Analyst: **JDC**
Cresols, Total	ND	200		mg/L	1	1/7/2020 1:06:40 PM
Surr: 2-Fluorophenol	41.0	15-82.5		%Rec	1	1/7/2020 1:06:40 PM
Surr: Phenol-d5	38.0	15-74.2		%Rec	1	1/7/2020 1:06:40 PM
Surr: 2,4,6-Tribromophenol	58.6	18.6-118		%Rec	1	1/7/2020 1:06:40 PM
Surr: Nitrobenzene-d5	75.7	30.4-106		%Rec	1	1/7/2020 1:06:40 PM
Surr: 2-Fluorobiphenyl	61.1	15-104		%Rec	1	1/7/2020 1:06:40 PM
Surr: 4-Terphenyl-d14	54.8	15-133		%Rec	1	1/7/2020 1:06:40 PM
NOTES: * See the case narrative for notes.						
TCLP VOLATILES BY 8260B						Analyst: **DJF**
Benzene	ND	0.50		mg/L	1	1/6/2020 5:25:38 PM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/6/2020 5:25:38 PM
2-Butanone	ND	200		mg/L	1	1/6/2020 5:25:38 PM
Carbon Tetrachloride	ND	0.50		mg/L	1	1/6/2020 5:25:38 PM
Chloroform	ND	6.0		mg/L	1	1/6/2020 5:25:38 PM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/6/2020 5:25:38 PM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/6/2020 5:25:38 PM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/6/2020 5:25:38 PM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/6/2020 5:25:38 PM
Vinyl chloride	ND	0.20		mg/L	1	1/6/2020 5:25:38 PM
Chlorobenzene	ND	100		mg/L	1	1/6/2020 5:25:38 PM
Surr: 1,2-Dichloroethane-d4	91.5	70-130		%Rec	1	1/6/2020 5:25:38 PM
Surr: 4-Bromofluorobenzene	92.6	70-130		%Rec	1	1/6/2020 5:25:38 PM
Surr: Dibromofluoromethane	106	70-130		%Rec	1	1/6/2020 5:25:38 PM
Surr: Toluene-d8	96.9	70-130		%Rec	1	1/6/2020 5:25:38 PM
CORROSIVITY						Analyst: **PAC**
pH	7.39			su	1	1/13/2020
IGNITABILITY METHOD 1010						Analyst: **PAC**
Ignitability	>170			°F	1	1/10/2020
OXIDATION REDUCTION POTENTIAL						Analyst: **PAC**
Oxidation-Reduction Potential	80			mV	1	1/8/2020
CYANIDE, REACTIVE						Analyst: **PAC**
Cyanide, Reactive	0.00549	0.00500		mg/L	1	1/9/2020
SULFIDE, REACTIVE						Analyst: **PAC**
Reactive Sulfide	0.050	0.050		mg/L	1	1/8/2020
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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PQL	Practical Quanitative Limit
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B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report
Lab Order **2001084**
Date Reported: **1/23/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 2001084-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/30/2019 1:35:00 PM
Received Date: 1/3/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	6400	5.0		µmhos/c	1	1/7/2020 3:14:21 PM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	460.7	20.00		mg/L Ca	1	1/7/2020 3:14:21 PM
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	1/7/2020 3:14:21 PM
Total Alkalinity (as CaCO3)	460.7	20.00		mg/L Ca	1	1/7/2020 3:14:21 PM
SPECIFIC GRAVITY						Analyst: **JRR**
Specific Gravity	1.010	0			1	1/16/2020 1:10:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **JMT**
Total Dissolved Solids	4480	20.0	*	mg/L	1	1/7/2020 1:59:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report
Lab Order **2001084**
Date Reported: **1/23/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 2001084-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 1/3/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TCLP VOLATILES BY 8260B						Analyst: **DJF**
Benzene	ND	0.50		mg/L	1	1/6/2020 5:55:01 PM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	1/6/2020 5:55:01 PM
2-Butanone	ND	200		mg/L	1	1/6/2020 5:55:01 PM
Carbon Tetrachloride	ND	0.50		mg/L	1	1/6/2020 5:55:01 PM
Chloroform	ND	6.0		mg/L	1	1/6/2020 5:55:01 PM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	1/6/2020 5:55:01 PM
1,1-Dichloroethene	ND	0.70		mg/L	1	1/6/2020 5:55:01 PM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	1/6/2020 5:55:01 PM
Trichloroethene (TCE)	ND	0.50		mg/L	1	1/6/2020 5:55:01 PM
Vinyl chloride	ND	0.20		mg/L	1	1/6/2020 5:55:01 PM
Chlorobenzene	ND	100		mg/L	1	1/6/2020 5:55:01 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	1/6/2020 5:55:01 PM
Surr: 4-Bromofluorobenzene	96.0	70-130		%Rec	1	1/6/2020 5:55:01 PM
Surr: Dibromofluoromethane	115	70-130		%Rec	1	1/6/2020 5:55:01 PM
Surr: Toluene-d8	97.8	70-130		%Rec	1	1/6/2020 5:55:01 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Page 291 of 5828

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001084**

23-Jan-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R65559**	RunNo: **65559**							
Prep Date:	Analysis Date: **1/3/2020**	SeqNo: **2252044**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R65559**	RunNo: **65559**							
Prep Date:	Analysis Date: **1/3/2020**	SeqNo: **2252045**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.6	90	110			
Bromide	2.4	0.10	2.500	0	97.6	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	91.8	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R65656**	RunNo: **65656**							
Prep Date:	Analysis Date: **1/8/2020**	SeqNo: **2255102**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R65656**	RunNo: **65656**							
Prep Date:	Analysis Date: **1/8/2020**	SeqNo: **2255103**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Sulfate	9.6	0.50	10.00	0	95.5	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Page 292 of 582

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001084**

23-Jan-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **RB**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T65591**	RunNo: **65591**
Prep Date:	Analysis Date: **1/6/2020**	SeqNo: **2252856** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0092		0.01000		91.8	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		99.7	70	130			
Surr: Dibromofluoromethane	0.011		0.01000		105	70	130			
Surr: Toluene-d8	0.0096		0.01000		96.2	70	130			

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T65591**	RunNo: **65591**
Prep Date:	Analysis Date: **1/6/2020**	SeqNo: **2252859** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50	0.02000	0	93.3	70	130			
1,1-Dichloroethene	ND	0.70	0.02000	0	94.9	70	130			
Trichloroethene (TCE)	ND	0.50	0.02000	0	89.2	70	130			
Chlorobenzene	ND	100	0.02000	0	88.5	70	130			
Surr: 1,2-Dichloroethane-d4	0.0093		0.01000		92.5	70	130			
Surr: 4-Bromofluorobenzene	0.0096		0.01000		95.9	70	130			
Surr: Dibromofluoromethane	0.0096		0.01000		96.1	70	130			
Surr: Toluene-d8	0.0099		0.01000		99.3	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Received by OCD: 5/16/2022 2:12:41 PM

Page 293 of 5828

Released to Imaging: 7/12/2024 10:49:45 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001084**

23-Jan-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **mb-49628**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW**	Batch ID: **49628**	RunNo: **65621**
Prep Date: **1/6/2020**	Analysis Date: **1/7/2020**	SeqNo: **2254214** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.091		0.2000		45.4	15	82.5			
Surr: Phenol-d5	0.080		0.2000		40.2	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		69.7	18.6	118			
Surr: Nitrobenzene-d5	0.078		0.1000		77.9	30.4	106			
Surr: 2-Fluorobiphenyl	0.076		0.1000		75.8	15	104			
Surr: 4-Terphenyl-d14	0.077		0.1000		77.2	15	133			

Sample ID: **lcs-49628**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW**	Batch ID: **49628**	RunNo: **65621**
Prep Date: **1/6/2020**	Analysis Date: **1/7/2020**	SeqNo: **2254215** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.069	0.010	0.1000	0	69.0	33.8	121			
3+4-Methylphenol	0.13	0.010	0.2000	0	64.5	33.6	109			
2,4-Dinitrotoluene	0.064	0.010	0.1000	0	63.8	50.4	124			
Hexachlorobenzene	0.069	0.010	0.1000	0	69.5	50.1	120			
Hexachlorobutadiene	0.066	0.010	0.1000	0	66.2	16.1	103			
Hexachloroethane	0.056	0.010	0.1000	0	56.0	15	94.2			
Nitrobenzene	0.071	0.010	0.1000	0	70.8	32.4	125			
Pentachlorophenol	0.043	0.010	0.1000	0	43.2	44.6	114			S
Pyridine	0.067	0.010	0.1000	0	66.6	15	67			
2,4,5-Trichlorophenol	0.069	0.010	0.1000	0	68.8	49.4	118			
2,4,6-Trichlorophenol	0.061	0.010	0.1000	0	61.1	50.3	116			
Cresols, Total	0.20	0.010	0.3000	0	66.0	33.8	109			
Surr: 2-Fluorophenol	0.096		0.2000		48.2	15	82.5			
Surr: Phenol-d5	0.085		0.2000		42.3	15	74.2			
Surr: 2,4,6-Tribromophenol	0.12		0.2000		60.4	18.6	118			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Received by OCD: 5/16/2022 2:12:41 PM

Page 294 of 582

Released to Imaging: 7/12/2024 10:49:45 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001084**

23-Jan-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **lcs-49628**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW**	Batch ID: **49628**	RunNo: **65621**
Prep Date: **1/6/2020**	Analysis Date: **1/7/2020**	SeqNo: **2254215** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.077		0.1000		77.2	30.4	106			
Surr: 2-Fluorobiphenyl	0.071		0.1000		71.0	15	104			
Surr: 4-Terphenyl-d14	0.073		0.1000		72.8	15	133			

NOTES:

* See the case narrative for analytical notes

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
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P	Sample pH Not In Range
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Received by OCD: 5/16/2022 2:12:41 PM

Page 295 of 582

Released to Imaging: 7/12/2024 10:49:45 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001084**

23-Jan-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **lcs-1 99.9uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R65634**	RunNo: **65634**
Prep Date:	Analysis Date: **1/7/2020**	SeqNo: **2254575** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.90	0	100	85	115			

Sample ID: **lcs-2 99.9uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R65634**	RunNo: **65634**
Prep Date:	Analysis Date: **1/7/2020**	SeqNo: **2254601** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.90	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Received by OCD: 5/16/2022 2:12:41 PM

Page 296 of 582

Released to Imaging: 7/12/2024 10:49:45 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001084**

23-Jan-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-49667**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **49667**	RunNo: **65616**							
Prep Date: **1/7/2020**	Analysis Date: **1/7/2020**	SeqNo: **2253871**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCSLL-49667**	SampType: **LCSLL**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **BatchQC**	Batch ID: **49667**	RunNo: **65616**							
Prep Date: **1/7/2020**	Analysis Date: **1/7/2020**	SeqNo: **2253872**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020	0.0001500	0	76.7	50	150			

Sample ID: **LCS-49667**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **49667**	RunNo: **65616**							
Prep Date: **1/7/2020**	Analysis Date: **1/7/2020**	SeqNo: **2253873**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Received by OCD: 5/16/2022 2:12:41 PM

Page 297 of 582

Released to Imaging: 7/12/2024 10:49:45 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001084**

23-Jan-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A65667**	RunNo: **65667**
Prep Date:	Analysis Date: **1/9/2020**	SeqNo: **2255583** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A65667**	RunNo: **65667**
Prep Date:	Analysis Date: **1/9/2020**	SeqNo: **2255584** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	51	1.0	50.00	0	101	80	120			
Potassium	50	1.0	50.00	0	100	80	120			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A65725**	RunNo: **65725**
Prep Date:	Analysis Date: **1/13/2020**	SeqNo: **2257503** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A65725**	RunNo: **65725**
Prep Date:	Analysis Date: **1/13/2020**	SeqNo: **2257505** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	50	1.0	50.00	0	100	80	120			

Qualifiers:

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D	Sample Diluted Due to Matrix
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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Received by OCD: 5/16/2022 2:12:41 PM

Page 298 of 5828

Released to Imaging: 7/12/2024 10:49:45 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001084**

23-Jan-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-49636**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **49636**	RunNo: **65667**
Prep Date: **1/6/2020**	Analysis Date: **1/9/2020**	SeqNo: **2255552** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-49636**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **49636**	RunNo: **65667**
Prep Date: **1/6/2020**	Analysis Date: **1/9/2020**	SeqNo: **2255556** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.46	0.020	0.5000	0	92.3	80	120			
Barium	0.47	0.020	0.5000	0	94.6	80	120			
Cadmium	0.47	0.0020	0.5000	0	94.2	80	120			
Chromium	0.46	0.0060	0.5000	0	92.8	80	120			
Lead	0.48	0.0050	0.5000	0	95.6	80	120			
Selenium	0.47	0.050	0.5000	0	94.4	80	120			
Silver	0.098	0.0050	0.1000	0	97.6	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Received by OCD: 5/16/2022 2:12:41 PM

Page 299 of 582

Released to Imaging: 7/12/2024 10:49:45 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001084**

23-Jan-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-R66014**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R66014**	RunNo: **66014**							
Prep Date:	Analysis Date: **1/9/2020**	SeqNo: **2267180**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID: **LCS-R66014**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R66014**	RunNo: **66014**							
Prep Date:	Analysis Date: **1/9/2020**	SeqNo: **2267181**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.103		0.1000	0	103	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Received by OCD: 5/16/2022 2:12:41 PM

Page 300 of 582

Released to Imaging: 7/12/2024 10:49:45 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001084**

23-Jan-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-R66014**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R66014**	RunNo: **66014**
Prep Date:	Analysis Date: **1/8/2020**	SeqNo: **2267183** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.0050								

Sample ID: **LCS-R66014**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R66014**	RunNo: **66014**
Prep Date:	Analysis Date: **1/8/2020**	SeqNo: **2267184** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.53		0.5000	0	106	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Received by OCD: 5/16/2022 2:12:41 PM

Page 301 of 582

Released to Imaging: 7/12/2024 10:49:45 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001084**

23-Jan-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R65634**	RunNo: **65634**							
Prep Date:	Analysis Date: **1/7/2020**	SeqNo: **2254554**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R65634**	RunNo: **65634**							
Prep Date:	Analysis Date: **1/7/2020**	SeqNo: **2254555**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.80	20.00	80.00	0	94.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Received by OCD: 5/16/2022 2:12:41 PM

Page 302 of 582

Released to Imaging: 7/12/2024 10:49:45 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001084**

23-Jan-20

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-49644**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **49644**	RunNo: **65609**
Prep Date: **1/6/2020**	Analysis Date: **1/7/2020**	SeqNo: **2253491** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-49644**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **49644**	RunNo: **65609**
Prep Date: **1/6/2020**	Analysis Date: **1/7/2020**	SeqNo: **2253492** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Received by OCD: 5/16/2022 2:12:41 PM

Page 303 of 582

Released to Imaging: 7/12/2024 10:49:45 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **NAVAJO REFINING CO** Work Order Number: **2001084** RcptNo: **1**

Received By: **Yazmine Garduno** **1/3/2020 9:00:00 AM**

Completed By: **Yazmine Garduno** **1/3/2020 3:20:50 PM**

Reviewed By: DAD 1/3/20

Chain of Custody

1. Is Chain of Custody sufficiently complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☑	No ☐	NA ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 3 2 (<2 or >12 unless noted)

Adjusted? NO

Checked by: JR 1/3/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.5	Good				

Received by OCD: 5/16/2022 2:12:41 PM

Page 305 of 5828

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
X Standard ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☐ Yes ☐ No

Sample Temperature: 0.1 -0.1 0.5

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No 2001081	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
12/30/19	13:35	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
12/30/19	13:35	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
12/30/19	13:35	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
12/30/19	13:35	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
12/30/19	13:35	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				X

Date:	Time:	Relinquished by:	Received by:	Date	Time
1.2.20	16:25	Brady Hubbard			
			FED EX	1/3/20	0900

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

Field Details: 7.50 pH, 33.3°C

Outside Temp: 43°F, 30% Humidity, Wind: SW 6mph, Conditions: Clear

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2022 10:49:45 AM

NOV 08 2019 PM02:41

November 4, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7018 1130 0000 9712 6718

RE: 2019 3rd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4 HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the third quarter 2019 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for each well was 1150 psig for WDW-1, 1174 psig for WDW-2, 1033 psig for WDW-3 and 106 psig for WDW-4.The average flows were 125 gpm for WDW-1, 52 gpm for WDW-2, 65 gpm for WDW-3 and 263 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from July 1, 2019 to September 30, 2019. Navajo has disposed a total of 1,596,583 barrels of fluid into the four wells during the third quarter of 2019. The volume per well is:

- 395,417 barrels into WDW-1; 30-015-27592
- 163,132 barrels into WDW-2; 30-015-20894
- 206,606 barrels into WDW-3; 30-015-26575
- 831,428 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Page 307 of 5828

NOV 08 2019 PM02:41

2019 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1											**Previous Quar**	44,268,701
Jul-19	1,219	131	147	113	438	606	271	139,234	156,240	120,103	**139,234**	44,407,935
Aug-19	1,099	122	151	95	273	487	104	129,669	160,491	100,971	**129,669**	44,537,604
Sep-19	1,133	123	144	105	397	518	193	126,514	148,114	108,000	**126,514**	44,664,118
Monthly Avg	1,150	125								**TOTAL**	395,417	
30-015-20894 WDW-2											**Previous Quar**	28,200,783
Jul-19	1,224	57	69	0	397	501	325	60,583	73,337	0	**60,583**	28,261,366
Aug-19	1,160	51	77	23	631	1,040	360	54,206	81,840	24,446	**54,206**	28,315,572
Sep-19	1,137	47	63	32	372	418	300	48,343	64,800	32,914	**48,343**	28,363,915
Monthly Avg	1,174	52								**TOTAL**	163,132	
30-015-26575 WDW-3											**Previous Quar**	19,829,843
Jul-19	1,045	69	106	40	383	555	250	73,337	112,663	42,514	**73,337**	19,903,180
Aug-19	1,062	77	109	0	394	593	218	81,840	115,851	0	**81,840**	19,985,020
Sep-19	993	50	112	5	397	515	300	51,429	115,200	5,143	**51,429**	20,036,449
Monthly Avg	1,033	65								**TOTAL**	206,606	
30-015-44677 WDW-4											**Previous Quar**	1,449,086
Jul-19	102	256	317	109	163	237	90	272,091	336,926	115,851	**272,091**	1,721,177
Aug-19	115	294	344	164	178	248	102	312,480	365,623	174,309	**312,480**	2,033,657
Sep-19	101	240	326	177	172	254	100	246,857	335,314	182,057	**246,857**	2,280,514
Monthly Avg	106	263								**TOTAL**	831,428	

	Q3 Disposal bbls	Max Flow gpm
WDW-1	395,417	147
WDW-2	163,132	70
WDW-3	206,606	109
WDW-4	831,428	329

	Total BBLS	Beginning Volume	Ending Volume
WDW1	395,417	44,268,701	44,664,118
WDW2	163,132	28,200,783	28,363,915
WDW3	206,606	19,829,843	20,036,449
WDW4	831,428	1,449,086	2,280,514
	1,596,583	93,748,413	

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 01, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1910144

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/2/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1910144**
Date: **11/1/2019**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Analytical Notes Regarding EPA Method 8270:
The recovery of pyridine in the LCS was low when compared to our SOP limits.

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1910144-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/30/2019 4:05:00 PM
Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **CJS**
Fluoride	31	2.0	*	mg/L	20	10/3/2019 11:52:11 PM
Chloride	430	25	*	mg/L	50	10/14/2019 2:16:22 PM
Bromide	ND	0.50		mg/L	5	10/3/2019 11:39:50 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	10/3/2019 11:39:50 PM
Sulfate	1700	25	*	mg/L	50	10/14/2019 2:16:22 PM
Nitrate+Nitrite as N	1.2	1.0		mg/L	5	10/4/2019 12:16:52 AM
EPA METHOD 7470: MERCURY						Analyst: **rde**
Mercury	ND	0.020		mg/L	1	10/4/2019 3:15:56 PM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: **rde**
Calcium	340	10		mg/L	10	10/30/2019 1:32:00 PM
Magnesium	110	10		mg/L	10	10/30/2019 1:32:00 PM
Potassium	100	10		mg/L	10	10/30/2019 1:32:00 PM
Sodium	570	10		mg/L	10	10/30/2019 1:32:00 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **bcv**
Arsenic	ND	5.0		mg/L	5	10/21/2019 2:24:21 PM
Barium	ND	100		mg/L	5	10/14/2019 11:43:53 AM
Cadmium	ND	1.0		mg/L	5	10/14/2019 11:43:53 AM
Chromium	ND	5.0		mg/L	5	10/14/2019 11:43:53 AM
Lead	ND	5.0		mg/L	5	10/21/2019 2:24:21 PM
Selenium	ND	1.0		mg/L	5	10/14/2019 11:43:53 AM
Silver	ND	5.0		mg/L	5	10/14/2019 11:43:53 AM
EPA METHOD 8270C TCLP						Analyst: **DAM**
2-Methylphenol	ND	200		mg/L	1	10/14/2019 6:38:07 PM
3+4-Methylphenol	ND	200		mg/L	1	10/14/2019 6:38:07 PM
2,4-Dinitrotoluene	ND	0.13		mg/L	1	10/14/2019 6:38:07 PM
Hexachlorobenzene	ND	0.13		mg/L	1	10/14/2019 6:38:07 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	10/14/2019 6:38:07 PM
Hexachloroethane	ND	3.0		mg/L	1	10/14/2019 6:38:07 PM
Nitrobenzene	ND	2.0		mg/L	1	10/14/2019 6:38:07 PM
Pentachlorophenol	ND	100		mg/L	1	10/14/2019 6:38:07 PM
Pyridine	ND	5.0		mg/L	1	10/14/2019 6:38:07 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	10/14/2019 6:38:07 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	10/14/2019 6:38:07 PM
Cresols, Total	ND	200		mg/L	1	10/14/2019 6:38:07 PM
Surr: 2-Fluorophenol	42.6	15-82.5		%Rec	1	10/14/2019 6:38:07 PM
Surr: Phenol-d5	34.0	15-74.2		%Rec	1	10/14/2019 6:38:07 PM
Surr: 2,4,6-Tribromophenol	51.3	18.6-118		%Rec	1	10/14/2019 6:38:07 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1910144-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/30/2019 4:05:00 PM
Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C TCLP						Analyst: **DAM**
Surr: Nitrobenzene-d5	64.8	30.4-106		%Rec	1	10/14/2019 6:38:07 PM
Surr: 2-Fluorobiphenyl	53.0	15-104		%Rec	1	10/14/2019 6:38:07 PM
Surr: 4-Terphenyl-d14	61.1	15-133		%Rec	1	10/14/2019 6:38:07 PM
NOTES: * See the case narrative for notes.						
TCLP VOLATILES BY 8260B						Analyst: **JMR**
Benzene	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
2-Butanone	ND	200		mg/L	1	10/4/2019 4:16:04 AM
Carbon Tetrachloride	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
Chloroform	ND	6.0		mg/L	1	10/4/2019 4:16:04 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	10/4/2019 4:16:04 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	10/4/2019 4:16:04 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	10/4/2019 4:16:04 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
Vinyl chloride	ND	0.20		mg/L	1	10/4/2019 4:16:04 AM
Chlorobenzene	ND	100		mg/L	1	10/4/2019 4:16:04 AM
Surr: 1,2-Dichloroethane-d4	88.0	70-130		%Rec	1	10/4/2019 4:16:04 AM
Surr: 4-Bromofluorobenzene	93.4	70-130		%Rec	1	10/4/2019 4:16:04 AM
Surr: Dibromofluoromethane	98.6	70-130		%Rec	1	10/4/2019 4:16:04 AM
Surr: Toluene-d8	104	70-130		%Rec	1	10/4/2019 4:16:04 AM
CORROSIVITY						Analyst: **PAC**
pH	7.69			su	1	10/6/2019
IGNITABILITY METHOD 1010						Analyst: **PAC**
Ignitability	>170			°F	1	10/14/2019
OXIDATION REDUCTION POTENTIAL						Analyst: **PAC**
Oxidation-Reduction Potential	190			mV	1	10/6/2019
CYANIDE, REACTIVE						Analyst: **PAC**
Cyanide, Reactive	0.0927	0.00500		mg/L	1	10/15/2019
SULFIDE, REACTIVE						Analyst: **PAC**
Reactive Sulfide	ND	0.050		mg/L	1	10/7/2019
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5100	5.0		µmhos/c	1	10/7/2019 11:56:48 AM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	408.2	20.00		mg/L Ca	1	10/3/2019 5:57:44 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1910144-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/30/2019 4:05:00 PM
Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2320B: ALKALINITY						Analyst: **JRR**
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	10/3/2019 5:57:44 PM
Total Alkalinity (as CaCO3)	408.2	20.00		mg/L Ca	1	10/3/2019 5:57:44 PM
SPECIFIC GRAVITY						Analyst: **JRR**
Specific Gravity	1.000	0			1	10/10/2019 12:45:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3520	40.0	*D	mg/L	1	10/7/2019 2:22:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1910144-002 **Matrix:** TRIP BLANK **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TCLP VOLATILES BY 8260B						Analyst: **JMR**
Benzene	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
2-Butanone	ND	200		mg/L	1	10/4/2019 5:42:29 AM
Carbon Tetrachloride	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
Chloroform	ND	6.0		mg/L	1	10/4/2019 5:42:29 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	10/4/2019 5:42:29 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	10/4/2019 5:42:29 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	10/4/2019 5:42:29 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
Vinyl chloride	ND	0.20		mg/L	1	10/4/2019 5:42:29 AM
Chlorobenzene	ND	100		mg/L	1	10/4/2019 5:42:29 AM
Surr: 1,2-Dichloroethane-d4	91.6	70-130		%Rec	1	10/4/2019 5:42:29 AM
Surr: 4-Bromofluorobenzene	93.8	70-130		%Rec	1	10/4/2019 5:42:29 AM
Surr: Dibromofluoromethane	100	70-130		%Rec	1	10/4/2019 5:42:29 AM
Surr: Toluene-d8	101	70-130		%Rec	1	10/4/2019 5:42:29 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R63431**	RunNo: **63431**
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166069** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R63431**	RunNo: **63431**
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166070** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	108	90	110			
Bromide	2.5	0.10	2.500	0	98.5	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.8	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.8	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R63681**	RunNo: **63681**
Prep Date:	Analysis Date: **10/14/2019**	SeqNo: **2176160** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R63681**	RunNo: **63681**
Prep Date:	Analysis Date: **10/14/2019**	SeqNo: **2176161** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	99.4	90	110			
Sulfate	10	0.50	10.00	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **TCLP Volatiles by 8260B**

Client ID: **LCSW** Batch ID: **T63413** RunNo: **63413**

Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165302** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.0	0.30	4.000	0	99.0	70	130			
1,1-Dichloroethene	3.7	0.30	4.000	0	91.8	70	130			
Trichloroethene (TCE)	3.7	0.30	4.000	0	91.3	70	130			
Chlorobenzene	4.2	0.30	4.000	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	1.8		2.000		89.9	70	130			
Surr: 4-Bromofluorobenzene	1.9		2.000		96.3	70	130			
Surr: Dibromofluoromethane	2.0		2.000		97.7	70	130			
Surr: Toluene-d8	2.1		2.000		103	70	130			

Sample ID: **1910144-001a ms** SampType: **MS** TestCode: **TCLP Volatiles by 8260B**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **T63413** RunNo: **63413**

Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.0	0.30	4.000	0.1900	95.7	70	130			
1,1-Dichloroethene	3.7	0.30	4.000	0	92.9	70	130			
Trichloroethene (TCE)	3.5	0.30	4.000	0	87.0	70	130			
Chlorobenzene	4.1	0.30	4.000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	1.8		2.000		91.0	70	130			
Surr: 4-Bromofluorobenzene	1.8		2.000		88.4	70	130			
Surr: Dibromofluoromethane	2.0		2.000		99.4	70	130			
Surr: Toluene-d8	2.1		2.000		106	70	130			

Sample ID: **1910144-001a msd** SampType: **MSD** TestCode: **TCLP Volatiles by 8260B**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **T63413** RunNo: **63413**

Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165305** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	3.9	0.30	4.000	0.1900	93.1	70	130	2.64	20	
1,1-Dichloroethene	3.6	0.30	4.000	0	89.0	70	130	4.24	20	
Trichloroethene (TCE)	3.4	0.30	4.000	0	85.3	70	130	2.00	20	
Chlorobenzene	4.0	0.30	4.000	0	100	70	130	1.70	20	
Surr: 1,2-Dichloroethane-d4	1.8		2.000		90.5	70	130	0	0	
Surr: 4-Bromofluorobenzene	1.8		2.000		91.4	70	130	0	0	
Surr: Dibromofluoromethane	2.0		2.000		99.6	70	130	0	0	
Surr: Toluene-d8	2.1		2.000		103	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**							
Client ID: **PBW**	Batch ID: **T63413**	RunNo: **63413**							
Prep Date:	Analysis Date: **10/4/2019**	SeqNo: **2165310**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	1.9		2.000		95.2	70	130			
Surr: 4-Bromofluorobenzene	1.9		2.000		93.5	70	130			
Surr: Dibromofluoromethane	2.0		2.000		99.0	70	130			
Surr: Toluene-d8	2.0		2.000		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **1910144-001bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **47936** RunNo: **63667**

Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175826** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.14	0.0010	0.1000	0	135	30.5	98.2			S
3+4-Methylphenol	0.30	0.0010	0.2000	0	149	27.4	98.6			S
2,4-Dinitrotoluene	0.14	0.0010	0.1000	0	140	34.3	87.4			S
Hexachlorobenzene	0.15	0.0010	0.1000	0	146	36.5	100			S
Hexachlorobutadiene	0.12	0.0010	0.1000	0	124	15	108			S
Hexachloroethane	0.11	0.0010	0.1000	0	113	15	90.7			S
Nitrobenzene	0.14	0.0010	0.1000	0	144	39	100			S
Pentachlorophenol	0.12	0.0010	0.1000	0	124	15	97.5			S
Pyridine	0.022	0.0010	0.1000	0	22.5	15	65.8			
2,4,5-Trichlorophenol	0.14	0.0010	0.1000	0	137	36.1	109			S
2,4,6-Trichlorophenol	0.14	0.0010	0.1000	0	138	37.8	104			S
Cresols, Total	0.43	0.0010	0.3000	0	145	27.1	99.8			S
Surr: 2-Fluorophenol	0.096		0.2000		48.0	15	82.5			
Surr: Phenol-d5	0.076		0.2000		37.9	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		67.6	18.6	118			
Surr: Nitrobenzene-d5	0.080		0.1000		79.9	30.4	106			
Surr: 2-Fluorobiphenyl	0.066		0.1000		66.3	15	104			
Surr: 4-Terphenyl-d14	0.071		0.1000		70.6	15	133			

Sample ID: **1910144-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **47936** RunNo: **63667**

Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175827** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.065	0.0010	0.1000	0	65.2	30.5	98.2	69.7	44.3	R
3+4-Methylphenol	0.13	0.0010	0.2000	0	63.1	27.4	98.6	81.2	50	R
2,4-Dinitrotoluene	0.068	0.0010	0.1000	0	67.6	34.3	87.4	69.9	45.1	R
Hexachlorobenzene	0.067	0.0010	0.1000	0	67.3	36.5	100	73.8	47.2	R
Hexachlorobutadiene	0.059	0.0010	0.1000	0	58.9	15	108	71.4	43.4	R
Hexachloroethane	0.055	0.0010	0.1000	0	54.9	15	90.7	69.6	39.2	R
Nitrobenzene	0.071	0.0010	0.1000	0	71.2	39	100	67.6	42.1	R
Pentachlorophenol	0.057	0.0010	0.1000	0	57.0	15	97.5	74.4	50	R
Pyridine	0.0028	0.0010	0.1000	0	2.80	15	65.8	156	50	RS
2,4,5-Trichlorophenol	0.070	0.0010	0.1000	0	70.0	36.1	109	65.0	49.7	R
2,4,6-Trichlorophenol	0.069	0.0010	0.1000	0	69.3	37.8	104	66.6	47	R
Cresols, Total	0.19	0.0010	0.3000	0	63.8	27.1	99.8	77.5	27.4	R
Surr: 2-Fluorophenol	0.046		0.2000		23.2	15	82.5	0	0	
Surr: Phenol-d5	0.038		0.2000		18.9	15	74.2	0	0	
Surr: 2,4,6-Tribromophenol	0.061		0.2000		30.6	18.6	118	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **1910144-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **47936** RunNo: **63667**

Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175827** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.036		0.1000		36.4	30.4	106	0	0	
Surr: 2-Fluorobiphenyl	0.034		0.1000		33.9	15	104	0	0	
Surr: 4-Terphenyl-d14	0.031		0.1000		31.1	15	133	0	0	

Sample ID: **lcs-47936** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**

Client ID: **LCSW** Batch ID: **47936** RunNo: **63667**

Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175828** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.14	0.0010	0.1000	0	139	33.8	121			S
3+4-Methylphenol	0.33	0.0010	0.2000	0	163	33.6	109			S
2,4-Dinitrotoluene	0.14	0.0010	0.1000	0	144	50.4	124			S
Hexachlorobenzene	0.15	0.0010	0.1000	0	152	50.1	120			S
Hexachlorobutadiene	0.12	0.0010	0.1000	0	116	16.1	103			S
Hexachloroethane	0.11	0.0010	0.1000	0	112	15	94.2			S
Nitrobenzene	0.15	0.0010	0.1000	0	150	32.4	125			S
Pentachlorophenol	0.12	0.0010	0.1000	0	124	44.6	114			S
Pyridine	0.0031	0.0010	0.1000	0	3.08	15	67			S
2,4,5-Trichlorophenol	0.15	0.0010	0.1000	0	147	49.4	118			S
2,4,6-Trichlorophenol	0.16	0.0010	0.1000	0	160	50.3	116			S
Cresols, Total	0.46	0.0010	0.3000	0	155	33.8	109			S
Surr: 2-Fluorophenol	0.10		0.2000		50.0	15	82.5			
Surr: Phenol-d5	0.083		0.2000		41.6	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		67.6	18.6	118			
Surr: Nitrobenzene-d5	0.081		0.1000		81.2	30.4	106			
Surr: 2-Fluorobiphenyl	0.073		0.1000		73.2	15	104			
Surr: 4-Terphenyl-d14	0.075		0.1000		74.8	15	133			

Sample ID: **mb-47936** SampType: **MBLK** TestCode: **EPA Method 8270C TCLP**

Client ID: **PBW** Batch ID: **47936** RunNo: **63667**

Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175829** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **mb-47936**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW**	Batch ID: **47936**	RunNo: **63667**
Prep Date: **10/4/2019**	Analysis Date: **10/14/2019**	SeqNo: **2175829** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.11		0.2000		53.1	15	82.5			
Surr: Phenol-d5	0.086		0.2000		42.9	15	74.2			
Surr: 2,4,6-Tribromophenol	0.15		0.2000		73.7	18.6	118			
Surr: Nitrobenzene-d5	0.076		0.1000		75.6	30.4	106			
Surr: 2-Fluorobiphenyl	0.071		0.1000		70.9	15	104			
Surr: 4-Terphenyl-d14	0.080		0.1000		80.0	15	133			

NOTES:

*See the case narrative for notes.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **lcs-1 99.8uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R63466**	RunNo: **63466**
Prep Date:	Analysis Date: **10/7/2019**	SeqNo: **2168649** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	98	5.0	99.80	0	98.7	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47939**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **47939**	RunNo: **63437**							
Prep Date: **10/4/2019**	Analysis Date: **10/4/2019**	SeqNo: **2166383**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-47939**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **47939**	RunNo: **63437**							
Prep Date: **10/4/2019**	Analysis Date: **10/4/2019**	SeqNo: **2166384**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A64097**	RunNo: **64097**
Prep Date:	Analysis Date: **10/30/2019**	SeqNo: **2192808** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A64097**	RunNo: **64097**
Prep Date:	Analysis Date: **10/30/2019**	SeqNo: **2192809** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	52	1.0	50.00	0	104	80	120			
Magnesium	52	1.0	50.00	0	104	80	120			
Potassium	52	1.0	50.00	0	103	80	120			
Sodium	50	1.0	50.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47925**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170148** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170150** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.46	0.020	0.5000	0	92.6	80	120			
Cadmium	0.48	0.0020	0.5000	0	95.6	80	120			
Chromium	0.47	0.0060	0.5000	0	94.4	80	120			
Lead	0.48	0.0050	0.5000	0	95.5	80	120			
Selenium	0.48	0.050	0.5000	0	96.3	80	120			
Silver	0.092	0.0050	0.1000	0	92.2	80	120			

Sample ID: **MB-47925**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170241** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170243** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.47	0.020	0.5000	0	94.0	80	120			
Cadmium	0.48	0.0020	0.5000	0	96.4	80	120			
Chromium	0.48	0.0060	0.5000	0	95.2	80	120			
Selenium	0.47	0.050	0.5000	0	93.5	80	120			
Silver	0.093	0.0050	0.1000	0	93.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47925**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170263** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170265** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.47	0.020	0.5000	0	94.7	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.6	80	120			
Chromium	0.48	0.0060	0.5000	0	96.4	80	120			
Lead	0.48	0.0050	0.5000	0	96.6	80	120			
Selenium	0.47	0.050	0.5000	0	93.4	80	120			
Silver	0.094	0.0050	0.1000	0	93.9	80	120			

Sample ID: **MB-47925**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **47925**	RunNo: **63599**
Prep Date: **10/3/2019**	Analysis Date: **10/10/2019**	SeqNo: **2172999** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **47925**	RunNo: **63599**
Prep Date: **10/3/2019**	Analysis Date: **10/10/2019**	SeqNo: **2173001** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.45	0.020	0.5000	0	89.4	80	120			
Barium	0.45	0.020	0.5000	0	90.1	80	120			
Cadmium	0.44	0.0020	0.5000	0	88.6	80	120			
Chromium	0.44	0.0060	0.5000	0	88.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **LCS-47925**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **47925**	RunNo: **63599**
Prep Date: **10/3/2019**	Analysis Date: **10/10/2019**	SeqNo: **2173001** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.46	0.050	0.5000	0	92.1	80	120			
Silver	0.088	0.0050	0.1000	0	88.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-R63747**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R63747**	RunNo: **63747**							
Prep Date:	Analysis Date: **10/15/2019**	SeqNo: **2179127**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID: **LCS-R63747**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R63747**	RunNo: **63747**							
Prep Date:	Analysis Date: **10/15/2019**	SeqNo: **2179128**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.101		0.1000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-R63747**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R63747**	RunNo: **63747**							
Prep Date:	Analysis Date: **10/7/2019**	SeqNo: **2179130**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID: **LCS-R63747**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R63747**	RunNo: **63747**							
Prep Date:	Analysis Date: **10/7/2019**	SeqNo: **2179131**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.47		0.5000	0	93.6	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R63435**	RunNo: **63435**
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166170** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R63435**	RunNo: **63435**
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166171** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.64	20.00	80.00	0	99.6	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R63435**	RunNo: **63435**
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166193** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R63435**	RunNo: **63435**
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166194** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.84	20.00	80.00	0	98.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **1910144-001CDUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R63579** RunNo: **63579**

Prep Date: Analysis Date: **10/10/2019** SeqNo: **2172149** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9995	0						0.0600	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47951**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **47951**	RunNo: **63462**
Prep Date: **10/4/2019**	Analysis Date: **10/7/2019**	SeqNo: **2167775** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-47951**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **47951**	RunNo: **63462**
Prep Date: **10/4/2019**	Analysis Date: **10/7/2019**	SeqNo: **2167776** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1910144 RcptNo: 1

Received By: Juan Rojas 10/2/2019 9:30:00 AM
Completed By: Leah Baca 10/2/2019 1:17:37 PM Leah S Baca
Reviewed By: LB 10/3/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 3 :2
(<2 or >12 unless noted)
Adjusted? NO
Checked by: DAD 10/3/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.8	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: 6-2 = -8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1910144	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
10-1-19	11:45	Brady Hubbard	courier	10/2/19	9:30
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chavez, Carl J, EMNRD

From: Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>
Sent: Wednesday, November 6, 2019 8:27 AM
To: Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD
Cc: Dade, Lewis (Randy)
Subject: [EXT] Third Quarter Injection Report
Attachments: Rpt_1910144_3 Quarterly_WDW-1,_2,_&_3__Inj_Well_Final_v1.pdf

Carl,
Please find attached the cover letter and injection data for the 2019 third quarter. A hard copy is being sent with the analytical data. If there are any questions, please let me know. Have a good week .
Thanks again for the help, Randy

Lewis R. (Randy) Dade
Environmental Specialist
The HollyFrontier Companies
501 E. Main / P.O. Box 159
Artesia, NM 88210 / 88211-0159
575-746-5281 (o)
575-703-4735 (c)
575-746-5451 (f)
Email: Lewis.Dade@hollyfrontier.com

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 01, 2019

Robert Combs

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1910144

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/2/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1910144**
Date: **11/1/2019**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Analytical Notes Regarding EPA Method 8270:
The recovery of pyridine in the LCS was low when compared to our SOP limits.

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 9/30/2019 4:05:00 PM
Lab ID: 1910144-001 **Matrix:** AQUEOUS **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **CJS**
Fluoride	31	2.0	*	mg/L	20	10/3/2019 11:52:11 PM
Chloride	430	25	*	mg/L	50	10/14/2019 2:16:22 PM
Bromide	ND	0.50		mg/L	5	10/3/2019 11:39:50 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	10/3/2019 11:39:50 PM
Sulfate	1700	25	*	mg/L	50	10/14/2019 2:16:22 PM
Nitrate+Nitrite as N	1.2	1.0		mg/L	5	10/4/2019 12:16:52 AM
EPA METHOD 7470: MERCURY						Analyst: **rde**
Mercury	ND	0.020		mg/L	1	10/4/2019 3:15:56 PM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: **rde**
Calcium	340	10		mg/L	10	10/30/2019 1:32:00 PM
Magnesium	110	10		mg/L	10	10/30/2019 1:32:00 PM
Potassium	100	10		mg/L	10	10/30/2019 1:32:00 PM
Sodium	570	10		mg/L	10	10/30/2019 1:32:00 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **bcv**
Arsenic	ND	5.0		mg/L	5	10/21/2019 2:24:21 PM
Barium	ND	100		mg/L	5	10/14/2019 11:43:53 AM
Cadmium	ND	1.0		mg/L	5	10/14/2019 11:43:53 AM
Chromium	ND	5.0		mg/L	5	10/14/2019 11:43:53 AM
Lead	ND	5.0		mg/L	5	10/21/2019 2:24:21 PM
Selenium	ND	1.0		mg/L	5	10/14/2019 11:43:53 AM
Silver	ND	5.0		mg/L	5	10/14/2019 11:43:53 AM
EPA METHOD 8270C TCLP						Analyst: **DAM**
2-Methylphenol	ND	200		mg/L	1	10/14/2019 6:38:07 PM
3+4-Methylphenol	ND	200		mg/L	1	10/14/2019 6:38:07 PM
2,4-Dinitrotoluene	ND	0.13		mg/L	1	10/14/2019 6:38:07 PM
Hexachlorobenzene	ND	0.13		mg/L	1	10/14/2019 6:38:07 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	10/14/2019 6:38:07 PM
Hexachloroethane	ND	3.0		mg/L	1	10/14/2019 6:38:07 PM
Nitrobenzene	ND	2.0		mg/L	1	10/14/2019 6:38:07 PM
Pentachlorophenol	ND	100		mg/L	1	10/14/2019 6:38:07 PM
Pyridine	ND	5.0		mg/L	1	10/14/2019 6:38:07 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	10/14/2019 6:38:07 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	10/14/2019 6:38:07 PM
Cresols, Total	ND	200		mg/L	1	10/14/2019 6:38:07 PM
Surr: 2-Fluorophenol	42.6	15-82.5		%Rec	1	10/14/2019 6:38:07 PM
Surr: Phenol-d5	34.0	15-74.2		%Rec	1	10/14/2019 6:38:07 PM
Surr: 2,4,6-Tribromophenol	51.3	18.6-118		%Rec	1	10/14/2019 6:38:07 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 9/30/2019 4:05:00 PM
Lab ID: 1910144-001 **Matrix:** AQUEOUS **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C TCLP						Analyst: **DAM**
Surr: Nitrobenzene-d5	64.8	30.4-106		%Rec	1	10/14/2019 6:38:07 PM
Surr: 2-Fluorobiphenyl	53.0	15-104		%Rec	1	10/14/2019 6:38:07 PM
Surr: 4-Terphenyl-d14	61.1	15-133		%Rec	1	10/14/2019 6:38:07 PM
NOTES:						
* See the case narrative for notes.						
TCLP VOLATILES BY 8260B						Analyst: **JMR**
Benzene	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
2-Butanone	ND	200		mg/L	1	10/4/2019 4:16:04 AM
Carbon Tetrachloride	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
Chloroform	ND	6.0		mg/L	1	10/4/2019 4:16:04 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	10/4/2019 4:16:04 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	10/4/2019 4:16:04 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	10/4/2019 4:16:04 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
Vinyl chloride	ND	0.20		mg/L	1	10/4/2019 4:16:04 AM
Chlorobenzene	ND	100		mg/L	1	10/4/2019 4:16:04 AM
Surr: 1,2-Dichloroethane-d4	88.0	70-130		%Rec	1	10/4/2019 4:16:04 AM
Surr: 4-Bromofluorobenzene	93.4	70-130		%Rec	1	10/4/2019 4:16:04 AM
Surr: Dibromofluoromethane	98.6	70-130		%Rec	1	10/4/2019 4:16:04 AM
Surr: Toluene-d8	104	70-130		%Rec	1	10/4/2019 4:16:04 AM
CORROSIVITY						Analyst: **PAC**
pH	7.69			su	1	10/6/2019
IGNITABILITY METHOD 1010						Analyst: **PAC**
Ignitability	>170			°F	1	10/14/2019
OXIDATION REDUCTION POTENTIAL						Analyst: **PAC**
Oxidation-Reduction Potential	190			mV	1	10/6/2019
CYANIDE, REACTIVE						Analyst: **PAC**
Cyanide, Reactive	0.0927	0.00500		mg/L	1	10/15/2019
SULFIDE, REACTIVE						Analyst: **PAC**
Reactive Sulfide	ND	0.050		mg/L	1	10/7/2019
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5100	5.0		µmhos/c	1	10/7/2019 11:56:48 AM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	408.2	20.00		mg/L Ca	1	10/3/2019 5:57:44 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 9/30/2019 4:05:00 PM
Lab ID: 1910144-001 **Matrix:** AQUEOUS **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2320B: ALKALINITY						Analyst: **JRR**
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	10/3/2019 5:57:44 PM
Total Alkalinity (as CaCO3)	408.2	20.00		mg/L Ca	1	10/3/2019 5:57:44 PM
SPECIFIC GRAVITY						Analyst: **JRR**
Specific Gravity	1.000	0			1	10/10/2019 12:45:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3520	40.0	*D	mg/L	1	10/7/2019 2:22:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well **Collection Date:**
Lab ID: 1910144-002 **Matrix:** TRIP BLANK **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TCLP VOLATILES BY 8260B						Analyst: **JMR**
Benzene	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
2-Butanone	ND	200		mg/L	1	10/4/2019 5:42:29 AM
Carbon Tetrachloride	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
Chloroform	ND	6.0		mg/L	1	10/4/2019 5:42:29 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	10/4/2019 5:42:29 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	10/4/2019 5:42:29 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	10/4/2019 5:42:29 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
Vinyl chloride	ND	0.20		mg/L	1	10/4/2019 5:42:29 AM
Chlorobenzene	ND	100		mg/L	1	10/4/2019 5:42:29 AM
Surr: 1,2-Dichloroethane-d4	91.6	70-130		%Rec	1	10/4/2019 5:42:29 AM
Surr: 4-Bromofluorobenzene	93.8	70-130		%Rec	1	10/4/2019 5:42:29 AM
Surr: Dibromofluoromethane	100	70-130		%Rec	1	10/4/2019 5:42:29 AM
Surr: Toluene-d8	101	70-130		%Rec	1	10/4/2019 5:42:29 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R63431**	RunNo: **63431**							
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166069**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R63431**	RunNo: **63431**							
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166070**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	108	90	110			
Bromide	2.5	0.10	2.500	0	98.5	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.8	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.8	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R63681**	RunNo: **63681**							
Prep Date:	Analysis Date: **10/14/2019**	SeqNo: **2176160**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R63681**	RunNo: **63681**							
Prep Date:	Analysis Date: **10/14/2019**	SeqNo: **2176161**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	99.4	90	110			
Sulfate	10	0.50	10.00	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW** Batch ID: **T63413** RunNo: **63413**
Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165302** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.0	0.30	4.000	0	99.0	70	130			
1,1-Dichloroethene	3.7	0.30	4.000	0	91.8	70	130			
Trichloroethene (TCE)	3.7	0.30	4.000	0	91.3	70	130			
Chlorobenzene	4.2	0.30	4.000	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	1.8		2.000		89.9	70	130			
Surr: 4-Bromofluorobenzene	1.9		2.000		96.3	70	130			
Surr: Dibromofluoromethane	2.0		2.000		97.7	70	130			
Surr: Toluene-d8	2.1		2.000		103	70	130			

Sample ID: **1910144-001a ms** SampType: **MS** TestCode: **TCLP Volatiles by 8260B**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **T63413** RunNo: **63413**
Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.0	0.30	4.000	0.1900	95.7	70	130			
1,1-Dichloroethene	3.7	0.30	4.000	0	92.9	70	130			
Trichloroethene (TCE)	3.5	0.30	4.000	0	87.0	70	130			
Chlorobenzene	4.1	0.30	4.000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	1.8		2.000		91.0	70	130			
Surr: 4-Bromofluorobenzene	1.8		2.000		88.4	70	130			
Surr: Dibromofluoromethane	2.0		2.000		99.4	70	130			
Surr: Toluene-d8	2.1		2.000		106	70	130			

Sample ID: **1910144-001a msd** SampType: **MSD** TestCode: **TCLP Volatiles by 8260B**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **T63413** RunNo: **63413**
Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165305** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	3.9	0.30	4.000	0.1900	93.1	70	130	2.64	20	
1,1-Dichloroethene	3.6	0.30	4.000	0	89.0	70	130	4.24	20	
Trichloroethene (TCE)	3.4	0.30	4.000	0	85.3	70	130	2.00	20	
Chlorobenzene	4.0	0.30	4.000	0	100	70	130	1.70	20	
Surr: 1,2-Dichloroethane-d4	1.8		2.000		90.5	70	130	0	0	
Surr: 4-Bromofluorobenzene	1.8		2.000		91.4	70	130	0	0	
Surr: Dibromofluoromethane	2.0		2.000		99.6	70	130	0	0	
Surr: Toluene-d8	2.1		2.000		103	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **rb2** SampType: **MBLK** TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW** Batch ID: **T63413** RunNo: **63413**
Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165310** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	1.9		2.000		95.2	70	130			
Surr: 4-Bromofluorobenzene	1.9		2.000		93.5	70	130			
Surr: Dibromofluoromethane	2.0		2.000		99.0	70	130			
Surr: Toluene-d8	2.0		2.000		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **1910144-001bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **47936** RunNo: **63667**
Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175826** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.14	0.0010	0.1000	0	135	30.5	98.2			S
3+4-Methylphenol	0.30	0.0010	0.2000	0	149	27.4	98.6			S
2,4-Dinitrotoluene	0.14	0.0010	0.1000	0	140	34.3	87.4			S
Hexachlorobenzene	0.15	0.0010	0.1000	0	146	36.5	100			S
Hexachlorobutadiene	0.12	0.0010	0.1000	0	124	15	108			S
Hexachloroethane	0.11	0.0010	0.1000	0	113	15	90.7			S
Nitrobenzene	0.14	0.0010	0.1000	0	144	39	100			S
Pentachlorophenol	0.12	0.0010	0.1000	0	124	15	97.5			S
Pyridine	0.022	0.0010	0.1000	0	22.5	15	65.8			
2,4,5-Trichlorophenol	0.14	0.0010	0.1000	0	137	36.1	109			S
2,4,6-Trichlorophenol	0.14	0.0010	0.1000	0	138	37.8	104			S
Cresols, Total	0.43	0.0010	0.3000	0	145	27.1	99.8			S
Surr: 2-Fluorophenol	0.096		0.2000		48.0	15	82.5			
Surr: Phenol-d5	0.076		0.2000		37.9	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		67.6	18.6	118			
Surr: Nitrobenzene-d5	0.080		0.1000		79.9	30.4	106			
Surr: 2-Fluorobiphenyl	0.066		0.1000		66.3	15	104			
Surr: 4-Terphenyl-d14	0.071		0.1000		70.6	15	133			

Sample ID: **1910144-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **47936** RunNo: **63667**
Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175827** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.065	0.0010	0.1000	0	65.2	30.5	98.2	69.7	44.3	R
3+4-Methylphenol	0.13	0.0010	0.2000	0	63.1	27.4	98.6	81.2	50	R
2,4-Dinitrotoluene	0.068	0.0010	0.1000	0	67.6	34.3	87.4	69.9	45.1	R
Hexachlorobenzene	0.067	0.0010	0.1000	0	67.3	36.5	100	73.8	47.2	R
Hexachlorobutadiene	0.059	0.0010	0.1000	0	58.9	15	108	71.4	43.4	R
Hexachloroethane	0.055	0.0010	0.1000	0	54.9	15	90.7	69.6	39.2	R
Nitrobenzene	0.071	0.0010	0.1000	0	71.2	39	100	67.6	42.1	R
Pentachlorophenol	0.057	0.0010	0.1000	0	57.0	15	97.5	74.4	50	R
Pyridine	0.0028	0.0010	0.1000	0	2.80	15	65.8	156	50	RS
2,4,5-Trichlorophenol	0.070	0.0010	0.1000	0	70.0	36.1	109	65.0	49.7	R
2,4,6-Trichlorophenol	0.069	0.0010	0.1000	0	69.3	37.8	104	66.6	47	R
Cresols, Total	0.19	0.0010	0.3000	0	63.8	27.1	99.8	77.5	27.4	R
Surr: 2-Fluorophenol	0.046		0.2000		23.2	15	82.5	0	0	
Surr: Phenol-d5	0.038		0.2000		18.9	15	74.2	0	0	
Surr: 2,4,6-Tribromophenol	0.061		0.2000		30.6	18.6	118	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **1910144-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **47936** RunNo: **63667**
Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175827** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.036		0.1000		36.4	30.4	106	0	0	
Surr: 2-Fluorobiphenyl	0.034		0.1000		33.9	15	104	0	0	
Surr: 4-Terphenyl-d14	0.031		0.1000		31.1	15	133	0	0	

Sample ID: **lcs-47936** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW** Batch ID: **47936** RunNo: **63667**
Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175828** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.14	0.0010	0.1000	0	139	33.8	121			S
3+4-Methylphenol	0.33	0.0010	0.2000	0	163	33.6	109			S
2,4-Dinitrotoluene	0.14	0.0010	0.1000	0	144	50.4	124			S
Hexachlorobenzene	0.15	0.0010	0.1000	0	152	50.1	120			S
Hexachlorobutadiene	0.12	0.0010	0.1000	0	116	16.1	103			S
Hexachloroethane	0.11	0.0010	0.1000	0	112	15	94.2			S
Nitrobenzene	0.15	0.0010	0.1000	0	150	32.4	125			S
Pentachlorophenol	0.12	0.0010	0.1000	0	124	44.6	114			S
Pyridine	0.0031	0.0010	0.1000	0	3.08	15	67			S
2,4,5-Trichlorophenol	0.15	0.0010	0.1000	0	147	49.4	118			S
2,4,6-Trichlorophenol	0.16	0.0010	0.1000	0	160	50.3	116			S
Cresols, Total	0.46	0.0010	0.3000	0	155	33.8	109			S
Surr: 2-Fluorophenol	0.10		0.2000		50.0	15	82.5			
Surr: Phenol-d5	0.083		0.2000		41.6	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		67.6	18.6	118			
Surr: Nitrobenzene-d5	0.081		0.1000		81.2	30.4	106			
Surr: 2-Fluorobiphenyl	0.073		0.1000		73.2	15	104			
Surr: 4-Terphenyl-d14	0.075		0.1000		74.8	15	133			

Sample ID: **mb-47936** SampType: **MBLK** TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW** Batch ID: **47936** RunNo: **63667**
Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175829** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **mb-47936** SampType: **MBLK** TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW** Batch ID: **47936** RunNo: **63667**
Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175829** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.11		0.2000		53.1	15	82.5			
Surr: Phenol-d5	0.086		0.2000		42.9	15	74.2			
Surr: 2,4,6-Tribromophenol	0.15		0.2000		73.7	18.6	118			
Surr: Nitrobenzene-d5	0.076		0.1000		75.6	30.4	106			
Surr: 2-Fluorobiphenyl	0.071		0.1000		70.9	15	104			
Surr: 4-Terphenyl-d14	0.080		0.1000		80.0	15	133			

NOTES:
*See the case narrative for notes.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **lcs-1 99.8uS eC** SampType: **lcs** TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW** Batch ID: **R63466** RunNo: **63466**
Prep Date: Analysis Date: **10/7/2019** SeqNo: **2168649** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	98	5.0	99.80	0	98.7	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47939**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **47939**	RunNo: **63437**							
Prep Date: **10/4/2019**	Analysis Date: **10/4/2019**	SeqNo: **2166383**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-47939**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **47939**	RunNo: **63437**							
Prep Date: **10/4/2019**	Analysis Date: **10/4/2019**	SeqNo: **2166384**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A64097**	RunNo: **64097**
Prep Date:	Analysis Date: **10/30/2019**	SeqNo: **2192808** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A64097**	RunNo: **64097**
Prep Date:	Analysis Date: **10/30/2019**	SeqNo: **2192809** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	52	1.0	50.00	0	104	80	120			
Magnesium	52	1.0	50.00	0	104	80	120			
Potassium	52	1.0	50.00	0	103	80	120			
Sodium	50	1.0	50.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47925** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **47925** RunNo: **63528**
Prep Date: **10/3/2019** Analysis Date: **10/8/2019** SeqNo: **2170148** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **47925** RunNo: **63528**
Prep Date: **10/3/2019** Analysis Date: **10/8/2019** SeqNo: **2170150** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.46	0.020	0.5000	0	92.6	80	120			
Cadmium	0.48	0.0020	0.5000	0	95.6	80	120			
Chromium	0.47	0.0060	0.5000	0	94.4	80	120			
Lead	0.48	0.0050	0.5000	0	95.5	80	120			
Selenium	0.48	0.050	0.5000	0	96.3	80	120			
Silver	0.092	0.0050	0.1000	0	92.2	80	120			

Sample ID: **MB-47925** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **47925** RunNo: **63528**
Prep Date: **10/3/2019** Analysis Date: **10/8/2019** SeqNo: **2170241** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **47925** RunNo: **63528**
Prep Date: **10/3/2019** Analysis Date: **10/8/2019** SeqNo: **2170243** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.47	0.020	0.5000	0	94.0	80	120			
Cadmium	0.48	0.0020	0.5000	0	96.4	80	120			
Chromium	0.48	0.0060	0.5000	0	95.2	80	120			
Selenium	0.47	0.050	0.5000	0	93.5	80	120			
Silver	0.093	0.0050	0.1000	0	93.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47925**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170263** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170265** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.47	0.020	0.5000	0	94.7	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.6	80	120			
Chromium	0.48	0.0060	0.5000	0	96.4	80	120			
Lead	0.48	0.0050	0.5000	0	96.6	80	120			
Selenium	0.47	0.050	0.5000	0	93.4	80	120			
Silver	0.094	0.0050	0.1000	0	93.9	80	120			

Sample ID: **MB-47925**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **47925**	RunNo: **63599**
Prep Date: **10/3/2019**	Analysis Date: **10/10/2019**	SeqNo: **2172999** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **47925**	RunNo: **63599**
Prep Date: **10/3/2019**	Analysis Date: **10/10/2019**	SeqNo: **2173001** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.45	0.020	0.5000	0	89.4	80	120			
Barium	0.45	0.020	0.5000	0	90.1	80	120			
Cadmium	0.44	0.0020	0.5000	0	88.6	80	120			
Chromium	0.44	0.0060	0.5000	0	88.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **LCS-47925** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **47925** RunNo: **63599**
Prep Date: **10/3/2019** Analysis Date: **10/10/2019** SeqNo: **2173001** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.46	0.050	0.5000	0	92.1	80	120			
Silver	0.088	0.0050	0.1000	0	88.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-R63747** SampType: **MBLK** TestCode: **CYANIDE, Reactive**
Client ID: **PBW** Batch ID: **R63747** RunNo: **63747**
Prep Date: Analysis Date: **10/15/2019** SeqNo: **2179127** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID: **LCS-R63747** SampType: **LCS** TestCode: **CYANIDE, Reactive**
Client ID: **LCSW** Batch ID: **R63747** RunNo: **63747**
Prep Date: Analysis Date: **10/15/2019** SeqNo: **2179128** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.101		0.1000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-R63747**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R63747**	RunNo: **63747**							
Prep Date:	Analysis Date: **10/7/2019**	SeqNo: **2179130**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID: **LCS-R63747**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R63747**	RunNo: **63747**							
Prep Date:	Analysis Date: **10/7/2019**	SeqNo: **2179131**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.47		0.5000	0	93.6	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R63435**	RunNo: **63435**							
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166170**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R63435**	RunNo: **63435**							
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166171**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.64	20.00	80.00	0	99.6	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R63435**	RunNo: **63435**							
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166193**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R63435**	RunNo: **63435**							
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166194**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.84	20.00	80.00	0	98.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **1910144-001CDUP** SampType: **DUP** TestCode: **Specific Gravity**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R63579** RunNo: **63579**
Prep Date: Analysis Date: **10/10/2019** SeqNo: **2172149** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9995	0						0.0600	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47951**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **47951**	RunNo: **63462**
Prep Date: **10/4/2019**	Analysis Date: **10/7/2019**	SeqNo: **2167775** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-47951**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **47951**	RunNo: **63462**
Prep Date: **10/4/2019**	Analysis Date: **10/7/2019**	SeqNo: **2167776** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **NAVAJO REFINING CO** Work Order Number: **1910144** RcptNo: **1**

Received By: Juan Rojas **10/2/2019 9:30:00 AM**

Completed By: **Leah Baca** **10/2/2019 1:17:37 PM** Leah Baca

Reviewed By: LB 10/3/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 3 :2
(<2 or >12 unless noted)
Adjusted? NO
Checked by: DAD 10/3/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.8	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
X Standard ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: -6-2=-8

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1910144	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
10-1-19	11:45	Brady Hubbard	carrier	10/2/19	9:30
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HOLLYFRONTIER.

JUL 23 2019 PM02:25

July 18, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7018 1130 0000 9712 6572

RE: 2019 2nd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4 HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the second quarter 2019 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for each well was 1249 psig for WDW-1, 1201 psig for WDW-2, 1047 psig for WDW-3 and 81 psig for WDW-4.The average flows were 135 gpm for WDW-1, 56 gpm for WDW-2, 55 gpm for WDW-3 and 237 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from April 1, 2019 to June 30, 2019. Navajo has disposed a total of 1,507,544 barrels of fluid into the four wells during the second quarter of 2019. The volume per well is:

- 422,400 barrels into WDW-1; 30-015-27592
- 173,795 barrels into WDW-2; 30-015-20894
- 172,834 barrels into WDW-3; 30-015-26575
- 738,515 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2019 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1											**Previous Quar**	43,846,301
Apr-19	1,240	135	148	107	540	726	404	138,857	152,229	110,057	**138,857**	43,985,158
May-19	1,283	140	149	123	587	729	459	148,800	158,366	130,731	**148,800**	44,133,958
Jun-19	1,223	131	146	100	397	518	193	134,743	150,171	102,857	**134,743**	44,268,701
Monthly Avg	1,249	135								**TOTAL**	422,400	
30-015-20894 WDW-2											**Previous Quar**	28,026,988
Apr-19	1,141	47	76	0	510	661	282	48,343	78,171	0	**48,343**	28,075,331
May-19	1,215	59	78	34	463	629	309	62,709	82,903	36,137	**62,709**	28,138,040
Jun-19	1,247	61	78	40	372	418	300	62,743	80,229	41,143	**62,743**	28,200,783
Monthly Avg	1,201	56								**TOTAL**	173,795	
30-015-26575 WDW-3											**Previous Quar**	19,657,009
Apr-19	1,047	51	117	9	653	750	549	52,457	120,343	9,257	**52,457**	19,709,466
May-19	1,064	61	111	10	541	652	387	64,834	117,977	10,629	**64,834**	19,774,300
Jun-19	1,031	54	111	1	397	515	300	55,543	114,171	1,029	**55,543**	19,829,843
Monthly Avg	1,047	55								**TOTAL**	172,834	
30-015-44677 WDW-4											**Previous Quar**	710,571
Apr-19	70	234	309	146	184	243	126	240,686	317,829	150,171	**240,686**	951,257
May-19	75	210	317	154	167	239	101	223,200	336,926	163,680	**223,200**	1,174,457
Jun-19	98	267	296	190	172	254	100	274,629	304,457	195,429	**274,629**	1,449,086
Monthly Avg	81	237								**TOTAL**	738,515	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	422,400	43,846,301	44,268,701
WDW2	173,795	28,026,988	28,200,783
WDW3	172,834	19,657,009	19,829,843
WDW4	738,515	710,571	1,449,086
	1,507,544	92,240,869	

	Q2 Disposal bbls	Max Flow gpm
WDW-1	422,400	148
WDW-2	173,795	77
WDW-3	172,834	113
WDW-4	738,515	307

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 17, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX:

RE: Quarterly WDW 1 2 3 Inj Well OrderNo.: 1907003

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/28/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1907003**
Date Reported: **7/17/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1907003-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2 & 3 Effluent
Collection Date: 6/26/2019 2:30:00 PM
Received Date: 6/28/2019 10:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C TCLP						Analyst: **DAM**	
2-Methylphenol	ND	200		mg/L	1	7/5/2019 2:00:31 PM	45933
3+4-Methylphenol	ND	200		mg/L	1	7/5/2019 2:00:31 PM	45933
2,4-Dinitrotoluene	ND	0.13		mg/L	1	7/5/2019 2:00:31 PM	45933
Hexachlorobenzene	ND	0.13		mg/L	1	7/5/2019 2:00:31 PM	45933
Hexachlorobutadiene	ND	0.50		mg/L	1	7/5/2019 2:00:31 PM	45933
Hexachloroethane	ND	3.0		mg/L	1	7/5/2019 2:00:31 PM	45933
Nitrobenzene	ND	2.0		mg/L	1	7/5/2019 2:00:31 PM	45933
Pentachlorophenol	ND	100		mg/L	1	7/5/2019 2:00:31 PM	45933
Pyridine	ND	5.0		mg/L	1	7/5/2019 2:00:31 PM	45933
2,4,5-Trichlorophenol	ND	400		mg/L	1	7/5/2019 2:00:31 PM	45933
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	7/5/2019 2:00:31 PM	45933
Cresols, Total	ND	200		mg/L	1	7/5/2019 2:00:31 PM	45933
Surr: 2-Fluorophenol	63.5	15-82.5		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: Phenol-d5	46.8	15-74.2		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: 2,4,6-Tribromophenol	83.3	18.6-118		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: Nitrobenzene-d5	87.2	30.4-106		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: 2-Fluorobiphenyl	77.3	15-104		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: 4-Terphenyl-d14	78.0	15-133		%Rec	1	7/5/2019 2:00:31 PM	45933
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.002	0			1	7/2/2019 10:32:00 AM	R61110
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Fluoride	23	2.0	*	mg/L	20	7/1/2019 3:42:01 PM	R61084
Chloride	570	50	*	mg/L	100	7/10/2019 2:28:41 PM	R61309
Bromide	0.59	0.50		mg/L	5	7/1/2019 3:29:36 PM	R61084
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	7/1/2019 3:29:36 PM	R61084
Sulfate	2300	50	*	mg/L	100	7/10/2019 2:28:41 PM	R61309
Nitrate+Nitrite as N	1.2	1.0		mg/L	5	7/1/2019 3:54:26 PM	R61084
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	6100	5.0		µmhos/c	1	7/1/2019 10:22:40 PM	R61065
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	537.6	20.00		mg/L Ca	1	7/1/2019 10:22:40 PM	R61065
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	7/1/2019 10:22:40 PM	R61065
Total Alkalinity (as CaCO3)	537.6	20.00		mg/L Ca	1	7/1/2019 10:22:40 PM	R61065
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **CJS**	
Total Dissolved Solids	4570	40.0	*D	mg/L	1	7/9/2019 2:54:00 PM	45992
SM4500-H+B / 9040C: PH						Analyst: **JRR**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1907003**
Date Reported: **7/17/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1907003-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2 & 3 Effluent
Collection Date: 6/26/2019 2:30:00 PM
Received Date: 6/28/2019 10:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.80		H	pH units	1	7/1/2019 10:22:40 PM	R61065
EPA METHOD 7470: MERCURY						Analyst: **rde**	
Mercury	ND	0.00020		mg/L	1	7/11/2019 4:43:47 PM	46125
EPA METHOD 6010B: DISSOLVED METALS						Analyst: **bcv**	
Calcium	470	5.0		mg/L	5	7/3/2019 11:45:32 AM	A61162
Magnesium	140	5.0		mg/L	5	7/3/2019 11:45:32 AM	A61162
Potassium	69	5.0		mg/L	5	7/3/2019 11:45:32 AM	A61162
Sodium	640	10		mg/L	10	7/3/2019 12:00:27 PM	A61162
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **bcv**	
Arsenic	ND	0.020		mg/L	1	7/5/2019 10:53:46 AM	46005
Barium	0.048	0.020		mg/L	1	7/5/2019 10:03:23 AM	46005
Cadmium	ND	0.0020		mg/L	1	7/5/2019 10:03:23 AM	46005
Chromium	ND	0.0060		mg/L	1	7/5/2019 10:03:23 AM	46005
Lead	ND	0.0050		mg/L	1	7/5/2019 10:03:23 AM	46005
Selenium	ND	0.050		mg/L	1	7/5/2019 10:03:23 AM	46005
Silver	0.0053	0.0050		mg/L	1	7/5/2019 10:03:23 AM	46005
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	200	7/9/2019 4:50:00 AM	T61220
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	7/9/2019 4:50:00 AM	T61220
2-Butanone	ND	200		mg/L	200	7/9/2019 4:50:00 AM	T61220
Carbon Tetrachloride	ND	0.50		mg/L	200	7/9/2019 4:50:00 AM	T61220
Chloroform	ND	6.0		mg/L	200	7/9/2019 4:50:00 AM	T61220
1,4-Dichlorobenzene	ND	7.5		mg/L	200	7/9/2019 4:50:00 AM	T61220
1,1-Dichloroethene	ND	0.70		mg/L	200	7/9/2019 4:50:00 AM	T61220
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	7/9/2019 4:50:00 AM	T61220
Trichloroethene (TCE)	ND	0.50		mg/L	200	7/9/2019 4:50:00 AM	T61220
Vinyl chloride	ND	0.20		mg/L	200	7/9/2019 4:50:00 AM	T61220
Chlorobenzene	ND	100		mg/L	200	7/9/2019 4:50:00 AM	T61220
Surr: 1,2-Dichloroethane-d4	114	70-130		%Rec	200	7/9/2019 4:50:00 AM	T61220
Surr: 4-Bromofluorobenzene	97.3	70-130		%Rec	200	7/9/2019 4:50:00 AM	T61220
Surr: Dibromofluoromethane	104	70-130		%Rec	200	7/9/2019 4:50:00 AM	T61220
Surr: Toluene-d8	93.6	70-130		%Rec	200	7/9/2019 4:50:00 AM	T61220

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1907003**
Date Reported: **7/17/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1907003-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 6/28/2019 10:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	1	7/9/2019 5:14:00 AM	T61220
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	7/9/2019 5:14:00 AM	T61220
2-Butanone	ND	200		mg/L	1	7/9/2019 5:14:00 AM	T61220
Carbon Tetrachloride	ND	0.50		mg/L	1	7/9/2019 5:14:00 AM	T61220
Chloroform	ND	6.0		mg/L	1	7/9/2019 5:14:00 AM	T61220
1,4-Dichlorobenzene	ND	7.5		mg/L	1	7/9/2019 5:14:00 AM	T61220
1,1-Dichloroethene	ND	0.70		mg/L	1	7/9/2019 5:14:00 AM	T61220
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	7/9/2019 5:14:00 AM	T61220
Trichloroethene (TCE)	ND	0.50		mg/L	1	7/9/2019 5:14:00 AM	T61220
Vinyl chloride	ND	0.20		mg/L	1	7/9/2019 5:14:00 AM	T61220
Chlorobenzene	ND	100		mg/L	1	7/9/2019 5:14:00 AM	T61220
Surr: 1,2-Dichloroethane-d4	112	70-130		%Rec	1	7/9/2019 5:14:00 AM	T61220
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	7/9/2019 5:14:00 AM	T61220
Surr: Dibromofluoromethane	105	70-130		%Rec	1	7/9/2019 5:14:00 AM	T61220
Surr: Toluene-d8	94.0	70-130		%Rec	1	7/9/2019 5:14:00 AM	T61220

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

1907003-001F WDW-1,2&3 EFFLUENT
Collected date/time: 06/26/19 14:30

SAMPLE RESULTS - 01

L1114999

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0269		0.00500	1	07/09/2019 20:24	WG1308181

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.47	T8	1	07/06/2019 11:52	WG1306715

Sample Narrative:
L1114999-01 WG1306715: 7.47 at 20.8C

Wet Chemistry by Method 9034-9030B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	ND		0.0500	1	07/03/2019 19:54	WG1305508

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	07/09/2019 12:16	WG1308093

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

1907003-001G WDW-1,2&3 EFFLUENT

Collected date/time: 06/26/19 14:30

SAMPLE RESULTS - 02

L1114999

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	mV				
ORP	50.0	T8	1	07/13/2019 10:12	WG1310279

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:
Hall Environmental Analysis Laboratory		L1114999	07/15/19 16:04

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

WG1310279

Wet Chemistry by Method 2580

QUALITY CONTROL SUMMARY

L1114999-02

ONE LAB. NATIONWIDE.

L1114999-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1114999-02 07/13/19 10:12 • (DUP) R3430311-2 07/13/19 10:12

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mV	mV		%		%
ORP	50.0	54.0	1	7.69		20

Laboratory Control Sample (LCS)

(LCS) R3430311-1 07/13/19 10:12

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mV	mV	%	%	
ORP	228	228	100	95.7-104	

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WG1308181

Wet Chemistry by Method 4500 CN E-2011

QUALITY CONTROL SUMMARY

L1114999-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3429064-1 07/09/19 19:47

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Reactive Cyanide	U		0.00180	0.00500

L1111966-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1111966-04 07/09/19 19:53 • (DUP) R3429064-3 07/09/19 19:54

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Reactive Cyanide	U	0.000	1	0.000		20

L1112351-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1112351-03 07/09/19 20:06 • (DUP) R3429064-6 07/09/19 20:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Reactive Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3429064-9 07/09/19 20:18

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Reactive Cyanide	0.100	0.110	110	85.0-115	

L1112351-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1112351-02 07/09/19 20:03 • (MS) R3429064-4 07/09/19 20:04 • (MSD) R3429064-5 07/09/19 20:05

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.107	0.0924	107	92.4	1	75.0-125			14.6	20

L1113239-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113239-01 07/09/19 20:15 • (MS) R3429064-7 07/09/19 20:16 • (MSD) R3429064-8 07/09/19 20:17

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.105	0.0832	105	83.2	1	75.0-125		J3	23.2	20

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

WG1306715

Wet Chemistry by Method 4500H+ B-2011

QUALITY CONTROL SUMMARY

L1114999-01

ONE LAB. NATIONWIDE.

Laboratory Control Sample (LCS)

(LCS) R3428109-1 07/06/19 11:52

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
Corrosivity by pH	10.0	9.95	99.5	99.0-101	

Sample Narrative:

LCS: 9.95 at 22.8C

2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Page 369 of 5828

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WG1305508

Wet Chemistry by Method 9034-9030B

QUALITY CONTROL SUMMARY

L1114999-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3427441-1 07/03/19 19:48

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Reactive Sulfide	U		0.00650	0.0500

Laboratory Control Sample (LCS)

(LCS) R3427441-2 07/03/19 19:48

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Reactive Sulfide	0.500	0.543	109	85.0-115	

L1114999-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1114999-01 07/03/19 19:54 • (MS) R3427441-5 07/03/19 19:54 • (MSD) R3427441-6 07/03/19 19:55

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Sulfide	1.00	ND	0.927	0.942	92.7	94.2	1	80.0-120			1.61	20

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

WG1308093

Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY

L1114999-01

ONE LAB. NATIONWIDE

L1149(8-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1114968-01 07/09/19 12:16 • (DUP) R3428833-2 07/09/19 12:16

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	deg F	deg F		%		%
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R3428833-1 07/09/19 12:16

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	deg F	deg F	%	%	
Flashpoint	82.0	83.8	102	96.0-104	

GLOSSARY OF TERMS

ONE LAB. NATIONWIDE.

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
T8	Sample(s) received past/too close to holding time expiration.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R61084**	RunNo: **61084**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2069013**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R61084**	RunNo: **61084**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2069014**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	99.4	90	110			
Bromide	2.4	0.10	2.500	0	95.6	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.9	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	96.8	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R61309**	RunNo: **61309**							
Prep Date:	Analysis Date: **7/10/2019**	SeqNo: **2078288**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R61309**	RunNo: **61309**							
Prep Date:	Analysis Date: **7/10/2019**	SeqNo: **2078289**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Sulfate	9.8	0.50	10.00	0	98.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **100ng lcs2**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T61220**	RunNo: **61220**
Prep Date:	Analysis Date: **7/9/2019**	SeqNo: **2075609** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.022	0.00017	0.02000	0	109	70	130			
1,1-Dichloroethene	0.020	0.00021	0.02000	0	98.0	70	130			
Trichloroethene (TCE)	0.020	0.00017	0.02000	0	102	70	130			
Chlorobenzene	0.020	0.00019	0.02000	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	0.012		0.01000		117	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		102	70	130			
Surr: Dibromofluoromethane	0.011		0.01000		111	70	130			
Surr: Toluene-d8	0.0095		0.01000		94.9	70	130			

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T61220**	RunNo: **61220**
Prep Date:	Analysis Date: **7/9/2019**	SeqNo: **2075612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.011		0.01000		114	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		99.7	70	130			
Surr: Dibromofluoromethane	0.011		0.01000		107	70	130			
Surr: Toluene-d8	0.0093		0.01000		93.2	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **lcs-1 99.8uS eC**	SampType: **lcs**			TestCode: **SM2510B: Specific Conductance**					
Client ID: **LCSW**	Batch ID: **R61065**			RunNo: **61065**					
Prep Date:	Analysis Date: **7/1/2019**			SeqNo: **2068823**		Units: **µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.80	0	99.6	85	115			

Sample ID: **lcs-2 99.8uS eC**	SampType: **lcs**			TestCode: **SM2510B: Specific Conductance**					
Client ID: **LCSW**	Batch ID: **R61065**			RunNo: **61065**					
Prep Date:	Analysis Date: **7/1/2019**			SeqNo: **2068863**		Units: **µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.80	0	102	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB-46125**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **46125**	RunNo: **61319**							
Prep Date: **7/11/2019**	Analysis Date: **7/11/2019**	SeqNo: **2078629**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-46125**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **46125**	RunNo: **61319**							
Prep Date: **7/11/2019**	Analysis Date: **7/11/2019**	SeqNo: **2078630**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.6	80	120			

Sample ID: **1907003-001EMS**	SampType: **MS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **WDW-1, 2 & 3 Efflue**	Batch ID: **46125**	RunNo: **61319**							
Prep Date: **7/11/2019**	Analysis Date: **7/11/2019**	SeqNo: **2078632**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	.00005580	94.2	75	125			

Sample ID: **1907003-001EMSD**	SampType: **MSD**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **WDW-1, 2 & 3 Efflue**	Batch ID: **46125**	RunNo: **61319**							
Prep Date: **7/11/2019**	Analysis Date: **7/11/2019**	SeqNo: **2078633**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0045	0.00020	0.005000	.00005580	89.7	75	125	4.84	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A61162**	RunNo: **61162**
Prep Date:	Analysis Date: **7/3/2019**	SeqNo: **2072741** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A61162**	RunNo: **61162**
Prep Date:	Analysis Date: **7/3/2019**	SeqNo: **2072742** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	97.5	80	120			
Magnesium	49	1.0	50.00	0	97.1	80	120			
Potassium	48	1.0	50.00	0	96.8	80	120			
Sodium	49	1.0	50.00	0	98.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB-46005**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **46005**	RunNo: **61169**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-46005**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **46005**	RunNo: **61169**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.020	0.5000	0	95.9	80	120			
Cadmium	0.50	0.0020	0.5000	0	100	80	120			
Chromium	0.49	0.0060	0.5000	0	99.0	80	120			
Lead	0.49	0.0050	0.5000	0	97.9	80	120			
Selenium	0.48	0.050	0.5000	0	95.9	80	120			
Silver	0.10	0.0050	0.1000	0	101	80	120			

Sample ID: **MB-46005**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **46005**	RunNo: **61169**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073365** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								

Sample ID: **LCS-46005**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **46005**	RunNo: **61169**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073366** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.51	0.020	0.5000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R61065**	RunNo: **61065**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2068770**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R61065**	RunNo: **61065**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2068771**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.24	20.00	80.00	0	94.1	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R61065**	RunNo: **61065**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2068793**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R61065**	RunNo: **61065**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2068794**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.60	20.00	80.00	0	97.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB-45992**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **45992**	RunNo: **61248**
Prep Date: **7/3/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076089** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-45992**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **45992**	RunNo: **61248**
Prep Date: **7/3/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076090** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	988	20.0	1000	0	98.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1907003 RcptNo: 1

Received By: Jevon Campisi 6/28/2019 10:40:00 AM Jevon Campisi
Completed By: Leah Baca 7/1/2019 6:52:49 AM Leah Baca
Reviewed By: JC 7/1/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 3 1 1>9 (<2 or >12 unless noted)
Adjusted? NO
Checked by: LB 7/1/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.2	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: -0.2 +0.0CF=0.2 (not traceable)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1907003	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
6-27-19	10:00	Brad Hibbard	Courier	6-28-19	10:40
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade. Field details: 7.24 pH, 41.7°C 89°F, 20% humidity Wind: SSW 15 mph

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	Contaminant	SW-846 Method	Regulatory Level (mg/l)
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallow ~200 - 250 ft bgs

Need All

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Page 385 of 5828

APR 30 2019 AM10:53

HOLLYFRONTIER.

April 24, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 5314

RE: 2019 1st Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3 and WDW-4, Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the first quarter 2019 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all four wells was 912 psig and the average flows were 187 gpm for WDW-1, 59 gpm for WDW-2, 63 gpm for WDW-3 and 223 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2019 to March 31, 2019. Navajo has disposed a total of 1,703,452 barrels of fluid into the four wells during the first quarter of 2019. The volume per well is:

- 584,606 barrels into WDW-1; 30-015-27592
- 190,046 barrels into WDW-2; 30-015-20894
- 218,229 barrels into WDW-3; 30-015-26575
- 710,571 barrels into WDW-4; 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Received by OCD: 5/16/2022 2:12:41 PM

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2019 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	43,261,695
Jan-19	1,272	1,400	897	248	301	80	576	734	219	263,589	319,920	85,029	**263,589**	43,525,284
Feb-19	1,270	1,400	885	196	293	97	364	576	170	188,160	281,280	103,097	**188,160**	43,713,444
Mar-19	1,184	1,356	1,100	125	150	106	456	701	323	132,857	159,429	112,663	**132,857**	43,846,301
Monthly Avg	1,242			190								**TOTAL**	584,606	
30-015-20894 WDW-2													**Previous Quarter**	27,836,942
Jan-19	1,262	1,400	932	71	94	8	390	543	230	75,463	99,909	8,503	**75,463**	27,912,405
Feb-19	1,252	1,381	1,057	64	81	29	410	588	284	61,440	77,760	27,840	**61,440**	27,973,845
Mar-19	1,157	1,300	1,044	50	77	26	432	659	304	53,143	81,840	27,634	**53,143**	28,026,988
Monthly Avg	1,224			62								**TOTAL**	190,046	
30-015-26575 WDW-3													**Previous Quarter**	19,438,780
Jan-19	1,177	1,400	906	87	144	0	741	938	598	92,469	153,051	0	**92,469**	19,531,249
Feb-19	1,116	1,258	899	69	109	0	700	930	561	66,240	104,640	0	**66,240**	19,597,489
Mar-19	1,064	1,151	999	56	86	25	659	839	592	59,520	91,406	26,571	**59,520**	19,657,009
Monthly Avg	1,119			71								**TOTAL**	218,229	
30-015-44677 WDW-4													**Previous Quarter**	0
Jan-19	58	89	37	422	683	178	152	227	107	202,560	327,840	72,960	**202,560**	202,560
Feb-19	50	98	36	238	729	82	159	226	111	228,480	699,840	78,720	**228,480**	431,040
Mar-19	80	337	51	263	351	192	167	253	96	279,531	373,063	204,069	**279,531**	710,571
Monthly Avg	63			308								**TOTAL**	710,571	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	584,606	43,261,695	43,846,301
WDW2	190,046	27,836,942	28,026,988
WDW3	218,229	19,438,780	19,657,009
WDW4	710,571	0	710,571
	1,703,452	90,537,417	92,240,869

District I
1625 North French, Hobbs, NM 88241

District II
811 S. First St., Artesia, NM 88210

District III
1000 Rio Brazos, Aztec, NM 84710

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South Saint Francis Drive
Santa Fe, NM 87505

OPERATOR'S MONTHLY REPORT

Form C-115 First Page
Revised January 22, 2004
Instruction on Reverse Side
1 ☐ Amended Report

2 Operator NAVAJO REFINERY CO.	3 OGRID: 15694	1/2019
5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210		6 Page 1 of 4

		INJECTION			PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 CODE 1	9 Volume	10 Pressure	11 CODE 2	12 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 CODE 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	263,589	1,272	W												
30-015-20894 WDW - 2	D	75,463	1,262	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	92,469	1,177	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	202560	58	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

District I
1625 North French, Hobbs, NM 88241
District II
811 S. First St., Artesia, NM 88210
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1000 Rio Brazos, Aztec, NM 84710

State of New Mexico
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2 Operator NAVAJO REFINERY CO.	3 OGRID: 15694	2/2019
5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210		6 Page 1 of 4

		INJECTION			PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 CODE 1	9 Volume	10 Pressure	11 CODE 2	12 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 CODE 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	188,160	1,270	W												
30-015-20894 WDW - 2	D	61,440	1,252	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	66,240	1,116	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	228480	50	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

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2 Operator NAVAJO REFINERY CO. | 3 OGRID: 15694 | 3/2019

5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210 | 6 Page 1 of 4

		INJECTION			PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 CODE 1	9 Volume	10 Pressure	11 CODE 2	12 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 CODE 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	132,857	1,184	W												
30-015-20894 WDW - 2	D	53,143	1,157	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	59,520	1,064	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	279531	80	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

Page 390 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 18, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX:

RE: Quarterly WDW 1 2 3 Inj Well OrderNo.: 1903D14

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/27/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report
Lab Order **1903D14**
Date Reported: **4/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1903D14-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 3/26/2019 8:15:00 AM
Received Date: 3/27/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **JME**	
Chlordane	ND	0.030		mg/L	1	4/16/2019 12:06:41 PM	43999
Surr: Decachlorobiphenyl	26.3	29.4-99.8	S	%Rec	1	4/16/2019 12:06:41 PM	43999
Surr: Tetrachloro-m-xylene	25.0	20.7-100		%Rec	1	4/16/2019 12:06:41 PM	43999
EPA METHOD 8270C TCLP						Analyst: **JDC**	
2-Methylphenol	ND	200		mg/L	1	4/13/2019 10:55:55 PM	44003
3+4-Methylphenol	ND	200		mg/L	1	4/13/2019 10:55:55 PM	44003
2,4-Dinitrotoluene	ND	0.13		mg/L	1	4/13/2019 10:55:55 PM	44003
Hexachlorobenzene	ND	0.13		mg/L	1	4/13/2019 10:55:55 PM	44003
Hexachlorobutadiene	ND	0.50		mg/L	1	4/13/2019 10:55:55 PM	44003
Hexachloroethane	ND	3.0		mg/L	1	4/13/2019 10:55:55 PM	44003
Nitrobenzene	ND	2.0		mg/L	1	4/13/2019 10:55:55 PM	44003
Pentachlorophenol	ND	100		mg/L	1	4/13/2019 10:55:55 PM	44003
Pyridine	ND	5.0		mg/L	1	4/13/2019 10:55:55 PM	44003
2,4,5-Trichlorophenol	ND	400		mg/L	1	4/13/2019 10:55:55 PM	44003
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	4/13/2019 10:55:55 PM	44003
Cresols, Total	ND	200		mg/L	1	4/13/2019 10:55:55 PM	44003
Surr: 2-Fluorophenol	45.0	15-82.5		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: Phenol-d5	35.3	15-74.2		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: 2,4,6-Tribromophenol	73.2	18.6-118		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: Nitrobenzene-d5	67.3	30.4-106		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: 2-Fluorobiphenyl	48.9	15-104		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: 4-Terphenyl-d14	51.6	15-133		%Rec	1	4/13/2019 10:55:55 PM	44003
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.001	0			1	4/3/2019 10:28:00 AM	R58847
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Fluoride	9.6	0.50	*	mg/L	5	4/1/2019 10:44:34 PM	R58816
Chloride	420	25	*	mg/L	50	4/8/2019 2:18:56 PM	R58998
Bromide	0.94	0.50		mg/L	5	4/1/2019 10:44:34 PM	R58816
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	4/1/2019 10:44:34 PM	R58816
Sulfate	1500	25	*	mg/L	50	4/8/2019 2:18:56 PM	R58998
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/1/2019 11:09:23 PM	R58816
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	4100	5.0		µmhos/c	1	4/3/2019 1:19:58 PM	R58867
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	488.6	20.00		mg/L Ca	1	4/3/2019 1:19:58 PM	R58867
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	4/3/2019 1:19:58 PM	R58867
Total Alkalinity (as CaCO3)	488.6	20.00		mg/L Ca	1	4/3/2019 1:19:58 PM	R58867

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Page 391 of 5828

Page 392 of 5828

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1903D14-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 3/26/2019 8:15:00 AM
Received Date: 3/27/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**CJS**
Total Dissolved Solids	3130	100	*D	mg/L	1	4/3/2019 5:30:00 PM	44042
EPA METHOD 7470: MERCURY						Analyst:	**pmf**
Mercury	ND	0.00020		mg/L	1	4/5/2019 12:09:40 PM	44137
EPA METHOD 6010B: DISSOLVED METALS						Analyst:	**ELS**
Calcium	330	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
Magnesium	100	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
Potassium	64	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
Sodium	360	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst:	**ELS**
Arsenic	ND	0.020		mg/L	1	4/3/2019 9:09:22 AM	44006
Barium	0.045	0.020		mg/L	1	4/3/2019 9:09:22 AM	44006
Cadmium	ND	0.0020		mg/L	1	4/3/2019 9:09:22 AM	44006
Chromium	ND	0.0060		mg/L	1	4/3/2019 9:09:22 AM	44006
Lead	ND	0.0050		mg/L	1	4/5/2019 10:10:57 AM	44006
Selenium	ND	0.050		mg/L	1	4/3/2019 9:09:22 AM	44006
Silver	ND	0.0050		mg/L	1	4/3/2019 9:09:22 AM	44006
TCLP VOLATILES BY 8260B						Analyst:	**RAA**
Benzene	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
2-Butanone	ND	200		mg/L	200	4/3/2019 12:15:00 AM	R58834
Carbon Tetrachloride	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
Chloroform	ND	6.0		mg/L	200	4/3/2019 12:15:00 AM	R58834
1,4-Dichlorobenzene	ND	7.5		mg/L	200	4/3/2019 12:15:00 AM	R58834
1,1-Dichloroethene	ND	0.70		mg/L	200	4/3/2019 12:15:00 AM	R58834
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	4/3/2019 12:15:00 AM	R58834
Trichloroethene (TCE)	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
Vinyl chloride	ND	0.20		mg/L	200	4/3/2019 12:15:00 AM	R58834
Chlorobenzene	ND	100		mg/L	200	4/3/2019 12:15:00 AM	R58834
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834
Surr: Dibromofluoromethane	101	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834
Surr: Toluene-d8	96.7	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report
Lab Order **1903D14**
Date Reported: **4/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW 1 2 3 Inj Well
Collection Date:
Lab ID: 1903D14-002 **Matrix:** TRIP BLANK **Received Date:** 3/27/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
2-Butanone	ND	200		mg/L	1	4/3/2019 1:27:00 AM	R58834
Carbon Tetrachloride	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
Chloroform	ND	6.0		mg/L	1	4/3/2019 1:27:00 AM	R58834
1,4-Dichlorobenzene	ND	7.5		mg/L	1	4/3/2019 1:27:00 AM	R58834
1,1-Dichloroethene	ND	0.70		mg/L	1	4/3/2019 1:27:00 AM	R58834
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	4/3/2019 1:27:00 AM	R58834
Trichloroethene (TCE)	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
Vinyl chloride	ND	0.20		mg/L	1	4/3/2019 1:27:00 AM	R58834
Chlorobenzene	ND	100		mg/L	1	4/3/2019 1:27:00 AM	R58834
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834
Surr: Dibromofluoromethane	97.9	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834
Surr: Toluene-d8	97.5	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 394 of 5828

1903D14-001F WDW-1,2,&3 EFFLUENT
Collected date/time: 03/26/19 08:15

SAMPLE RESULTS - 01
L1084745

ONE LAB. NATIONWIDE

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0141		0.00500	1	04/06/2019 17:13	WG1261156

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.56	T8	1	04/02/2019 17:45	WG1259617

Sample Narrative:
L1084745-01 WG1259617: 7.56 at 14.8C

Wet Chemistry by Method 9034-9030B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	0.123		0.0500	1	04/02/2019 18:35	WG1259688

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	04/05/2019 22:16	WG1261310

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

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WG1261158

Wet Chemistry by Method 4500 CN E-2011

QUALITY CONTROL SUMMARY

L1084745-01

ONE LAB. NATIONWIDE

Method Blank (MB)

(MB) R3399162-1 04/06/19 16:41

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Reactive Cyanide	U		0.00180	0.00500

L1084328-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1084328-06 04/06/19 16:48 • (DUP) R3399162-3 04/06/19 16:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Reactive Cyanide	ND	0.000	1	0.000		20

L1084328-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1084328-14 04/06/19 17:07 • (DUP) R3399162-8 04/06/19 17:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Reactive Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3399162-2 04/06/19 16:42

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Reactive Cyanide	0.100	0.0978	97.8	85.0-115	

L1084328-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1084328-07 04/06/19 16:50 • (MS) R3399162-4 04/06/19 16:54 • (MSD) R3399162-5 04/06/19 16:55

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.0790	0.0859	79.0	85.9	1	75.0-125			8.37	20

L1084328-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1084328-13 04/06/19 17:02 • (MS) R3399162-6 04/06/19 17:05 • (MSD) R3399162-7 04/06/19 17:06

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.0801	0.0703	80.1	70.3	1	75.0-125		J6	13.0	20

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:
Hall Environmental Analysis Laboratory		L1084745	04/09/19 09:12

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WG1259617

Wet Chemistry by Method 4500H+ B-2011

QUALITY CONTROL SUMMARY

L1084745-01

ONE LAB. NATIONWIDE.

Laboratory Control Sample (LCS)

(LCS) R3397714-1 04/02/19 17:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	9.97	99.7	99.0-101	

Sample Narrative:

LCS: 9.97 at 17.6C

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WG1259688

Wet Chemistry by Method 9034-9030B

QUALITY CONTROL SUMMARY

L1084745-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3397727-1 04/02/19 18:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Reactive Sulfide	U		0.00650	0.0500

Laboratory Control Sample (LCS)

(LCS) R3397727-2 04/02/19 18:19

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Reactive Sulfide	0.500	0.476	95.2	85 0-115	

1 Cr
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:
Hall Environmental Analysis Laboratory		L1084745	04/09/19 09:12

Received by OCD: 5/16/2022 2:12:41 PM

WG1261310
Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY
L1084745-01

ONE LAB. NATIONWIDE.

L1084808-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1084808-02 04/05/19 22:16 • (DUP) R3399058-2 04/05/19 22:16

Analyte	Original Result deg F	DUP Result deg F	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

L1085800-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1085800-01 04/05/19 22:16 • (DUP) R3399058-3 04/05/19 22:16

Analyte	Original Result deg F	DUP Result deg F	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R3399058-1 04/05/19 22:16

Analyte	Spike Amount deg F	LCS Result deg F	LCS Rec. %	Rec. Limits %	LCS Qualifier
Flashpoint	82.0	81.6	99.5	96.0-104	

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
TB	Sample(s) received past/too close to holding time expiration.

Page 400 of 5828

1903D14-001G WDW-1,2,&3 EFFLUENT
Collected date/time: 03/26/19 08:15

SAMPLE RESULTS - 01
L1084668

ONE LAB. NATIONWIDE

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	mV				
ORP	192	TB	1	04/06/2019 11:25	WG1261694

Received by OCD: 5/16/2022 2:12:41 PM
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QUALITY CONTROL SUMMARY

L1084668-01

L1084668-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1084668-01 04/06/19 11:25 • (DUP) R3399096-2 04/06/19 11:25

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mV	mV		%		%
ORP	192	191	1	0.522		20

Laboratory Control Sample (LCS)

(LCS) R3399096-1 04/06/19 11:25

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mV	mV	%	%	
ORP	228	228	100	95.7-104	

Received by OCD: 5/16/2022 2:12:41 PM

Page 402 of 5828

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
T8	Sample(s) received past/too close to holding time expiration.

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R58816	RunNo: 58816							
Prep Date:	Analysis Date: 4/1/2019	SeqNo: 1976714	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R58816	RunNo: 58816							
Prep Date:	Analysis Date: 4/1/2019	SeqNo: 1976715	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	101	90	110			
Bromide	2.4	0.10	2.500	0	95.1	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.6	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	98.1	90	110			

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R58998	RunNo: 58998							
Prep Date:	Analysis Date: 4/8/2019	SeqNo: 1985185	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R58998	RunNo: 58998							
Prep Date:	Analysis Date: 4/8/2019	SeqNo: 1985187	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.9	90	110			
Sulfate	10	0.50	10.00	0	100	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified at testcode

Page 404 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903D14-001BMS	SampType: MS	TestCode: EPA Method 8081: Pesticides TCLP
Client ID: WDW-1,2,&3 Effluen	Batch ID: 43999	RunNo: 59212
Prep Date: 4/1/2019	Analysis Date: 4/16/2019	SeqNo: 1993657 Units: %Rec

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.00088		0.002500		35.2	29.4	99.8			
Surr: Tetrachloro-m-xylene	0.00076		0.002500		30.6	20.7	100			

Sample ID: 1903D14-001BMSD	SampType: MSD	TestCode: EPA Method 8081: Pesticides TCLP
Client ID: WDW-1,2,&3 Effluen	Batch ID: 43999	RunNo: 59212
Prep Date: 4/1/2019	Analysis Date: 4/16/2019	SeqNo: 1993658 Units: %Rec

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0017		0.002500		66.0	29.4	99.8	0	0	
Surr: Tetrachloro-m-xylene	0.0015		0.002500		59.0	20.7	100	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 100ng lcs2	SampType: LCS	TestCode: TCLP Volatiles by 8260B							
Client ID: LCSW	Batch ID: R58834	RunNo: 58834							
Prep Date:	Analysis Date: 4/2/2019	SeqNo: 1978496	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50	0.02000	0	100	70	130			
1,1-Dichloroethene	ND	0.70	0.02000	0	95.1	70	130			
Trichloroethene (TCE)	ND	0.50	0.02000	0	90.3	70	130			
Chlorobenzene	ND	100	0.02000	0	95.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.011		0.01000		109	70	130			
Surr: 4-Bromofluorobenzene	0.0099		0.01000		99.2	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		103	70	130			
Surr: Toluene-d8	0.0097		0.01000		97.3	70	130			

Sample ID: rb2	SampType: MBLK	TestCode: TCLP Volatiles by 8260B							
Client ID: PBW	Batch ID: R58834	RunNo: 58834							
Prep Date:	Analysis Date: 4/2/2019	SeqNo: 1978497	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		104	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		100	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		99.5	70	130			
Surr: Toluene-d8	0.0099		0.01000		98.6	70	130			

Sample ID: 1903d14-001ams	SampType: MS	TestCode: TCLP Volatiles by 8260B							
Client ID: WDW-1,2,&3 Effluen	Batch ID: R58834	RunNo: 58834							
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978503	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.1	0.00017	4.000	0.02440	102	70	130			
1,1-Dichloroethene	4.1	0.00021	4.000	0	102	67.6	130			
Trichloroethene (TCE)	3.9	0.00017	4.000	0	97.2	70	130			
Chlorobenzene	4.2	0.00019	4.000	0.03160	105	70	130			
Surr: 1,2-Dichloroethane-d4	2.1		2.000		104	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Page 406 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903d14-001ams	SampType: MS	TestCode: TCLP Volatiles by 8260B
Client ID: WDW-1,2,&3 Effluen	Batch ID: R58834	RunNo: 58834
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978503 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.9		2.000		96.7	70	130			
Surr: Dibromofluoromethane	1.9		2.000		96.5	70	130			
Surr: Toluene-d8	2.0		2.000		97.7	70	130			

Sample ID: 1903d14-001amsd	SampType: MSD	TestCode: TCLP Volatiles by 8260B
Client ID: WDW-1,2,&3 Effluen	Batch ID: R58834	RunNo: 58834
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978504 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.1	0.00017	4.000	0.02440	101	70	130	1.10	20	
1,1-Dichloroethene	4.0	0.00021	4.000	0	99.0	67.6	130	3.29	20	
Trichloroethene (TCE)	3.8	0.00017	4.000	0	95.6	70	130	1.68	20	
Chlorobenzene	4.0	0.00019	4.000	0.03160	99.7	70	130	5.04	20	
Surr: 1,2-Dichloroethane-d4	2.1		2.000		106	70	130	0	0	
Surr: 4-Bromofluorobenzene	2.0		2.000		102	70	130	0	0	
Surr: Dibromofluoromethane	2.0		2.000		100	70	130	0	0	
Surr: Toluene-d8	2.0		2.000		98.2	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **1903D14-001Bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **44003** RunNo: **59132**

Prep Date: **4/1/2019** Analysis Date: **4/13/2019** SeqNo: **1990636** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.056	0.0063	0.1000	0	56.5	23.9	129			
3+4-Methylphenol	0.10	0.0054	0.2000	0	51.9	15	167			
2,4-Dinitrotoluene	0.064	0.0058	0.1000	0	64.4	15	147			
Hexachlorobenzene	0.073	0.0062	0.1000	0	73.0	41.4	136			
Hexachlorobutadiene	0.023	0.0064	0.1000	0	23.4	16.2	134			
Hexachloroethane	0.024	0.0060	0.1000	0	23.9	20.6	124			
Nitrobenzene	0.059	0.0060	0.1000	0	59.0	39.5	134			
Pentachlorophenol	0.033	0.0053	0.1000	0	33.5	15	137			
Pyridine	0.016	0.0060	0.1000	0	16.0	15	129			
2,4,5-Trichlorophenol	0.070	0.0054	0.1000	0	70.4	15	158			
2,4,6-Trichlorophenol	0.069	0.0058	0.1000	0	68.7	15	153			
Cresols, Total	0.16	0.012	0.3000	0	53.4	10.6	179			
Surr: 2-Fluorophenol	0.085		0.2000		42.3	15	82.5			
Surr: Phenol-d5	0.067		0.2000		33.3	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		72.0	18.6	118			
Surr: Nitrobenzene-d5	0.068		0.1000		67.8	30.4	106			
Surr: 2-Fluorobiphenyl	0.046		0.1000		46.3	15	104			
Surr: 4-Terphenyl-d14	0.058		0.1000		57.7	15	133			

Sample ID: **1903D14-001Bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **44003** RunNo: **59132**

Prep Date: **4/1/2019** Analysis Date: **4/13/2019** SeqNo: **1990637** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.049	0.0063	0.1000	0	48.9	23.9	129	14.3	20	
3+4-Methylphenol	0.094	0.0054	0.2000	0	47.0	15	167	9.96	20	
2,4-Dinitrotoluene	0.055	0.0058	0.1000	0	54.9	15	147	16.0	23.2	
Hexachlorobenzene	0.063	0.0062	0.1000	0	62.5	41.4	136	15.5	20	
Hexachlorobutadiene	0.023	0.0064	0.1000	0	23.1	16.2	134	1.38	20	
Hexachloroethane	0.022	0.0060	0.1000	0	21.7	20.6	124	9.57	31.3	
Nitrobenzene	0.054	0.0060	0.1000	0	54.2	39.5	134	8.44	26.6	
Pentachlorophenol	0.028	0.0053	0.1000	0	28.2	15	137	16.9	27.9	
Pyridine	0.021	0.0060	0.1000	0	21.0	15	129	26.8	47.4	
2,4,5-Trichlorophenol	0.058	0.0054	0.1000	0	57.7	15	158	19.7	36.9	
2,4,6-Trichlorophenol	0.062	0.0058	0.1000	0	61.9	15	153	10.4	37.2	
Cresols, Total	0.14	0.012	0.3000	0	47.6	10.6	179	11.5	27.4	
Surr: 2-Fluorophenol	0.072		0.2000		36.0	15	82.5	0	0	
Surr: Phenol-d5	0.057		0.2000		28.6	15	74.2	0	0	
Surr: 2,4,6-Tribromophenol	0.13		0.2000		63.4	18.6	118	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 408 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **1903D14-001Bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **44003** RunNo: **59132**

Prep Date: **4/1/2019** Analysis Date: **4/13/2019** SeqNo: **1990637** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.062		0.1000		61.7	30.4	106	0	0	
Surr: 2-Fluorobiphenyl	0.041		0.1000		40.8	15	104	0	0	
Surr: 4-Terphenyl-d14	0.049		0.1000		49.1	15	133	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **lcs-1 99.0uS eC**	SampType: **LCS**			TestCode: **SM2510B: Specific Conductance**						
Client ID: **LCSW**	Batch ID: **R58867**			RunNo: **58867**						
Prep Date:	Analysis Date: **4/3/2019**			SeqNo: **1978677**		Units: **µmhos/cm**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.00	0	100	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 410 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-44137	SampType: MBLK	TestCode: EPA Method 7470: Mercury							
Client ID: PBW	Batch ID: 44137	RunNo: 58933							
Prep Date: 4/4/2019	Analysis Date: 4/5/2019	SeqNo: 1981797	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LCS-44137	SampType: LCS	TestCode: EPA Method 7470: Mercury							
Client ID: LCSW	Batch ID: 44137	RunNo: 58933							
Prep Date: 4/4/2019	Analysis Date: 4/5/2019	SeqNo: 1981798	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0043	0.00020	0.005000	0	85.5	80	120			

Sample ID: LCSD-44137	SampType: LCSD	TestCode: EPA Method 7470: Mercury							
Client ID: LCSS02	Batch ID: 44137	RunNo: 58933							
Prep Date: 4/4/2019	Analysis Date: 4/5/2019	SeqNo: 1981844	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.7	80	120	15.3	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-A	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: PBW	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978089 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: LCS-A	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: LCSW	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978091 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.2	80	120			
Magnesium	50	1.0	50.00	0	99.5	80	120			
Potassium	49	1.0	50.00	0	98.4	80	120			
Sodium	48	1.0	50.00	0	96.3	80	120			

Sample ID: LCSD-A	SampType: LCSD	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: LCSS02	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978092 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	100	80	120	1.07	20	
Magnesium	50	1.0	50.00	0	101	80	120	1.09	20	
Potassium	50	1.0	50.00	0	99.4	80	120	1.05	20	
Sodium	49	1.0	50.00	0	98.6	80	120	2.32	20	

Sample ID: 1903D14-001DMS	SampType: MS	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978153 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	350	5.0	250.0	100.9	101	75	125			
Potassium	310	5.0	250.0	63.59	100	75	125			

Sample ID: 1903D14-001DMSD	SampType: MSD	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978154 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	360	5.0	250.0	100.9	102	75	125	0.849	20	
Potassium	320	5.0	250.0	63.59	101	75	125	0.298	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 411 of 5828

Page 412 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-44006	SampType: MBLK	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: PBW	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978079 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: LCS-44006	SampType: LCS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: LCSW	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978084 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.47	0.020	0.5000	0	94.0	80	120			
Barium	0.48	0.020	0.5000	0	96.7	80	120			
Cadmium	0.49	0.0020	0.5000	0	98.3	80	120			
Chromium	0.48	0.0060	0.5000	0	96.7	80	120			
Selenium	0.50	0.050	0.5000	0	99.3	80	120			
Silver	0.10	0.0050	0.1000	0	100	80	120			

Sample ID: 1903D14-001EMS	SampType: MS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978105 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0.01859	93.7	75	125			
Barium	0.50	0.020	0.5000	0.04539	90.9	75	125			
Cadmium	0.48	0.0020	0.5000	0	95.6	75	125			
Chromium	0.46	0.0060	0.5000	0	91.6	75	125			
Selenium	0.52	0.050	0.5000	0.04001	95.3	75	125			
Silver	0.11	0.0050	0.1000	0.003795	101	75	125			

Sample ID: 1903D14-001EMSD	SampType: MSD	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978106 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0.01859	94.3	75	125	0.602	20	
Barium	0.50	0.020	0.5000	0.04539	91.6	75	125	0.717	20	
Cadmium	0.48	0.0020	0.5000	0	95.7	75	125	0.0812	20	
Chromium	0.46	0.0060	0.5000	0	91.2	75	125	0.359	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quantitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **1903D14-001EMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **44006** RunNo: **58849**
Prep Date: **4/1/2019** Analysis Date: **4/3/2019** SeqNo: **1978106** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.53	0.050	0.5000	0.04001	97.3	75	125	1.89	20	
Silver	0.11	0.0050	0.1000	0.003795	103	75	125	1.41	20	

Sample ID: **MB-44006** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **44006** RunNo: **58923**
Prep Date: **4/1/2019** Analysis Date: **4/5/2019** SeqNo: **1981494** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								

Sample ID: **LCS-44006** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **44006** RunNo: **58923**
Prep Date: **4/1/2019** Analysis Date: **4/5/2019** SeqNo: **1981495** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.51	0.0050	0.5000	0	101	80	120			

Sample ID: **1903D14-001EMS** SampType: **MS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **44006** RunNo: **58923**
Prep Date: **4/1/2019** Analysis Date: **4/5/2019** SeqNo: **1981515** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.48	0.0050	0.5000	0	95.7	75	125			

Sample ID: **1903D14-001EMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **44006** RunNo: **58923**
Prep Date: **4/1/2019** Analysis Date: **4/5/2019** SeqNo: **1981516** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.48	0.0050	0.5000	0	96.9	75	125	1.26	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 414 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: mb-1 alk	SampType: MBLK	TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R58867	RunNo: 58867							
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978652	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-1 alk	SampType: LCS	TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R58867	RunNo: 58867							
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978653	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.56	20.00	80.00	0	95.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-44042	SampType: MBLK			TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID: PBW	Batch ID: 44042			RunNo: 58866					
Prep Date: 4/2/2019	Analysis Date: 4/3/2019			SeqNo: 1978621		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: LCS-44042	SampType: LCS			TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID: LCSW	Batch ID: 44042			RunNo: 58866					
Prep Date: 4/2/2019	Analysis Date: 4/3/2019			SeqNo: 1978622		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified at testcode

Page 416 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1903D14 RcptNo: 1

Received By: Yazmine Garduno 3/27/2019 8:40:00 AM

Completed By: Leah Baca 3/27/2019 1:57:18 PM

Reviewed By: ENH 3/29/19

Labeled by YG 3/29/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 4 (<2 or >12 unless noted)

Adjusted? NO

Checked by: YG 3/29/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____

By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: ____

Client Instructions: ____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.1	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
X Standard ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☐ Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1903D14	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	~~-002~~					X	X		
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	~~-003~~		X						
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date: 3.26.19 Time: 1:00 Relinquished by: Brady Hubbard

Received by: Courier Date Time 5:41

Date: Time: Relinquished by:

Received by: Date: 3/27/19 Time:

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade. 7.32 pH, 31.0°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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HOLLYFRONTIER

January 23, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 7357

RE: 2018 4th Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3
HollyFrontier Navajo Refining LLC.

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for all three wells was 1245 psig and the average flows were 261 gpm for WDW-1, 79 gpm for WDW-2 and 115 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from October 1, 2018 to December 31, 2018. Navajo has disposed a total of 1,433,520 barrels of fluid into the three wells during the fourth quarter of 2018. The volume per well is:

- 822,549 barrels into WDW-1; 30-015-27592
- 248,228 barrels into WDW-2; 30-015-20894
- 362,743 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager

Electronic cc (w/enc.): R. Combs, L. Dade
Environmental File: NRC/ENV/INJ WELLS/REPORTS C-115/2018

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

Page 419 of 5828

2018 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	42,439,146
Oct-18	1,291	1,400	1,200	290	328	157	517	930	203	308,229	348,617	215,760	308,229	42,747,375
Nov-18	1,237	1,400	1,066	251	299	161	423	609	221	258,171	307,543	165,600	258,171	43,005,546
Dec-18	1,240	1,400	903	241	297	84	347	538	200	256,149	315,669	89,280	256,149	43,261,695
Monthly Avg	1,256			261										
30-015-20894 WDW-2													**Previous Quarter**	27,588,714
Oct-18	1,276	1,400	1,169	89	180	58	435	565	316	94,594	191,314	61,645	94,954	27,683,308
Nov-18	1,240	1,400	1,174	76	90	62	434	571	274	78,171	92,571	63,771	78,171	27,761,479
Dec-18	1,225	1,400	908	71	84	1	478	585	273	75,463	89,280	1,063	75,463	27,836,942
Monthly Avg	1,247			79										
30-015-26575 WDW-3													**Previous Quarter**	19,076,037
Oct-18	1,251	1,400	1,136	125	146	80	738	932	490	132,857	155,177	85,029	132,857	19,208,894
Nov-18	1,230	1,400	1,133	115	140	76	736	822	599	118,286	144,000	78,171	118,286	19,327,180
Dec-18	1,217	1,400	914	105	124	2	713	812	607	111,600	131,794	2,126	111,600	19,438,780
Monthly Avg	1,233			115										
AVG:	1,245			152										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	43,261,695	42,439,146	822,549
WDW2	27,836,942	27,588,714	248,228
WDW3	19,438,780	19,076,037	362,743
	90,537,417	89,103,897	1,433,520

G:\Environmental\Injection Wells\Reports C-115 and Quarterly\2018\
4Q INJECTION 2018.xlsx

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 18, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 3 Inj Well OrderNo.: 1812E95

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/29/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **JME**
Chlordane	ND	0.030		mg/L	1	1/9/2019 9:47:37 AM
Surr: Decachlorobiphenyl	42.3	47.2-117	S	%Rec	1	1/9/2019 9:47:37 AM
Surr: Tetrachloro-m-xylene	42.3	26.4-126		%Rec	1	1/9/2019 9:47:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Fluoride	20	0.50	*	mg/L	5	1/4/2019 1:02:43 PM
Chloride	660	25	*	mg/L	50	1/15/2019 12:03:59 AM
Bromide	1.5	0.50		mg/L	5	1/4/2019 1:02:43 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	1/4/2019 1:02:43 PM
Sulfate	1900	25	*	mg/L	50	1/15/2019 12:03:59 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/4/2019 6:24:12 PM
EPA METHOD 7470: MERCURY						Analyst: **pmf**
Mercury	ND	0.00020		mg/L	1	1/10/2019 1:48:58 PM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: **rde**
Calcium	66	1.0		mg/L	1	1/4/2019 1:29:10 PM
Magnesium	21	1.0		mg/L	1	1/4/2019 1:29:10 PM
Potassium	94	1.0		mg/L	1	1/4/2019 1:29:10 PM
Sodium	950	10		mg/L	10	1/4/2019 1:35:13 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **rde**
Arsenic	0.085	0.020		mg/L	1	1/9/2019 4:36:22 PM
Barium	0.020	0.020		mg/L	1	1/9/2019 4:36:22 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2019 4:36:22 PM
Chromium	0.0061	0.0060		mg/L	1	1/9/2019 4:36:22 PM
Lead	ND	0.0050		mg/L	1	1/9/2019 4:36:22 PM
Selenium	ND	0.050		mg/L	1	1/9/2019 4:36:22 PM
Silver	ND	0.0050		mg/L	1	1/9/2019 4:36:22 PM
EPA METHOD 8270C TCLP						Analyst: **DAM**
2-Methylphenol	ND	200		mg/L	1	1/9/2019 12:34:44 PM
3+4-Methylphenol	ND	200		mg/L	1	1/9/2019 12:34:44 PM
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/9/2019 12:34:44 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/9/2019 12:34:44 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/9/2019 12:34:44 PM
Hexachloroethane	ND	3.0		mg/L	1	1/9/2019 12:34:44 PM
Nitrobenzene	ND	2.0		mg/L	1	1/9/2019 12:34:44 PM
Pentachlorophenol	ND	100		mg/L	1	1/9/2019 12:34:44 PM
Pyridine	ND	5.0		mg/L	1	1/9/2019 12:34:44 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/9/2019 12:34:44 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/9/2019 12:34:44 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C TCLP						Analyst: **DAM**
Cresols, Total	ND	200		mg/L	1	1/9/2019 12:34:44 PM
Surr: 2-Fluorophenol	58.1	15-73.6		%Rec	1	1/9/2019 12:34:44 PM
Surr: Phenol-d5	41.9	15-63.4		%Rec	1	1/9/2019 12:34:44 PM
Surr: 2,4,6-Tribromophenol	75.6	15-119		%Rec	1	1/9/2019 12:34:44 PM
Surr: Nitrobenzene-d5	78.7	33.5-111		%Rec	1	1/9/2019 12:34:44 PM
Surr: 2-Fluorobiphenyl	57.5	31.8-101		%Rec	1	1/9/2019 12:34:44 PM
Surr: 4-Terphenyl-d14	66.2	17.2-84.7		%Rec	1	1/9/2019 12:34:44 PM
TCLP VOLATILES BY 8260B						Analyst: **DJF**
Benzene	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
2-Butanone	ND	200		mg/L	200	1/3/2019 12:42:43 AM
Carbon Tetrachloride	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
Chloroform	ND	6.0		mg/L	200	1/3/2019 12:42:43 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	200	1/3/2019 12:42:43 AM
1,1-Dichloroethene	ND	0.70		mg/L	200	1/3/2019 12:42:43 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	1/3/2019 12:42:43 AM
Trichloroethene (TCE)	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
Vinyl chloride	ND	0.20		mg/L	200	1/3/2019 12:42:43 AM
Chlorobenzene	ND	100		mg/L	200	1/3/2019 12:42:43 AM
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: 4-Bromofluorobenzene	94.4	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: Dibromofluoromethane	107	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: Toluene-d8	102	70-130		%Rec	200	1/3/2019 12:42:43 AM
CORROSIVITY						Analyst: **SUB**
pH	6.93			su	1	1/4/2019
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>170			°F	1	1/5/2019
OXIDATION REDUCTION POTENTIAL						Analyst: **SUB**
Oxidation-Reduction Potential	200			mV	1	1/4/2019
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	0.0196	0.00500		mg/L	1	1/7/2019
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	0.093	0.0050		mg/L	1	1/9/2019
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5600	5.0		µmhos/c	1	1/2/2019 3:11:27 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	149.5	20.00		mg/L Ca	1	1/2/2019 3:11:27 PM
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	1/2/2019 3:11:27 PM
Total Alkalinity (as CaCO3)	149.5	20.00		mg/L Ca	1	1/2/2019 3:11:27 PM
SPECIFIC GRAVITY						Analyst: **JRR**
Specific Gravity	1.001	0			1	1/8/2019 10:12:00 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3880	100	*D	mg/L	1	1/7/2019 10:44:00 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**
18-Jan-19

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R56793**	RunNo: **56793**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900898** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R56793**	RunNo: **56793**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900899** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			
Bromide	2.4	0.10	2.500	0	94.6	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.1	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.5	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R56999**	RunNo: **56999**
Prep Date:	Analysis Date: **1/14/2019**	SeqNo: **1906790** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R56999**	RunNo: **56999**
Prep Date:	Analysis Date: **1/14/2019**	SeqNo: **1906791** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.2	90	110			
Sulfate	10	0.50	10.00	0	99.5	90	110			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID MB-42425	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: PBW	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902962	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0015		0.002500		59.2	47.2	117			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		54.6	26.4	126			

Sample ID LCS-42425	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902963	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0017		0.002500		69.4	47.2	117			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		61.6	26.4	126			

Sample ID LCSD-42425	SampType: LCSD	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSS02	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902964	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0014		0.002500		54.4	47.2	117	0	0	
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.6	26.4	126	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **rb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T56703**	RunNo: **56703**
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898710** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		100	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		99.8	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		104	70	130			
Surr: Toluene-d8	0.010		0.01000		105	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T56703**	RunNo: **56703**
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898711** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.017	0.0050	0.02000	0	84.3	70	130			
1,1-Dichloroethene	0.019	0.0050	0.02000	0	96.7	70	130			
Trichloroethene (TCE)	0.016	0.0050	0.02000	0	81.2	70	130			
Chlorobenzene	0.019	0.0050	0.02000	0	93.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.0093		0.01000		92.6	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		105	70	130			
Surr: Dibromofluoromethane	0.0099		0.01000		99.1	70	130			
Surr: Toluene-d8	0.010		0.01000		99.5	70	130			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **1812e95-001bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903284** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.052	0.0010	0.1000	0	51.5	23.9	129			
3+4-Methylphenol	0.11	0.0010	0.2000	0	52.6	15	167			
2,4-Dinitrotoluene	0.045	0.0010	0.1000	0	45.0	15	147			
Hexachlorobenzene	0.050	0.0010	0.1000	0	49.6	41.4	136			
Hexachlorobutadiene	0.024	0.0010	0.1000	0	24.5	16.2	134			
Hexachloroethane	0.018	0.0010	0.1000	0	18.1	20.6	124			S
Nitrobenzene	0.054	0.0010	0.1000	0	53.7	39.5	134			
Pentachlorophenol	0.048	0.0010	0.1000	0	47.7	15	137			
Pyridine	0.0025	0.0010	0.1000	0	2.46	15	129			S
2,4,5-Trichlorophenol	0.058	0.0010	0.1000	0	58.2	15	158			
2,4,6-Trichlorophenol	0.068	0.0010	0.1000	0	68.5	15	153			
Cresols, Total	0.16	0.0010	0.3000	0	52.2	10.6	179			
Surr: 2-Fluorophenol	0.080		0.2000		40.1	15	73.6			
Surr: Phenol-d5	0.066		0.2000		33.1	15	63.4			
Surr: 2,4,6-Tribromophenol	0.12		0.2000		58.2	15	119			
Surr: Nitrobenzene-d5	0.054		0.1000		53.9	33.5	111			
Surr: 2-Fluorobiphenyl	0.038		0.1000		37.7	31.8	101			
Surr: 4-Terphenyl-d14	0.051		0.1000		50.9	17.2	84.7			

Sample ID **1812e95-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903285** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.068	0.0010	0.1000	0	68.2	23.9	129	27.9	20	R
3+4-Methylphenol	0.14	0.0010	0.2000	0	70.7	15	167	29.3	20	R
2,4-Dinitrotoluene	0.063	0.0010	0.1000	0	63.0	15	147	33.3	23.2	R
Hexachlorobenzene	0.073	0.0010	0.1000	0	73.2	41.4	136	38.5	20	R
Hexachlorobutadiene	0.042	0.0010	0.1000	0	42.3	16.2	134	53.2	20	R
Hexachloroethane	0.032	0.0010	0.1000	0	32.2	20.6	124	56.1	31.3	R
Nitrobenzene	0.073	0.0010	0.1000	0	73.2	39.5	134	30.7	26.6	R
Pentachlorophenol	0.070	0.0010	0.1000	0	69.8	15	137	37.7	27.9	R
Pyridine	0.0043	0.0010	0.1000	0	4.26	15	129	53.6	47.4	RS
2,4,5-Trichlorophenol	0.075	0.0010	0.1000	0	75.3	15	158	25.6	36.9	
2,4,6-Trichlorophenol	0.096	0.0010	0.1000	0	95.8	15	153	33.2	37.2	
Cresols, Total	0.21	0.0010	0.3000	0	69.9	10.6	179	28.8	27.4	R
Surr: 2-Fluorophenol	0.10		0.2000		52.4	15	73.6	0	0	
Surr: Phenol-d5	0.082		0.2000		41.2	15	63.4	0	0	
Surr: 2,4,6-Tribromophenol	0.16		0.2000		81.4	15	119	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **1812e95-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903285** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.077		0.1000		76.9	33.5	111	0	0	
Surr: 2-Fluorobiphenyl	0.062		0.1000		62.0	31.8	101	0	0	
Surr: 4-Terphenyl-d14	0.078		0.1000		78.4	17.2	84.7	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID	lcs-1 99.0uS eC	SampType:	LCS		TestCode:	SM2510B: Specific Conductance				
Client ID:	LCSW	Batch ID:	R56730		RunNo:	56730				
Prep Date:		Analysis Date:	1/2/2019		SeqNo:	1898774	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.00	0	100	80	120			

Sample ID	lcs-2 99.0uS eC	SampType:	LCS		TestCode:	SM2510B: Specific Conductance				
Client ID:	LCSW	Batch ID:	R56730		RunNo:	56730				
Prep Date:		Analysis Date:	1/2/2019		SeqNo:	1898798	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-42524**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **42524**	RunNo: **56898**							
Prep Date: **1/9/2019**	Analysis Date: **1/10/2019**	SeqNo: **1903938**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-42524**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **42524**	RunNo: **56898**							
Prep Date: **1/9/2019**	Analysis Date: **1/10/2019**	SeqNo: **1903939**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.7	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID MB-A	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: PBW	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900123	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID LCS-A	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: LCSW	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900124	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	51	1.0	50.00	0	103	80	120			
Potassium	51	1.0	50.00	0	102	80	120			
Sodium	51	1.0	50.00	0	101	80	120			

Sample ID 1812E95-001DMS	SampType: MS	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: WDW-1,2,&3 Effluen	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900141	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	73	1.0	50.00	20.95	104	75	125			

Sample ID 1812E95-001DMSD	SampType: MSD	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: WDW-1,2,&3 Effluen	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900142	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	72	1.0	50.00	20.95	101	75	125	1.57	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID	MB-42405	SampType:	MBLK	TestCode:	EPA 6010B: Total Recoverable Metals
Client ID:	PBW	Batch ID:	42405	RunNo:	56870
Prep Date:	1/2/2019	Analysis Date:	1/9/2019	SeqNo:	1903095 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-42405	SampType:	LCS	TestCode:	EPA 6010B: Total Recoverable Metals
Client ID:	LCSW	Batch ID:	42405	RunNo:	56870
Prep Date:	1/2/2019	Analysis Date:	1/9/2019	SeqNo:	1903096 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0	97.5	80	120			
Barium	0.48	0.020	0.5000	0	96.3	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.1	80	120			
Chromium	0.49	0.0060	0.5000	0	98.0	80	120			
Lead	0.48	0.0050	0.5000	0	95.0	80	120			
Selenium	0.45	0.050	0.5000	0	90.8	80	120			
Silver	0.097	0.0050	0.1000	0	97.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID	MB-R56892	SampType:	MBLK	TestCode:	CYANIDE, Reactive				
Client ID:	PBW	Batch ID:	R56892	RunNo:	56892				
Prep Date:		Analysis Date:	1/7/2019	SeqNo:	1903741	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID	LCS-R56892	SampType:	LCS	TestCode:	CYANIDE, Reactive				
Client ID:	LCSW	Batch ID:	R56892	RunNo:	56892				
Prep Date:		Analysis Date:	1/7/2019	SeqNo:	1903742	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.101		0.1000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-R56892**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/9/2019**	SeqNo: **1903744**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID **LCS-R56892**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/9/2019**	SeqNo: **1903745**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.45		0.5000	0	90.6	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R56730**	RunNo: **56730**							
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898751**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R56730**	RunNo: **56730**							
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898752**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.96	20.00	80.00	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-42426**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **42426**	RunNo: **56796**
Prep Date: **1/3/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901042** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-42426**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **42426**	RunNo: **56796**
Prep Date: **1/3/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901043** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1812E95 RcptNo: 1

Received By: Andy Freeman 12/29/2018 11:00:00 AM

Completed By: Erin Melendrez 12/31/2018 9:08:51 AM

Reviewed By: DAD 12/31/18

Labeled by: JAB 12/31/18

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Courier		

Log In

3.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4.	Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
6.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7.	Are samples (except VOA and ONG) properly preserved?	Yes ☐	No ☑	
8.	Was preservative added to bottles?	Yes ☑	No ☐	NA ☐
9.	VOA vials have zero headspace?	Yes ☑	No ☐	HNO3 See remarks No VOA Vials ☐
10.	Were any sample containers received broken?	Yes ☐	No ☑	2 JAB 12/31/18
11.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 1; 2 (<2 or >12 unless noted)
12.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? Yes
13.	Is it clear what analyses were requested?	Yes ☑	No ☐	
14.	Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: JAB 12/31/18

Special Handling (if applicable)

15.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks.

For dissolved metals analysis: Poured off and filter approx. 125mLs into separate container from extra bottle and preserved with 0.4mLs HNO3 for preffered pH. Held 24 hours prior to analysis

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Yes			

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Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P O Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251641

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.7 °

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1812E95	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
12-27-18	12:00	Brad Hilliard		12/27/18	1100
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade. Field pH: 7.28 Field temp: 31.5°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Received by OCD: 5/16/2022 2:12:41 PM

The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	**Contaminant**	**SW-846 Method**	**Regulatory Level (mg/l)**
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallower 200 - 250 ft bgs

Need All

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NOV 01 2018 02:22

HOLLYFRONTIER.

October 29, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 7012

RE: 2018 3rd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, HollyFrontier Navajo Refining LLC.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1285 psig and the average flows were 220 gpm for WDW-1, 92 gpm for WDW-2 and 118 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2018 to September 30, 2018. We have disposed a total of 1,510,625 barrels of fluid into the three wells during the third quarter of 2018. The volume per well is:

- 693,900 barrels into WDW-1; 30-015-27592
- 357,879 barrels into WDW-2; 30-015-20894
- 458,846 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

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Page 442 of 5828

2018 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												**Previous Quarter**		41,745,246
Jul-18	1,378	1,400	1,315	248	341	73	385	491	195	8,503	10,526	4,320	263,593	42,008,839
Aug-18	1,304	1,400	936	221	657	41	443	836	136	7,577	10,629	5,726	234,887	42,243,726
Sep-18	1,224	1,400	920	190	535	49	397	705	93	6,514	11,623	7,954	195,420	42,439,146
Monthly Avg	1,302			220										
30-015-20894 WDW-2												**Previous Quarter**		27,230,835
Jul-18	1,349	1,400	960	101	114	0	440	1,102	260	3,463	3,909	0	107,349	27,338,184
Aug-18	1,305	1,400	942	96	118	0	415	646	316	3,291	4,046	0	138,222	27,476,406
Sep-18	1,211	1,400	926	78	135	1	419	549	330	2,674	4,629	34	112,308	27,588,714
Monthly Avg	1,286			80										
30-015-26575 WDW-3												**Previous Quarter**		18,617,191
Jul-18	1,338	1,400	1,298	135	142	117	363	454	174	4,629	4,869	4,011	143,486	18,760,677
Aug-18	1,258	1,400	948	116	156	0	570	931	239	3,977	5,349	0	167,040	18,927,717
Sep-18	1,195	1,400	931	103	138	2	639	849	325	3,531	4,731	69	148,320	19,076,037
Monthly Avg	1,264			112								**Total Injected fluids:**		
AVG:	1,285			158										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	42,439,146	41,745,246	693,900
WDW2	27,588,714	27,230,835	357,879
WDW3	19,076,037	18,617,191	458,846
	89,103,897	87,593,272	1,510,625

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 15, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 and 3 Inj Well OrderNo.: 1809619

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/12/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1809619**
Date Reported: **10/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1809619-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2018 9:24:00 AM
Received Date: 9/12/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JDC**	
Specific Gravity	0.9997	0			1	9/14/2018 2:05:00 PM	R54162
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	25	2.0	*	mg/L	20	9/13/2018 3:30:00 AM	R54103
Chloride	420	50		mg/L	100	10/2/2018 7:04:14 PM	R54600
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Bromide	0.90	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	9/13/2018 3:30:00 AM	R54103
Sulfate	2400	50		mg/L	100	10/2/2018 7:04:14 PM	R54600
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5500	5.0		µmhos/c	1	9/18/2018 12:32:37 PM	R54265
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	119.6	20.00		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
Total Alkalinity (as CaCO3)	119.6	20.00		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4180	40.0	*D	mg/L	1	8/18/2019 7:19:00 PM	40386
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.07		H	pH units	1	9/18/2018 12:32:37 PM	R54265
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	9/13/2018 12:27:55 PM	40321
MERCURY, TCLP						Analyst: **rde**	
Mercury	ND	0.020		mg/L	1	10/3/2018 3:45:28 PM	40779
EPA METHOD 6010B: TCLP METALS						Analyst: **pmf**	
Arsenic	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Barium	ND	100		mg/L	1	10/2/2018 3:33:44 PM	40718
Cadmium	ND	1.0		mg/L	1	10/2/2018 3:33:44 PM	40718
Chromium	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Lead	ND	5.0		mg/L	1	10/2/2018 3:33:44 PM	40718
Selenium	ND	1.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Silver	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
EPA 6010B: METALS						Analyst: **ELS**	
Aluminum	5.3	0.10		mg/L	5	10/11/2018 8:56:07 AM	40718
Antimony	ND	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Arsenic	0.050	0.020		mg/L	1	10/11/2018 8:04:22 AM	40718

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1809619**
Date Reported: **10/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1809619-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2018 9:24:00 AM
Received Date: 9/12/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: METALS						Analyst: **ELS**	
Barium	0.022	0.020		mg/L	1	10/10/2018 11:36:58 AM	40718
Beryllium	ND	0.0030		mg/L	1	10/10/2018 11:36:58 AM	40718
Cadmium	ND	0.0020		mg/L	1	10/10/2018 11:36:58 AM	40718
Calcium	63	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Chromium	ND	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Cobalt	ND	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Copper	0.013	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Iron	3.6	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Lead	ND	0.0050		mg/L	1	10/10/2018 11:36:58 AM	40718
Magnesium	21	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Manganese	0.13	0.0020		mg/L	1	10/10/2018 11:36:58 AM	40718
Nickel	0.023	0.010		mg/L	1	10/10/2018 11:36:58 AM	40718
Potassium	75	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Selenium	ND	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Silver	ND	0.0050		mg/L	1	10/10/2018 11:36:58 AM	40718
Sodium	1300	50		mg/L	50	10/10/2018 11:42:09 AM	40718
Thallium	ND	0.050		mg/L	1	10/10/2018 12:31:48 PM	40718
Vanadium	0.052	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Zinc	0.066	0.020		mg/L	1	10/10/2018 11:36:58 AM	40718

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-001	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001D / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1,1,2-Tetrachloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,1-Trichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,2-Trichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-Dichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-Dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2,3-Trichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dibromo-3-chloropropane(DBCP)	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dibromoethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichlorobenzene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,3-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,4-Dichlorobenzene	ND	ug/L	0.5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2,2-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2-Butanone	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2-hexanone	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acetone	886	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acetonitrile	130	ug/L	100	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acrolein	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acrylonitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Allyl Chloride	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Benzene	161	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromochloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromodichloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromoform	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0026; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Sample Number 180919003-001 **Sampling Date** 9/11/2018 **Date/Time Received** 9/14/201811:23 AM
Client Sample ID 1809619-001D / WDW-1,2,&3 EFFLUENT **Sampling Time** 9:24 AM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Bromomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Carbon disulfide	11.8	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Carbon Tetrachloride	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chlorobenzene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroform	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroprene	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
cis-1,2-dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
cis-1,3-Dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dibromochloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dibromomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dichlorodifluoromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Ethyl methacrylate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Ethylbenzene	89.9	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Iodomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Isobutanol	ND	ug/L	1000	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
m+p-Xylene	197	ug/L	10	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methacrylonitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl ethyl ketone (MEK)	35.8	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl isobutyl ketone (MIBK)	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl Methacrylate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methylene chloride	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
o-Xylene	114	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Propionitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Styrene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Tetrachloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Toluene	378	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C586; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-001	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001D / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
trans-1,2-Dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
trans-1,3-Dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
trans-1-4-Dichloro-2-butene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Trichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Trichlorofiouromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Vinyl acetate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Vinyl Chloride	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Epichlorohydrin	ND	ug/L	50	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Surrogate Data

Sample Number 180919003-001

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260C	108.2	70-130
1,2-Dichlorobenzene-d4	EPA 8260C	99.6	70-130
4-Bromofluorobenzene	EPA 8260C	98.0	70-130
4-Bromofluorobenzene	EPA 8260C	104.0	70-130
Toluene-d8	EPA 8260C	98.4	70-130
Toluene-d8	EPA 8260C	99.6	70-130

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Trichloroethene	9.40	ug/L	10	94.0	80-120	9/25/2018	9/25/2018
Toluene	9.79	ug/L	10	97.9	80-120	9/25/2018	9/25/2018
Tetrachloroethene	9.13	ug/L	10	91.3	80-120	9/25/2018	9/25/2018
o-Xylene	9.64	ug/L	10	96.4	80-120	9/25/2018	9/25/2018
Ethylbenzene	9.92	ug/L	10	99.2	80-120	9/25/2018	9/25/2018
Chlorobenzene	9.78	ug/L	10	97.8	80-120	9/25/2018	9/25/2018
Benzene	9.79	ug/L	10	97.9	80-120	9/25/2018	9/25/2018
1,1-Dichloroethene	9.57	ug/L	10	95.7	80-120	9/25/2018	9/25/2018

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Trichloroethene	9.69	ug/L	10	96.9	3.0	0-25	9/25/2018	9/25/2018
Toluene	10.1	ug/L	10	101.0	3.1	0-25	9/25/2018	9/25/2018
Tetrachloroethene	9.48	ug/L	10	94.8	3.8	0-25	9/25/2018	9/25/2018
o-Xylene	10.3	ug/L	10	103.0	6.6	0-25	9/25/2018	9/25/2018
Ethylbenzene	10.2	ug/L	10	102.0	2.8	0-25	9/25/2018	9/25/2018
Chlorobenzene	10.4	ug/L	10	104.0	6.1	0-25	9/25/2018	9/25/2018
Benzene	10.4	ug/L	10	104.0	6.0	0-25	9/25/2018	9/25/2018
1,1-Dichloroethene	9.87	ug/L	10	98.7	3.1	0-25	9/25/2018	9/25/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,1,1,2-Tetrachloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,1-Trichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,2,2-Tetrachloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,2-Trichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-Dichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-Dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2,3-Trichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dibromo-3-chloropropane(DBCP)	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dibromoethane	ND	ug/L	0.5	9/25/2018	9/25/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87693; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2-Dichlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,3-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,4-Dichlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
2,2-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
2-Butanone	ND	ug/L	2.5	9/25/2018	9/25/2018
2-hexanone	ND	ug/L	0.5	9/25/2018	9/25/2018
Acetone	ND	ug/L	2.5	9/25/2018	9/25/2018
Acetonitrile	ND	ug/L	0.5	9/25/2018	9/25/2018
Acrolein	ND	ug/L	2.5	9/25/2018	9/25/2018
Acrylonitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Allyl Chloride	ND	ug/L	0.5	9/25/2018	9/25/2018
Benzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromochloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromodichloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromoform	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Carbon disulfide	ND	ug/L	0.5	9/25/2018	9/25/2018
Carbon Tetrachloride	ND	ug/L	0.5	9/25/2018	9/25/2018
Chlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroform	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroprene	ND	ug/L	0.5	9/25/2018	9/25/2018
cis-1,2-dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
cis-1,3-Dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
Dibromochloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Dibromomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Dichlorodifluoromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Ethyl methacrylate	ND	ug/L	2.5	9/25/2018	9/25/2018
Ethylbenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Iodomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Isobutanol	ND	ug/L	10	9/25/2018	9/25/2018
m+p-Xylene	ND	ug/L	1	9/25/2018	9/25/2018
Methacrylonitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Methyl ethyl ketone (MEK)	ND	ug/L	2.5	9/25/2018	9/25/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Methyl isobutyl ketone (MIBK)	ND	ug/L	2.5	9/25/2018	9/25/2018
Methyl Methacrylate	ND	ug/L	2.5	9/25/2018	9/25/2018
Methylene chloride	ND	ug/L	2.5	9/25/2018	9/25/2018
o-Xylene	ND	ug/L	0.5	9/25/2018	9/25/2018
Propionitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Styrene	ND	ug/L	0.5	9/25/2018	9/25/2018
Tetrachloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
Toluene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1,2-Dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1,3-Dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1-4-Dichloro-2-butene	ND	ug/L	0.5	9/25/2018	9/25/2018
Trichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
Trichlorofluoromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Vinyl acetate	ND	ug/L	0.5	9/25/2018	9/25/2018
Vinyl Chloride	ND	ug/L	0.5	9/25/2018	9/25/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2,4-Trichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2-Diphenyl hydrazine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3,5-TNB	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3-DNB	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Dioxane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Naphthoquinone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1-Methylnaphthalene	56.5	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1-Naphthylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,2-Oxybis(1-chloropropane)	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dimethylphenol	123	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
2,4-Dinitrotoluene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,6-Dichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Acetylaminofluorene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Chlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Methylnaphthalene	59.6	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Methylphenol	585	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Naphthylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Nitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Picoline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3,3-Dimethylbenzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3+4-Methylphenol	1060	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3-Methylcholanthrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Aminobiphenyl	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
4-Chloro-3-methylphenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Chloroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitroquinoline-1-oxide	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
5-Nitro-o-toluidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
7,12-Dimethylbenz(a)anthracene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
a,a-Dimethylphenethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acenaphthene	ND	ug/L	5	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acenaphthylene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acetophenone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Aniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Anthracene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Aramite	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo(ghi)perylene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Benzo[k]fluoranthene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzyl alcohol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Chloroethyl)ether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Butylbenzylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Carbazole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Chlorobenzilate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Chrysene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Diallate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Diethylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dimethoate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dimethylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
diphenylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Disulfoton	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ethyl methanesulfonate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Ethyl parathion	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Famphur	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Fluoranthene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Fluorene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorobenzene	ND	ug/L	10	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachloroethane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachloropropene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachorophene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isodrin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isophorone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isosafrole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Kepone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methapyrilene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methyl methanesulfonate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methyl parathion	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Naphthalene	123	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Nitrosodimethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-nitrosodibutylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosodiethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitroso-di-n-propylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosodiphenylamine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosomethylethylamine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosomorpholine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosopiperadine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosopyrrolidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
o,o,o-Triethyl phosphorothioate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
o-Toluidine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
p-(Dimethylamino)azobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachloroethane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachloronitrobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenacetin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenanthrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenol	5330	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Sample Number 180919003-002 **Sampling Date** 9/11/2018 **Date/Time Received** 9/14/201811:23 AM
Client Sample ID 1809619-001E / WDW-1,2,&3 EFFLUENT **Extraction Date** 9/18/2018
Matrix Water **Sampling Time** 9:24 AM
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Phorate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
p-Phenylenediamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pronamide	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pyrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pyridine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Safrole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Sulfotep	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Thionazin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

Surrogate Data

Sample Number 180919003-002

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	100.4	63-122
2-Fluorobiphenyl	EPA 8270D	82.8	58-127
2-Fluorophenol	EPA 8270D	85.6	44-119
Nitrobenzene-d5	EPA 8270D	77.6	58-120
Phenol-d5	EPA 8270D	71.6	52-115
Terphenyl-d14	EPA 8270D	58.8	22-133

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Pyrene	4.75	ug/L	5	95.0	45-138	9/18/2018	9/26/2018
Phenol	4.17	ug/L	5	83.4	45-134	9/18/2018	9/26/2018
Pentachlorophenol	4.06	ug/L	5	81.2	22-138	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	4.57	ug/L	5	91.4	46-140	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	5.26	ug/L	5	105.2	43-142	9/18/2018	9/26/2018
Acenaphthene	4.50	ug/L	5	90.0	36-122	9/18/2018	9/26/2018
4-Nitrophenol	4.96	ug/L	5	99.2	19-137	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	4.78	ug/L	5	95.6	42-139	9/18/2018	9/26/2018
2-Chlorophenol	4.39	ug/L	5	87.8	50-131	9/18/2018	9/26/2018
2,4-Dinitrotoluene	4.75	ug/L	5	95.0	49-134	9/18/2018	9/26/2018
1,4-Dichlorobenzene	3.74	ug/L	5	74.8	28-108	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	3.84	ug/L	5	76.8	33-109	9/18/2018	9/26/2018

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Pyrene	4.84	ug/L	5	96.8	1.9	0-36	9/18/2018	9/26/2018
Phenol	4.39	ug/L	5	87.8	5.1	0-35	9/18/2018	9/26/2018
Pentachlorophenol	4.09	ug/L	5	81.8	0.7	0-47	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	4.96	ug/L	5	99.2	8.2	0-38	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	5.37	ug/L	5	107.4	2.1	0-50	9/18/2018	9/26/2018
Acenaphthene	4.71	ug/L	5	94.2	4.6	0-23	9/18/2018	9/26/2018
4-Nitrophenol	5.25	ug/L	5	105.0	5.7	0-50	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	4.90	ug/L	5	98.0	2.5	0-33	9/18/2018	9/26/2018
2-Chlorophenol	4.74	ug/L	5	94.8	7.7	0-50	9/18/2018	9/26/2018
2,4-Dinitrotoluene	4.98	ug/L	5	99.6	4.7	0-47	9/18/2018	9/26/2018
1,4-Dichlorobenzene	4.07	ug/L	5	81.4	8.5	0-27	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	3.99	ug/L	5	79.8	3.8	0-27	9/18/2018	9/26/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2,4,5-Tetrachlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

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Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,2-Diphenyl hydrazine	ND	ug/L	5	9/18/2018	9/26/2018
1,3,5-TNB	ND	ug/L	5	9/18/2018	9/26/2018
1,3-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,3-DNB	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Dioxane	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Naphthoquinone	ND	ug/L	5	9/18/2018	9/26/2018
1-Methylnaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
1-Naphthylamine	ND	ug/L	5	9/18/2018	9/26/2018
2,2-Oxybis(1-chloropropane)	ND	ug/L	5	9/18/2018	9/26/2018
2,3,4,6-Tetrachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,3,5,6-Tetrachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4,5-Trichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4,6-Trichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dimethylphenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dinitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dinitrotoluene	ND	ug/L	5	9/18/2018	9/26/2018
2,6-Dichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,6-Dinitrotoluene	ND	ug/L	5	9/18/2018	9/26/2018
2-Acetylaminofluorene	ND	ug/L	5	9/18/2018	9/26/2018
2-Chloronaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
2-Chlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Methylnaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
2-Methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Naphthylamine	ND	ug/L	5	9/18/2018	9/26/2018
2-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
2-Nitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Picoline	ND	ug/L	5	9/18/2018	9/26/2018
3,3'-Dichlorobenzidine	ND	ug/L	5	9/18/2018	9/26/2018
3,3-Dimethylbenzidine	ND	ug/L	5	9/18/2018	9/26/2018
3+4-Methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
3-Methylcholanthrene	ND	ug/L	5	9/18/2018	9/26/2018
3-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4,6-Dinitro-2-methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Aminobiphenyl	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

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Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1809619
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
4-Bromophenyl-phenylether	ND	ug/L	5	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Chloroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4-Chlorophenyl-phenylether	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitroquinoline-1-oxide	ND	ug/L	5	9/18/2018	9/26/2018
5-Nitro-o-toluidine	ND	ug/L	5	9/18/2018	9/26/2018
7,12-Dimethylbenz(a)anthracene	ND	ug/L	5	9/18/2018	9/26/2018
a,a-Dimethylphenethylamine	ND	ug/L	5	9/18/2018	9/26/2018
Acenaphthene	ND	ug/L	5	9/18/2018	9/26/2018
Acenaphthylene	ND	ug/L	5	9/18/2018	9/26/2018
Acetophenone	ND	ug/L	5	9/18/2018	9/26/2018
Aniline	ND	ug/L	5	9/18/2018	9/26/2018
Anthracene	ND	ug/L	5	9/18/2018	9/26/2018
Aramite	ND	ug/L	5	9/18/2018	9/26/2018
Benzidine	ND	ug/L	5	9/18/2018	9/26/2018
Benzo(ghi)perylene	ND	ug/L	5	9/18/2018	9/26/2018
Benzo[a]anthracene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[a]pyrene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[b]fluoranthene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[k]fluoranthene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzyl alcohol	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Chloroethoxy)methane	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Chloroethyl)ether	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-chloroisopropyl)ether	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	ND	ug/L	5	9/18/2018	9/26/2018
Butylbenzylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Carbazole	ND	ug/L	5	9/18/2018	9/26/2018
Chlorobenzilate	ND	ug/L	5	9/18/2018	9/26/2018
Chrysene	ND	ug/L	0.1	9/18/2018	9/26/2018
Diallate	ND	ug/L	5	9/18/2018	9/26/2018
Dibenz[a,h]anthracene	ND	ug/L	0.1	9/18/2018	9/26/2018
Dibenzofuran	ND	ug/L	5	9/18/2018	9/26/2018
Diethylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Dimethoate	ND	ug/L	5	9/18/2018	9/26/2018
Dimethylphthalate	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

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Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Di-n-butylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Di-n-octylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
diphenylamine	ND	ug/L	5	9/18/2018	9/26/2018
Disulfoton	ND	ug/L	5	9/18/2018	9/26/2018
Ethyl methanesulfonate	ND	ug/L	5	9/18/2018	9/26/2018
Ethyl parathion	ND	ug/L	5	9/18/2018	9/26/2018
Famphur	ND	ug/L	5	9/18/2018	9/26/2018
Fluoranthene	ND	ug/L	5	9/18/2018	9/26/2018
Fluorene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachlorobenzene	ND	ug/L	1	9/18/2018	9/26/2018
Hexachlorobutadiene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachlorocyclopentadiene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachloroethane	ND	ug/L	5	9/18/2018	9/26/2018
Hexachloropropene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachorophene	ND	ug/L	5	9/18/2018	9/26/2018
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.1	9/18/2018	9/26/2018
Isodrin	ND	ug/L	5	9/18/2018	9/26/2018
Isophorone	ND	ug/L	5	9/18/2018	9/26/2018
Isosafrole	ND	ug/L	5	9/18/2018	9/26/2018
Kepone	ND	ug/L	5	9/18/2018	9/26/2018
Methapyrilene	ND	ug/L	5	9/18/2018	9/26/2018
Methyl methanesulfonate	ND	ug/L	5	9/18/2018	9/26/2018
Methyl parathion	ND	ug/L	5	9/18/2018	9/26/2018
Naphthalene	ND	ug/L	5	9/18/2018	9/26/2018
Nitrobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Nitrosodimethylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-nitrosodibutylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosodiethylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosodiphenylamine	ND	ug/L	2	9/18/2018	9/26/2018
n-Nitrosomethylethylamine	ND	ug/L	2	9/18/2018	9/26/2018
n-Nitrosomorpholine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosopiperadine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosopyrrolidine	ND	ug/L	5	9/18/2018	9/26/2018
o,o,o-Triethyl phosphorothioate	ND	ug/L	5	9/18/2018	9/26/2018
o-Toluidine	ND	ug/L	2	9/18/2018	9/26/2018
p-(Dimethylamino)azobenzene	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

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Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Pentachlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Pentachloroethane	ND	ug/L	5	9/18/2018	9/26/2018
Pentachloronitrobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Pentachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
Phenacetin	ND	ug/L	5	9/18/2018	9/26/2018
Phenanthrene	ND	ug/L	1	9/18/2018	9/26/2018
Phenol	ND	ug/L	5	9/18/2018	9/26/2018
Phorate	ND	ug/L	5	9/18/2018	9/26/2018
p-Phenylenediamine	ND	ug/L	5	9/18/2018	9/26/2018
Pronamide	ND	ug/L	5	9/18/2018	9/26/2018
Pyrene	ND	ug/L	5	9/18/2018	9/26/2018
Pyridine	ND	ug/L	5	9/18/2018	9/26/2018
Safrole	ND	ug/L	5	9/18/2018	9/26/2018
Sulfotep	ND	ug/L	5	9/18/2018	9/26/2018
Thionazin	ND	ug/L	5	9/18/2018	9/26/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-003	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/2018 11:23 AM
Client Sample ID	1809619-001F / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/L	0.1	9/21/2018 1:00:00 PM	BKP	SW846 CH7	
Flashpoint	>200	°F		9/26/2018 4:45:00 PM	GPB	EPA 1010	
pH	7.28	ph Units		9/26/2018 1:40:00 PM	LAC	SM 4500pH-B	
Reactive sulfide	2.00	mg/L	0.19	10/1/2018 2:00:00 PM	ETL	SW846 CH7	

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87693; ID:ID00013; MT:CERT0026; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Reactive sulfide	0.180	mg/L	0.2	90.0	70-130	10/1/2018	10/1/2018
Cyanide (reactive)	0.520	mg/L	0.5	104.0	80-120	9/20/2018	9/25/2018

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
180925019-001	Reactive sulfide	0.385	0.693	mg/L	0.385	80.0	70-130	10/1/2018	10/1/2018
180919003-003	Cyanide (reactive)	ND	4.91	mg/L	5	98.2	80-120	9/20/2018	9/25/2018

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide (reactive)	4.76	mg/L	5	95.2	3.1	0-25	9/20/2018	9/25/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide (reactive)	ND	mg/L	1	9/20/2018	9/25/2018
Reactive sulfide	ND	mg/L	0.1	10/1/2018	10/1/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0026; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R54103**	RunNo: **54103**
Prep Date:	Analysis Date: **9/13/2018**	SeqNo: **1788975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R54103**	RunNo: **54103**
Prep Date:	Analysis Date: **9/13/2018**	SeqNo: **1788976** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	99.5	90	110			
Bromide	2.5	0.10	2.500	0	98.9	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	101	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R54600**	RunNo: **54600**
Prep Date:	Analysis Date: **10/2/2018**	SeqNo: **1811003** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R54600**	RunNo: **54600**
Prep Date:	Analysis Date: **10/2/2018**	SeqNo: **1811004** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.8	90	110			
Sulfate	9.3	0.50	10.00	0	93.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **lcs-1 98.6uS eC**	SampType: **LCS**	TestCode: **SM2510B: Specific Conductance**	
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**	
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795469**	Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	98.30	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40321**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **40321**	RunNo: **54130**							
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789572**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-40321**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **40321**	RunNo: **54130**							
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789573**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	80	120			

Sample ID **1809619-001BMS**	SampType: **MS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40321**	RunNo: **54130**							
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789583**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0055	0.00020	0.005000	.00006886	110	75	125			

Sample ID **1809619-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40321**	RunNo: **54130**							
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789584**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0057	0.00020	0.005000	.00006886	112	75	125	2.54	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-40779**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID:	**PBW**	Batch ID: **40779**	RunNo: **54613**
Prep Date:	**10/3/2018**	Analysis Date: **10/3/2018**	SeqNo: **1811409** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-40779**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID:	**LCSW**	Batch ID: **40779**	RunNo: **54613**
Prep Date:	**10/3/2018**	Analysis Date: **10/3/2018**	SeqNo: **1811410** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	96.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1809619

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID MB-40718	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810218 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Chromium	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID LCS-40718	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810220 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	96.8	80	120			
Chromium	ND	5.0	0.5000	0	101	80	120			
Selenium	ND	1.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	106	80	120			

Sample ID 1809619-001CMS	SampType: MS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810226 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02964	98.4	75	125			
Chromium	ND	5.0	0.5000	0.0009400	97.2	75	125			
Selenium	ND	1.0	0.5000	0	107	75	125			
Silver	ND	5.0	0.1000	0.001420	109	75	125			

Sample ID 1809619-001CMSD	SampType: MSD	TestCode: EPA Method 6010B: TCLP Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810227 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02964	98.8	75	125	0	20	
Chromium	ND	5.0	0.5000	0.0009400	97.1	75	125	0	20	
Selenium	ND	1.0	0.5000	0	108	75	125	0	20	
Silver	ND	5.0	0.1000	0.001420	109	75	125	0	20	

Sample ID MB-40718	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810246 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-40718**	SampType: **MBLK**			TestCode: **EPA Method 6010B: TCLP Metals**					
Client ID:	**PBW**	Batch ID: **40718**			RunNo: **54590**					
Prep Date:	**10/1/2018**	Analysis Date: **10/2/2018**			SeqNo: **1810246**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Cadmium	ND	1.0								
Lead	ND	5.0								

Sample ID	**LCS-40718**	SampType: **LCS**			TestCode: **EPA Method 6010B: TCLP Metals**					
Client ID:	**LCSW**	Batch ID: **40718**			RunNo: **54590**					
Prep Date:	**10/1/2018**	Analysis Date: **10/2/2018**			SeqNo: **1810248**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	96.7	80	120			
Cadmium	ND	1.0	0.5000	0	103	80	120			
Lead	ND	5.0	0.5000	0	100	80	120			

Sample ID	**1809619-001CMS**	SampType: **MS**			TestCode: **EPA Method 6010B: TCLP Metals**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **40718**			RunNo: **54590**					
Prep Date:	**10/1/2018**	Analysis Date: **10/2/2018**			SeqNo: **1810254**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.09061	93.5	75	125			
Cadmium	ND	1.0	0.5000	0	103	75	125			
Lead	ND	5.0	0.5000	0	98.2	75	125			

Sample ID	**1809619-001CMSD**	SampType: **MSD**			TestCode: **EPA Method 6010B: TCLP Metals**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **40718**			RunNo: **54590**					
Prep Date:	**10/1/2018**	Analysis Date: **10/2/2018**			SeqNo: **1810255**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.09061	93.0	75	125	0	20	
Cadmium	ND	1.0	0.5000	0	99.7	75	125	0	20	
Lead	ND	5.0	0.5000	0	93.1	75	125	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40718**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**
Client ID: **PBW**	Batch ID: **40718**	RunNo: **54775**
Prep Date: **10/1/2018**	Analysis Date: **10/10/2018**	SeqNo: **1818830** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-40718**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSW**	Batch ID: **40718**	RunNo: **54775**
Prep Date: **10/1/2018**	Analysis Date: **10/10/2018**	SeqNo: **1818832** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.50	0.050	0.5000	0	100	80	120			
Barium	0.52	0.020	0.5000	0	104	80	120			
Beryllium	0.52	0.0030	0.5000	0	105	80	120			
Cadmium	0.52	0.0020	0.5000	0	104	80	120			
Calcium	48	1.0	50.00	0	95.2	80	120			
Chromium	0.51	0.0060	0.5000	0	102	80	120			
Cobalt	0.51	0.0060	0.5000	0	101	80	120			
Copper	0.51	0.0060	0.5000	0	103	80	120			
Iron	0.50	0.050	0.5000	0	99.6	80	120			
Lead	0.51	0.0050	0.5000	0	101	80	120			
Magnesium	50	1.0	50.00	0	99.4	80	120			
Manganese	0.47	0.0020	0.5000	0	95.0	80	120			
Nickel	0.51	0.010	0.5000	0	102	80	120			
Potassium	49	1.0	50.00	0	97.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	LCS-40718	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	40718	RunNo:	54775					
Prep Date:	10/1/2018	Analysis Date:	10/10/2018	SeqNo:	1818832	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.50	0.050	0.5000	0	99.2	80	120			
Silver	0.11	0.0050	0.1000	0	110	80	120			
Sodium	51	1.0	50.00	0	102	80	120			
Vanadium	0.49	0.050	0.5000	0	98.2	80	120			
Zinc	0.49	0.020	0.5000	0	98.7	80	120			

Sample ID	MB-40718	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	40718	RunNo:	54775					
Prep Date:	10/1/2018	Analysis Date:	10/10/2018	SeqNo:	1818855	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	ND	0.050								

Sample ID	LCS-40718	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	40718	RunNo:	54775					
Prep Date:	10/1/2018	Analysis Date:	10/10/2018	SeqNo:	1818857	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.52	0.050	0.5000	0	103	80	120			

Sample ID	MB-40718	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	40718	RunNo:	54800					
Prep Date:	10/1/2018	Analysis Date:	10/11/2018	SeqNo:	1820075	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Arsenic	ND	0.020								

Sample ID	LCS-40718	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	40718	RunNo:	54800					
Prep Date:	10/1/2018	Analysis Date:	10/11/2018	SeqNo:	1820077	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.54	0.020	0.5000	0	108	80	120			
Arsenic	0.48	0.020	0.5000	0	96.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795420**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795421**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.20	20.00	80.00	0	97.7	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795444**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795445**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.92	20.00	80.00	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **1809619-001A** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R54162** RunNo: **54162**

Prep Date: Analysis Date: **9/14/2018** SeqNo: **1790677** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9995	0						0.0200	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40386**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **40386**	RunNo: **54232**
Prep Date: **9/17/2018**	Analysis Date: **8/18/2019**	SeqNo: **1793445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-40386**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **40386**	RunNo: **54232**
Prep Date: **9/17/2018**	Analysis Date: **8/18/2019**	SeqNo: **1793446** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	999	20.0	1000	0	99.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1809619 RcptNo: 1

Received By: Jazzmine Burkhead 9/12/2018 8:40:00 AM

Completed By: Ashley Gallegos 9/12/2018 12:31:07 PM

Reviewed By: 9/12/18

Labeled by: JAB 09/12/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1;2 (<2 or >12 unless noted)

Adjusted?

Checked by: JAB 09/12/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
X Standard ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler: ✓

On Ice: ☑ Yes ☐ No

Sample Temperature: 4.1+0.2(n) 4.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1809019	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X		
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/11/18	5:30	Brady Hibbard			
Date:	Time:	Relinquished by:	Received by:	Date	Time
				09/12/18	08:40

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.
pH=7.03
37.3°C
Courier

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

JUL 12 2018 PM01:17

HOLLYFRONTIER.

July 10, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 6664

RE: 2018 2nd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1265 psig and the average flows were 281 gpm for WDW-1, 80 gpm for WDW-2 and 112 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2018 to June 30, 2018. We have disposed a total of 1,870,028 barrels of fluid into the three wells during the second quarter of 2018. The volume per well is:

- 1,108,783 barrels into WDW-1; 30-015-27592
- 320,640 barrels into WDW-2; 30-015-20894
- 440,605 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Lewis R. (Randy) Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Released to Imaging: 7/12/2024 10:49:45 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 28, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 and 3 Inj Well OrderNo.: 1806778

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/13/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JRR**
Fluoride	9.5	0.50	*	mg/L	5	6/13/2018 7:04:58 PM
Chloride	570	25		mg/L	50	6/18/2018 9:58:46 PM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	6/13/2018 7:04:58 PM
Bromide	1.6	0.50		mg/L	5	6/13/2018 7:04:58 PM
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	6/13/2018 7:04:58 PM
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	6/13/2018 7:04:58 PM
Sulfate	2100	25		mg/L	50	6/18/2018 9:58:46 PM
EPA METHOD 7470: MERCURY						Analyst: **rde**
Mercury	ND	0.00020		mg/L	1	6/22/2018 4:48:51 PM
MERCURY, TCLP						Analyst: **rde**
Mercury	ND	0.020		mg/L	1	6/22/2018 3:44:25 PM
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**
Arsenic	ND	5.0		mg/L	1	6/24/2018 6:29:55 PM
Barium	ND	100		mg/L	1	6/21/2018 9:34:34 AM
Cadmium	ND	1.0		mg/L	1	6/21/2018 9:34:34 AM
Chromium	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
Lead	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
Selenium	ND	1.0		mg/L	1	6/21/2018 12:16:01 PM
Silver	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
EPA 6010B: METALS						Analyst: **MED**
Aluminum	0.27	0.020		mg/L	1	6/24/2018 6:58:28 PM
Antimony	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Arsenic	ND	0.020		mg/L	1	6/24/2018 6:58:28 PM
Barium	0.028	0.020		mg/L	1	6/24/2018 6:58:28 PM
Beryllium	ND	0.0030		mg/L	1	6/24/2018 6:58:28 PM
Cadmium	ND	0.0020		mg/L	1	6/24/2018 6:58:28 PM
Calcium	110	5.0		mg/L	5	6/25/2018 1:17:11 PM
Chromium	ND	0.0060		mg/L	1	6/24/2018 6:58:28 PM
Cobalt	ND	0.0060		mg/L	1	6/24/2018 6:58:28 PM
Copper	ND	0.0060		mg/L	1	6/25/2018 12:25:43 PM
Iron	0.30	0.050		mg/L	1	6/24/2018 6:58:28 PM
Lead	ND	0.0050		mg/L	1	6/24/2018 6:58:28 PM
Magnesium	34	1.0		mg/L	1	6/25/2018 1:18:27 PM
Manganese	0.047	0.0020		mg/L	1	6/24/2018 6:58:28 PM
Nickel	ND	0.010		mg/L	1	6/24/2018 6:58:28 PM
Potassium	41	1.0		mg/L	1	6/25/2018 1:18:27 PM
Selenium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: METALS						Analyst: **MED**
Silver	ND	0.0050		mg/L	1	6/24/2018 6:58:28 PM
Sodium	1000	50		mg/L	50	6/25/2018 1:15:55 PM
Thallium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Vanadium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Zinc	ND	0.020		mg/L	1	6/24/2018 6:58:28 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
Benzene	ND	0.50		µg/L	1	6/19/2018
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/19/2018
2-Butanone	ND	5.0		µg/L	1	6/19/2018
Carbon Tetrachloride	ND	0.50		µg/L	1	6/19/2018
Chlorobenzene	ND	0.50		µg/L	1	6/19/2018
Chloroform	ND	0.50		µg/L	1	6/19/2018
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/19/2018
1,1-Dichloroethene	ND	0.50		µg/L	1	6/19/2018
Hexachlorobutadiene	ND	0.50		µg/L	1	6/19/2018
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/19/2018
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/19/2018
Vinyl chloride	ND	0.50		µg/L	1	6/19/2018
Surr: 1,2-Dichlorobenzene-d4	103	70-130		%Rec	1	6/19/2018
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	6/19/2018
Surr: Toluene-d8	102	70-130		%Rec	1	6/19/2018
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
2,4,5-Trichlorophenol	ND	50		µg/L	1	6/20/2018
2,4,6-Trichlorophenol	ND	50		µg/L	1	6/20/2018
2,4-Dinitrotoluene	ND	50		µg/L	1	6/20/2018
2-Methylphenol	ND	50		µg/L	1	6/20/2018
Hexachlorobenzene	ND	10		µg/L	1	6/20/2018
Hexachlorobutadiene	ND	50		µg/L	1	6/20/2018
Hexachloroethane	ND	50		µg/L	1	6/20/2018
Nitrobenzene	ND	50		µg/L	1	6/20/2018
Pentachlorophenol	ND	50		µg/L	1	6/20/2018
Phenol	ND	50		µg/L	1	6/20/2018
Pyridine	ND	50		µg/L	1	6/20/2018
Surr: 2,4,6-Tribromophenol	93.4	63-122		%Rec	1	6/20/2018
Surr: 2-Fluorobiphenyl	86.0	58-127		%Rec	1	6/20/2018
Surr: 2-Fluorophenol	81.8	44-119		%Rec	1	6/20/2018
Surr: Nitrobenzene-d5	88.8	58-120		%Rec	1	6/20/2018
Surr: Phenol-d5	101	52-115		%Rec	1	6/20/2018

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
Surr: Terphenyl-d14	106	20-133		%Rec	1	6/20/2018
CORROSIVITY						Analyst: **SUB**
pH	8.05			pH Units	1	6/19/2018
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>200			°F	1	6/18/2018
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	ND	0.100		mg/L	1	6/20/2018
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	ND	0.20		mg/L	1	6/19/2018
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5900	5.0		µmhos/c	1	6/18/2018 5:39:09 PM
SM4500-H+B / 9040C: PH						Analyst: **JRR**
pH	7.96		H	pH units	1	6/18/2018 5:39:09 PM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	237.5	20.00		mg/L Ca	1	6/18/2018 5:39:09 PM
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	6/18/2018 5:39:09 PM
Total Alkalinity (as CaCO3)	237.5	20.00		mg/L Ca	1	6/18/2018 5:39:09 PM
SPECIFIC GRAVITY						Analyst: **SRM**
Specific Gravity	1.006	0			1	6/18/2018 7:15:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **sat**
Total Dissolved Solids	4100	100	*D	mg/L	1	6/15/2018 1:01:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R51968**	RunNo: **51968**
Prep Date:	Analysis Date: **6/13/2018**	SeqNo: **1699258** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R51968**	RunNo: **51968**
Prep Date:	Analysis Date: **6/13/2018**	SeqNo: **1699259** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.7	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.9	90	110			
Bromide	2.3	0.10	2.500	0	90.2	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.4	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	92.0	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A52074**	RunNo: **52074**
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1704016** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.500								
Sulfate	ND	0.500								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A52074**	RunNo: **52074**
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1704017** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.89	0.500	5.000	0	97.9	90	110			
Sulfate	9.64	0.500	10.00	0	96.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711983** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
2-Butanone	ND	2.5								
Benzene	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroform	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.50								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711984** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	9.9	0	10.00	0	98.6	80	120			
Benzene	9.7	0	10.00	0	96.6	80	120			
Chlorobenzene	9.5	0	10.00	0	94.8	80	120			
Tetrachloroethene (PCE)	9.3	0	10.00	0	93.0	80	120			
Trichloroethene (TCE)	9.7	0	10.00	0	96.9	80	120			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711986** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2-Methylphenol	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenol	ND	5.0								
Pyridine	ND	5.0								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711987** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	3.6	0	5.000	0	71.4	22	138			
Phenol	4.6	0	5.000	0	92.8	45	134			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**lcs-1 ~20uS eC**	SampType: **LCS**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**LCSW**	Batch ID: **R52062**		RunNo: **52062**						
Prep Date:		Analysis Date: **6/18/2018**		SeqNo: **1703214**		Units: **µmhos/cm**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		22	5.0	19.98	0	113	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-38840**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**38840**	RunNo:	**52177**					
Prep Date:	**6/22/2018**	Analysis Date:	**6/22/2018**	SeqNo:	**1709180**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-38840**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**38840**	RunNo:	**52177**					
Prep Date:	**6/22/2018**	Analysis Date:	**6/22/2018**	SeqNo:	**1709181**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.7	80	120			

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38837**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **38837**	RunNo: **52174**							
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709087**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-38837**	SampType: **LCS**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSW**	Batch ID: **38837**	RunNo: **52174**							
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709088**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	103	80	120			

Sample ID **TCLP#1-3752**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **38837**	RunNo: **52174**							
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709107**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38797**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707267** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Silver	ND	5.0								

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707268** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	104	80	120			
Cadmium	ND	1.0	0.5000	0	103	80	120			
Chromium	ND	5.0	0.5000	0	101	80	120			
Lead	ND	5.0	0.5000	0	103	80	120			
Silver	ND	5.0	0.1000	0	110	80	120			

Sample ID **LCSD-38797**	SampType: **LCSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707269** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	104	80	120	0	20	
Cadmium	ND	1.0	0.5000	0	103	80	120	0	20	
Chromium	ND	5.0	0.5000	0	101	80	120	0	20	
Lead	ND	5.0	0.5000	0	104	80	120	0	20	
Silver	ND	5.0	0.1000	0	111	80	120	0	20	

Sample ID **MB-38797**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707278** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0								

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707279** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707279** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0	0.5000	0	97.2	80	120			

Sample ID **LCSD-38797**	SampType: **LCSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707280** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0	0.5000	0	105	80	120	0	20	

Sample ID **MB-38797**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709602** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709603** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	93.7	80	120			

Sample ID **LCSD-38797**	SampType: **LCSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.3	80	120	0	20	

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	MB-38830	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	38830	RunNo:	52182					
Prep Date:	6/21/2018	Analysis Date:	6/24/2018	SeqNo:	1709613	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID	LCS-38830	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	38830	RunNo:	52182					
Prep Date:	6/21/2018	Analysis Date:	6/24/2018	SeqNo:	1709614	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	110	80	120			
Antimony	0.46	0.050	0.5000	0	92.9	80	120			
Arsenic	0.47	0.020	0.5000	0	95.0	80	120			
Barium	0.50	0.020	0.5000	0	101	80	120			
Beryllium	0.53	0.0030	0.5000	0	106	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.4	80	120			
Chromium	0.47	0.0060	0.5000	0	94.5	80	120			
Cobalt	0.47	0.0060	0.5000	0	94.6	80	120			
Iron	0.51	0.050	0.5000	0	102	80	120			
Lead	0.47	0.0050	0.5000	0	94.5	80	120			
Manganese	0.49	0.0020	0.5000	0	97.7	80	120			
Nickel	0.49	0.010	0.5000	0	98.2	80	120			
Selenium	0.45	0.050	0.5000	0	89.1	80	120			
Silver	0.11	0.0050	0.1000	0	111	80	120			
Thallium	0.50	0.050	0.5000	0	99.6	80	120			
Vanadium	0.50	0.050	0.5000	0	99.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **LCS-38830**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSW**	Batch ID: **38830**	RunNo: **52182**
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709614** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.46	0.020	0.5000	0	91.6	80	120			

Sample ID **1806778-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **38830**	RunNo: **52182**
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709617** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.86	0.020	0.5000	0.2671	119	75	125			
Antimony	0.46	0.050	0.5000	0	91.6	75	125			
Arsenic	0.47	0.020	0.5000	0	94.1	75	125			
Barium	0.52	0.020	0.5000	0.02756	97.7	75	125			
Beryllium	0.49	0.0030	0.5000	0	98.7	75	125			
Cadmium	0.49	0.0020	0.5000	0	97.2	75	125			
Chromium	0.46	0.0060	0.5000	0	92.0	75	125			
Cobalt	0.45	0.0060	0.5000	0.001940	89.7	75	125			
Iron	0.78	0.050	0.5000	0.3011	96.1	75	125			
Lead	0.47	0.0050	0.5000	0	93.4	75	125			
Manganese	0.51	0.0020	0.5000	0.04674	92.9	75	125			
Nickel	0.48	0.010	0.5000	0.009450	94.8	75	125			
Selenium	0.50	0.050	0.5000	0.03875	92.8	75	125			
Silver	0.12	0.0050	0.1000	0.001780	116	75	125			
Thallium	0.47	0.050	0.5000	0	94.3	75	125			
Vanadium	0.53	0.050	0.5000	0.03973	97.1	75	125			
Zinc	0.46	0.020	0.5000	0.01812	89.2	75	125			

Sample ID **1806778-001BMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **38830**	RunNo: **52182**
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.87	0.020	0.5000	0.2671	120	75	125	0.456	20	
Antimony	0.44	0.050	0.5000	0	88.1	75	125	3.91	20	
Arsenic	0.47	0.020	0.5000	0	93.5	75	125	0.578	20	
Barium	0.51	0.020	0.5000	0.02756	96.9	75	125	0.792	20	
Beryllium	0.49	0.0030	0.5000	0	97.5	75	125	1.14	20	
Cadmium	0.48	0.0020	0.5000	0	95.5	75	125	1.78	20	
Chromium	0.45	0.0060	0.5000	0	91.0	75	125	1.12	20	
Cobalt	0.44	0.0060	0.5000	0.001940	88.0	75	125	1.87	20	
Iron	0.79	0.050	0.5000	0.3011	97.2	75	125	0.718	20	
Lead	0.46	0.0050	0.5000	0	91.2	75	125	2.36	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **1806778-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **38830** RunNo: **52182**
Prep Date: **6/21/2018** Analysis Date: **6/24/2018** SeqNo: **1709618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.51	0.0020	0.5000	0.04674	93.2	75	125	0.328	20	
Nickel	0.47	0.010	0.5000	0.009450	93.0	75	125	1.82	20	
Selenium	0.50	0.050	0.5000	0.03875	92.2	75	125	0.590	20	
Silver	0.12	0.0050	0.1000	0.001780	116	75	125	0.356	20	
Thallium	0.47	0.050	0.5000	0	94.9	75	125	0.636	20	
Vanadium	0.53	0.050	0.5000	0.03973	97.6	75	125	0.477	20	
Zinc	0.46	0.020	0.5000	0.01812	87.8	75	125	1.53	20	

Sample ID **MB-38830** SampType: **MBLK** TestCode: **EPA 6010B: Metals**
Client ID: **PBW** Batch ID: **38830** RunNo: **52203**
Prep Date: **6/21/2018** Analysis Date: **6/25/2018** SeqNo: **1710333** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.0060								

Sample ID **LCS-38830** SampType: **LCS** TestCode: **EPA 6010B: Metals**
Client ID: **LCSW** Batch ID: **38830** RunNo: **52203**
Prep Date: **6/21/2018** Analysis Date: **6/25/2018** SeqNo: **1710334** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.47	0.0060	0.5000	0	94.0	80	120			

Sample ID **1806778-001BMS** SampType: **MS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **38830** RunNo: **52203**
Prep Date: **6/21/2018** Analysis Date: **6/25/2018** SeqNo: **1710337** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.50	0.0060	0.5000	0	101	75	125			

Sample ID **1806778-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **38830** RunNo: **52203**
Prep Date: **6/21/2018** Analysis Date: **6/25/2018** SeqNo: **1710338** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.50	0.0060	0.5000	0	101	75	125	0.300	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	MB-38830	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710647	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	LCS-38830	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710648	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.9	80	120			
Magnesium	48	1.0	50.00	0	97.0	80	120			
Potassium	48	1.0	50.00	0	96.4	80	120			
Sodium	49	1.0	50.00	0	97.4	80	120			

Sample ID	1806778-001BMS	SampType:	MS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710653	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	82	1.0	50.00	34.10	95.8	75	125			
Potassium	89	1.0	50.00	40.69	96.0	75	125			

Sample ID	1806778-001BMSD	SampType:	MSD	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710654	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	84	1.0	50.00	34.10	98.9	75	125	1.93	20	
Potassium	90	1.0	50.00	40.69	98.4	75	125	1.36	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-R52251**	SampType:	**MBLK**	TestCode:	**CYANIDE, Reactive**					
Client ID:	**PBW**	Batch ID:	**R52251**	RunNo:	**52251**					
Prep Date:		Analysis Date:	**6/20/2018**	SeqNo:	**1711993**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID	**LCS-R52251**	SampType:	**LCS**	TestCode:	**CYANIDE, Reactive**					
Client ID:	**LCSW**	Batch ID:	**R52251**	RunNo:	**52251**					
Prep Date:		Analysis Date:	**6/20/2018**	SeqNo:	**1711994**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.505		0.5000	0	101	80	20			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**							
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711996**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.10								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**							
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711997**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703175**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703176**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.04	20.00	80.00	0	96.3	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703199**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703200**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.28	20.00	80.00	0	99.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specifed

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**1806778-001ADUP**	SampType: **DUP**		TestCode: **Specific Gravity**						
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **R52078**		RunNo: **52078**						
Prep Date:		Analysis Date: **6/18/2018**		SeqNo: **1704219**		Units:				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity		1.001	0						0.508	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38675**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **PBW**	Batch ID: **38675**	RunNo: **52038**							
Prep Date: **6/14/2018**	Analysis Date: **6/15/2018**	SeqNo: **1702120**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-38675**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **LCSW**	Batch ID: **38675**	RunNo: **52038**							
Prep Date: **6/14/2018**	Analysis Date: **6/15/2018**	SeqNo: **1702121**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1806778 RcptNo: 1

Received By: Jazzmine Burkhead 6/13/2018 9:45:00 AM
Completed By: Ashley Gallegos 6/13/2018 11:22:33 AM
Reviewed By: ENM 6/13/18 labeled by: JB 06/13/18

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 2;3 (<2 or >12 unless noted)
Adjusted? No
Checked by: JB

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standar X Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.3 + 0.0(CF) = 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1800178	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6-12-18	4:00	Brady Hubbard		Courier JS	06/13/18	09:45
Date:	Time:	Relinquished by:	Received by:		Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH= 7.55, 45.4°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	Contaminant	SW-846 Method	Regulatory Level (mg/l)
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

Shallow to 200 - 250 ft bgs

Need All

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2018 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	40,636,463
Apr-18	1,215	1,400	1,160	266	307	126	386	687	244	9,120	10,526	4,320	273,463	40,909,926
May-18	1,224	1,400	1,195	270	310	167	400	892	174	9,257	10,629	5,726	388,800	41,298,726
Jun-18	1,342	1,400	1,374	308	339	232	528	696	297	10,560	11,623	7,954	446,520	41,745,246
Monthly Avg	1,260			281										
30-015-20894 WDW-2													**Previous Quarter**	26,910,195
Apr-18	1,221	1,400	1,160	61	92	1	315	411	211	2,091	3,154	34	62,880	26,973,075
May-18	1,260	1,400	1,177	77	91	61	310	467	219	2,640	3,120	2,091	110,880	27,083,955
Jun-18	1,359	1,400	1,081	102	111	78	341	548	241	3,497	3,806	2,674	146,880	27,230,835
Monthly Avg	1,280			80										
30-015-26575 WDW-3													**Previous Quarter**	18,176,586
Apr-18	1,210	1,400	1,160	102	132	84	451	596	273	3,497	4,526	2,880	105,085	18,281,671
May-18	1,255	1,400	1,155	108	125	89	374	544	275	3,703	4,286	3,051	155,520	18,437,191
Jun-18	1,302	1,400	1,082	125	141	66	527	701	187	4,286	4,834	2,263	180,000	18,617,191
Monthly Avg	1,256			112								**Total Injected fluids:**		
AVG:	1266			158										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	1,108,783	40,636,463	41,745,246
WDW2	320,640	26,910,195	27,230,835
WDW3	440,605	18,176,586	18,617,191
	1,870,028	85,723,244	87,593,272

HOLLYFRONTIER.

May 8, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 6510

RE: 2018 1st Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1298 psig and the average flows were 133 gpm for WDW-1, 112 gpm for WDW-2 and 99 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits. The Mewbourne WDW-1; 30-015-27592, did have repairs due to well issues starting 01/08/2018. Repairs were made and C-103 submitted, MIT was witnessed on 3/7/2018 and well returned to service on 3/8/2018.

This report covers the period from January 1, 2018 to March 31, 2018. We have disposed a total of 1,424,202 barrels of fluid into the three wells during the first quarter of 2018. The volume per well is:

- 540,144 barrels into WDW-1; 30-015-27592
- 317,136 barrels into WDW-2; 30-015-20894
- 566,922 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

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2018 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												**Previous Quarter**		40,096,319
Jan-18	1,361	1,400	1,364	134	144	80	1,142	1,393	213	4,152	4,937	2,743	174,384	40,270,703
Feb-18	1,305	1,400	1,195	128	142	96	1,297	1,393	1,192	4,389	4,869	3,291	184,320	40,455,023
Mar-18	1,183	1,400	1,374	126	454	96	504	1,270	331	3,160	15,566	3,291	181,440	40,636,463
Monthly Avg	1,363			133										
30-015-20894 WDW-2												**Previous Quarter**		26,593,059
Jan-18	1,389	1,400	1,344	114	351	107	479	730	308	3,548	12,034	3,669	140,016	26,733,075
Feb-18	1,312	1,400	1,177	75	118	69	361	447	279	2,571	4,046	2,366	108,000	26,841,075
Mar-18	1,263	1,400	1,081	48	111	54	335	468	232	1,477	3,806	1,851	69,120	26,910,195
Monthly Avg	1,300			112										
30-015-26575 WDW-3												**Previous Quarter**		17,609,664
Jan-18	1,340	1,400	1,248	152	162	119	555	663	430	4,721	5,554	4,080	198,282	17,807,946
Feb-18	1,282	1,400	1,155	133	159	100	535	593	441	4,560	5,451	3,429	191,520	17,999,466
Mar-18	1,251	1,400	1,082	123	157	53	467	587	380	3,808	5,383	1,817	177,120	18,176,586
Monthly Avg	1232			99								**Total Injected fluids:**		85,723,244

	Total BBLS	Beginning Volume	Ending Volume
WDW1	540,144	40,096,319	40,636,463
WDW2	317,136	26,593,059	26,910,195
WDW3	566,922	17,609,664	18,176,586
	1,424,202		
		84,299,042	85,723,244

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 15, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1, 2 and 3 Inj Well OrderNo.: 1802968

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/16/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **MAB**	
Chlordane	ND	0.30		mg/L	10	2/22/2018 10:33:17 AM	36636
Surr: Decachlorobiphenyl	63.2	41.2-177		%Rec	10	2/22/2018 10:33:17 AM	36636
Surr: Tetrachloro-m-xylene	64.4	29-171		%Rec	10	2/22/2018 10:33:17 AM	36636
EPA METHOD 8270C TCLP						Analyst: **DAM**	
2-Methylphenol	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
3+4-Methylphenol	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
Phenol	ND	200		mg/L	10	3/13/2018 8:51:59 PM	36637
2,4-Dinitrotoluene	ND	0.13		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachlorobenzene	ND	0.13		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachlorobutadiene	ND	0.50		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachloroethane	ND	3.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Nitrobenzene	ND	2.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Pentachlorophenol	ND	100		mg/L	1	3/5/2018 11:38:07 AM	36637
Pyridine	ND	5.0		mg/L	1	3/5/2018 11:38:07 AM	36637
2,4,5-Trichlorophenol	ND	400		mg/L	1	3/5/2018 11:38:07 AM	36637
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Cresols, Total	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
Surr: 2-Fluorophenol	62.3	15-73.6		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: Phenol-d5	51.2	15-63.4		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 2,4,6-Tribromophenol	91.6	15-119		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: Nitrobenzene-d5	88.7	33.5-111		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 2-Fluorobiphenyl	85.5	31.8-101		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 4-Terphenyl-d14	53.0	17.2-84.7		%Rec	1	3/5/2018 11:38:07 AM	36637
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>170			°F	1	2/20/2018	R49787
OXIDATION REDUCTION POTENTIAL						Analyst: **SUB**	
Oxidation-Reduction Potential	140			mV	1	2/21/2018	R49787
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	0.38	0.050		mg/L	1	2/20/2018	R49787
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9980	0			1	2/20/2018 12:44:00 PM	R49250
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.50	0.50		mg/L	5	2/27/2018 4:16:33 PM	R49460
Chloride	420	25		mg/L	50	3/4/2018 3:17:41 PM	R49545
Bromide	1.2	0.50		mg/L	5	2/27/2018 4:16:33 PM	R49460
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	2/27/2018 4:16:33 PM	R49460

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Sulfate	1200	25		mg/L	50	3/2/2018 9:09:19 PM	R49522
Nitrate+Nitrite as N	ND	1.0		mg/L	5	2/28/2018 12:07:17 PM	R49476
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	4600	5.0		µmhos/cm	1	2/22/2018 12:59:56 PM	R49344
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	286.5	20.00		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
Carbonate (As CaCO3)	36.16	2.000		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
Total Alkalinity (as CaCO3)	322.6	20.00		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3040	20.0	*	mg/L	1	2/21/2018 7:01:00 PM	36630
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	0.0493	0.00500		mg/L	1	2/23/2018	R49787
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	8.59		*H	pH units	1	2/22/2018 12:59:56 PM	R49344
EPA METHOD 7470: MERCURY						Analyst: **rde**	
Mercury	ND	0.00020		mg/L	1	2/21/2018 10:33:26 AM	36616
MERCURY, TCLP						Analyst: **rde**	
Mercury	ND	0.020		mg/L	1	3/8/2018 3:33:51 PM	36908
EPA METHOD 6010B: TCLP METALS						Analyst: **JLF**	
Arsenic	ND	5.0		mg/L	1	3/13/2018 11:04:59 AM	36855
Barium	ND	100		mg/L	1	3/7/2018 7:32:52 PM	36855
Cadmium	ND	1.0		mg/L	1	3/7/2018 7:32:52 PM	36855
Chromium	ND	5.0		mg/L	1	3/12/2018 2:53:01 PM	36855
Lead	ND	5.0		mg/L	1	3/7/2018 7:32:52 PM	36855
Selenium	ND	1.0		mg/L	1	3/13/2018 1:28:45 PM	36855
Silver	ND	5.0		mg/L	1	3/7/2018 7:32:52 PM	36855
EPA 6010B: METALS						Analyst: **JLF**	
Aluminum	1.3	0.020		mg/L	1	3/7/2018 7:34:50 PM	36855
Antimony	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Arsenic	ND	0.020		mg/L	1	3/13/2018 11:03:41 AM	36855
Barium	ND	0.020		mg/L	1	3/7/2018 7:34:50 PM	36855
Beryllium	ND	0.0030		mg/L	1	3/7/2018 7:34:50 PM	36855
Cadmium	ND	0.0020		mg/L	1	3/7/2018 7:34:50 PM	36855
Calcium	67	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Chromium	ND	0.0060		mg/L	1	3/12/2018 2:50:53 PM	36855

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: METALS						Analyst: **JLF**	
Cobalt	ND	0.0060		mg/L	1	3/12/2018 2:50:53 PM	36855
Copper	ND	0.0060		mg/L	1	3/7/2018 7:34:50 PM	36855
Iron	0.59	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Lead	ND	0.0050		mg/L	1	3/7/2018 7:34:50 PM	36855
Magnesium	21	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Manganese	0.041	0.0020		mg/L	1	3/7/2018 7:34:50 PM	36855
Nickel	ND	0.010		mg/L	1	3/7/2018 7:34:50 PM	36855
Potassium	84	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Selenium	0.10	0.050		mg/L	1	3/13/2018 1:27:28 PM	36855
Silver	ND	0.0050		mg/L	1	3/7/2018 7:34:50 PM	36855
Sodium	820	20		mg/L	20	3/7/2018 7:38:57 PM	36855
Thallium	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Vanadium	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Zinc	ND	0.020		mg/L	1	3/13/2018 11:03:41 AM	36855
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
2-Butanone	ND	200		mg/L	200	2/21/2018 9:53:00 PM	T49300
Carbon Tetrachloride	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Chloroform	ND	6.0		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,4-Dichlorobenzene	ND	7.5		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,1-Dichloroethene	ND	0.70		mg/L	200	2/21/2018 9:53:00 PM	T49300
Hexachlorobutadiene	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	2/21/2018 9:53:00 PM	T49300
Trichloroethene (TCE)	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Vinyl chloride	ND	0.20		mg/L	200	2/21/2018 9:53:00 PM	T49300
Chlorobenzene	ND	100		mg/L	200	2/21/2018 9:53:00 PM	T49300
Surr: 1,2-Dichloroethane-d4	84.8	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: 4-Bromofluorobenzene	78.7	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: Dibromofluoromethane	88.2	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: Toluene-d8	77.3	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R49460**	RunNo: **49460**							
Prep Date:	Analysis Date: **2/27/2018**	SeqNo: **1597256**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R49460**	RunNo: **49460**							
Prep Date:	Analysis Date: **2/27/2018**	SeqNo: **1597257**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.1	90	110			
Bromide	2.4	0.10	2.500	0	95.9	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.3	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R49476**	RunNo: **49476**							
Prep Date:	Analysis Date: **2/28/2018**	SeqNo: **1598370**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R49476**	RunNo: **49476**							
Prep Date:	Analysis Date: **2/28/2018**	SeqNo: **1598371**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.2	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R49522**	RunNo: **49522**							
Prep Date:	Analysis Date: **3/2/2018**	SeqNo: **1600511**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS-b**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R49522**	RunNo: **49522**							
Prep Date:	Analysis Date: **3/2/2018**	SeqNo: **1600513**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.2	0.50	10.00	0	91.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R49545**	RunNo: **49545**							
Prep Date:	Analysis Date: **3/4/2018**	SeqNo: **1601219**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R49545**	RunNo: **49545**							
Prep Date:	Analysis Date: **3/4/2018**	SeqNo: **1601220**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36636**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592030** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0013		0.002500		52.0	41.2	177			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.9	29	171			

Sample ID **LCS-36636**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592031** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0019		0.002500		74.9	41.2	177			
Surr: Tetrachloro-m-xylene	0.0019		0.002500		77.6	29	171			

Sample ID **LCSD-36636**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592036** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0019		0.002500		77.8	41.2	177	0	0	
Surr: Tetrachloro-m-xylene	0.0019		0.002500		77.2	29	171	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T49300**	RunNo: **49300**
Prep Date:	Analysis Date: **2/21/2018**	SeqNo: **1590903** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.024	0.010	0.02000	0	118	70	130			
1,1-Dichloroethene	0.026	0.010	0.02000	0	128	70	130			
Trichloroethene (TCE)	0.022	0.010	0.02000	0	110	70	130			
Chlorobenzene	0.020	0.010	0.02000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	0.0088		0.01000		88.4	70	130			
Surr: 4-Bromofluorobenzene	0.0080		0.01000		79.5	70	130			
Surr: Dibromofluoromethane	0.0091		0.01000		90.8	70	130			
Surr: Toluene-d8	0.0078		0.01000		78.2	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T49300**	RunNo: **49300**
Prep Date:	Analysis Date: **2/21/2018**	SeqNo: **1590905** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0089		0.01000		88.9	70	130			
Surr: 4-Bromofluorobenzene	0.0076		0.01000		76.1	70	130			
Surr: Dibromofluoromethane	0.0092		0.01000		91.7	70	130			
Surr: Toluene-d8	0.0077		0.01000		77.3	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001ems** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611310** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.14	0.0010	0.1000	0	142	23.9	129			S
3+4-Methylphenol	0.34	0.0010	0.2000	0.01344	165	15	167			
2,4-Dinitrotoluene	0.081	0.0010	0.1000	0	81.2	15	147			
Hexachlorobenzene	0.089	0.0010	0.1000	0	89.1	41.4	136			
Hexachlorobutadiene	0.085	0.0010	0.1000	0	84.9	16.2	134			
Hexachloroethane	0.068	0.0010	0.1000	0	67.6	20.6	124			
Nitrobenzene	0.084	0.0010	0.1000	0	84.4	39.5	134			
Pentachlorophenol	0.084	0.0010	0.1000	0	83.6	15	137			
Pyridine	0.022	0.0010	0.1000	0	21.5	15	129			
2,4,5-Trichlorophenol	0.095	0.0010	0.1000	0	95.2	15	158			
2,4,6-Trichlorophenol	0.096	0.0010	0.1000	0	96.0	15	153			
Cresols, Total	0.93	0.0010	0.3000	0.05632	291	10.6	179			S
Surr: 2-Fluorophenol	0.12		0.2000		57.8	15	73.6			
Surr: Phenol-d5	0.097		0.2000		48.7	15	63.4			
Surr: 2,4,6-Tribromophenol	0.18		0.2000		91.0	15	119			
Surr: Nitrobenzene-d5	0.085		0.1000		84.8	33.5	111			
Surr: 2-Fluorobiphenyl	0.084		0.1000		84.3	31.8	101			
Surr: 4-Terphenyl-d14	0.052		0.1000		52.0	17.2	84.7			

Sample ID **1802968-001emsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611311** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.12	0.0010	0.1000	0	119	23.9	129	17.4	20	
3+4-Methylphenol	0.29	0.0010	0.2000	0.01344	138	15	167	17.1	20	
2,4-Dinitrotoluene	0.069	0.0010	0.1000	0	69.1	15	147	16.1	23.2	
Hexachlorobenzene	0.077	0.0010	0.1000	0	76.6	41.4	136	15.1	20	
Hexachlorobutadiene	0.075	0.0010	0.1000	0	74.8	16.2	134	12.6	20	
Hexachloroethane	0.058	0.0010	0.1000	0	58.4	20.6	124	14.7	31.3	
Nitrobenzene	0.073	0.0010	0.1000	0	72.8	39.5	134	14.7	26.6	
Pentachlorophenol	0.071	0.0010	0.1000	0	71.4	15	137	15.7	27.9	
Pyridine	0.022	0.0010	0.1000	0	21.7	15	129	1.02	47.4	
2,4,5-Trichlorophenol	0.074	0.0010	0.1000	0	74.5	15	158	24.4	36.9	
2,4,6-Trichlorophenol	0.079	0.0010	0.1000	0	78.9	15	153	19.6	37.2	
Cresols, Total	0.79	0.0010	0.3000	0.05632	246	10.6	179	15.6	27.4	S
Surr: 2-Fluorophenol	0.098		0.2000		48.8	15	73.6	0	0	
Surr: Phenol-d5	0.079		0.2000		39.7	15	63.4	0	0	
Surr: 2,4,6-Tribromophenol	0.16		0.2000		77.7	15	119	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- PQL Practical Quanitative Limit
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001emsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611311** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.070		0.1000		70.4	33.5	111	0	0	
Surr: 2-Fluorobiphenyl	0.065		0.1000		64.8	31.8	101	0	0	
Surr: 4-Terphenyl-d14	0.043		0.1000		43.1	17.2	84.7	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	**lcs-1 ~20uS eC**	SampType: **LCS**			TestCode: **SM2510B: Specific Conductance**					
Client ID:	**LCSW**	Batch ID: **R49344**			RunNo: **49344**					
Prep Date:		Analysis Date: **2/22/2018**			SeqNo: **1592912**		Units: **µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	22	5.0	19.96	0	112	80	120			

Sample ID	**1802968-001a dup**	SampType: **DUP**			TestCode: **SM2510B: Specific Conductance**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **R49344**			RunNo: **49344**					
Prep Date:		Analysis Date: **2/22/2018**			SeqNo: **1592915**		Units: **µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	4600	5.0						0.0261	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36616**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **36616**	RunNo: **49292**
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**	SeqNo: **1590635** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-36616**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **36616**	RunNo: **49292**
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**	SeqNo: **1590636** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36908**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **36908**	RunNo: **49646**							
Prep Date: **3/8/2018**	Analysis Date: **3/8/2018**	SeqNo: **1605458**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-36908**	SampType: **LCS**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSW**	Batch ID: **36908**	RunNo: **49646**							
Prep Date: **3/8/2018**	Analysis Date: **3/8/2018**	SeqNo: **1605459**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.6	80	120			

Sample ID **LCSD-36908**	SampType: **LCSD**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSS02**	Batch ID: **36908**	RunNo: **49646**							
Prep Date: **3/8/2018**	Analysis Date: **3/8/2018**	SeqNo: **1605460**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.7	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604968 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0								
Selenium	ND	1.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604970 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0	0.5000	0	106	80	120			
Selenium	ND	1.0	0.5000	0	97.7	80	120			

Sample ID LCSD-36855	SampType: LCSD	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSS02	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604971 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0	0.5000	0	104	80	120	0	20	
Selenium	ND	1.0	0.5000	0	106	80	120	0	20	

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604981 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Lead	ND	5.0								
Silver	ND	5.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604983 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	102	80	120			
Lead	ND	5.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	LCSD-36855	SampType:	LCSD			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	LCSS02	Batch ID:	36855			RunNo:	49620			
Prep Date:	3/6/2018	Analysis Date:	3/7/2018			SeqNo:	1604984	Units:	mg/L	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	102	80	120	0	20	
Lead	ND	5.0	0.5000	0	101	80	120	0	20	
Silver	ND	5.0	0.1000	0	102	80	120	0	20	

Sample ID	MB-36855	SampType:	MBLK			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	PBW	Batch ID:	36855			RunNo:	49727			
Prep Date:	3/6/2018	Analysis Date:	3/12/2018			SeqNo:	1608232	Units:	mg/L	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0								

Sample ID	LCS-36855	SampType:	LCS			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	LCSW	Batch ID:	36855			RunNo:	49727			
Prep Date:	3/6/2018	Analysis Date:	3/12/2018			SeqNo:	1608237	Units:	mg/L	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0	0.5000	0	97.3	80	120			

Sample ID	LCSD-36855	SampType:	LCSD			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	LCSS02	Batch ID:	36855			RunNo:	49727			
Prep Date:	3/6/2018	Analysis Date:	3/12/2018			SeqNo:	1608238	Units:	mg/L	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0	0.5000	0	99.4	80	120	0	20	

Sample ID	MB-36855	SampType:	MBLK			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	PBW	Batch ID:	36855			RunNo:	49740			
Prep Date:	3/6/2018	Analysis Date:	3/13/2018			SeqNo:	1608916	Units:	mg/L	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								

Sample ID	LCS-36855	SampType:	LCS			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	LCSW	Batch ID:	36855			RunNo:	49740			
Prep Date:	3/6/2018	Analysis Date:	3/13/2018			SeqNo:	1608918	Units:	mg/L	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	**LCSD-36855**	SampType: **LCSD**		TestCode: **EPA Method 6010B: TCLP Metals**						
Client ID:	**LCSS02**	Batch ID: **36855**		RunNo: **49740**						
Prep Date:	**3/6/2018**	Analysis Date: **3/13/2018**		SeqNo: **1608919**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	102	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36855**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**
Client ID: **PBW**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605015** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605017** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	111	80	120			
Beryllium	0.52	0.0030	0.5000	0	105	80	120			
Cadmium	0.53	0.0020	0.5000	0	106	80	120			
Calcium	47	1.0	50.00	0	94.2	80	120			
Cobalt	0.49	0.0060	0.5000	0	98.0	80	120			
Copper	0.52	0.0060	0.5000	0	104	80	120			
Iron	0.49	0.050	0.5000	0	98.5	80	120			
Magnesium	48	1.0	50.00	0	96.3	80	120			
Manganese	0.50	0.0020	0.5000	0	99.8	80	120			
Nickel	0.51	0.010	0.5000	0	101	80	120			
Potassium	47	1.0	50.00	0	94.7	80	120			
Selenium	0.49	0.050	0.5000	0	97.7	80	120			
Vanadium	0.52	0.050	0.5000	0	103	80	120			
Zinc	0.49	0.020	0.5000	0	98.5	80	120			

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605018** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605018**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	110	80	120	0.806	20	
Beryllium	0.52	0.0030	0.5000	0	105	80	120	0.0553	20	
Cadmium	0.52	0.0020	0.5000	0	104	80	120	1.39	20	
Calcium	47	1.0	50.00	0	94.4	80	120	0.153	20	
Cobalt	0.49	0.0060	0.5000	0	97.0	80	120	1.02	20	
Copper	0.52	0.0060	0.5000	0	103	80	120	1.22	20	
Iron	0.49	0.050	0.5000	0	98.7	80	120	0.110	20	
Magnesium	48	1.0	50.00	0	95.3	80	120	0.952	20	
Manganese	0.50	0.0020	0.5000	0	99.8	80	120	0.00601	20	
Nickel	0.51	0.010	0.5000	0	101	80	120	0.00395	20	
Potassium	47	1.0	50.00	0	93.4	80	120	1.31	20	
Selenium	0.53	0.050	0.5000	0	106	80	120	8.29	20	
Vanadium	0.52	0.050	0.5000	0	103	80	120	0.240	20	
Zinc	0.49	0.020	0.5000	0	98.7	80	120	0.254	20	

Sample ID **MB-36855**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**							
Client ID: **PBW**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605019**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Barium	ND	0.020								
Lead	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605021**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.50	0.050	0.5000	0	101	80	120			
Barium	0.51	0.020	0.5000	0	102	80	120			
Lead	0.50	0.0050	0.5000	0	101	80	120			
Silver	0.10	0.0050	0.1000	0	101	80	120			
Sodium	47	1.0	50.00	0	94.6	80	120			
Thallium	0.49	0.050	0.5000	0	98.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	LCSD-36855	SampType:	LCSD		TestCode:	EPA 6010B: Metals				
Client ID:	LCSS02	Batch ID:	36855		RunNo:	49620				
Prep Date:	3/6/2018	Analysis Date:	3/7/2018		SeqNo:	1605022	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.51	0.050	0.5000	0	102	80	120	1.00	20	
Barium	0.51	0.020	0.5000	0	102	80	120	0.114	20	
Lead	0.51	0.0050	0.5000	0	101	80	120	0.131	20	
Silver	0.10	0.0050	0.1000	0	102	80	120	0.913	20	
Sodium	46	1.0	50.00	0	92.7	80	120	2.00	20	
Thallium	0.51	0.050	0.5000	0	102	80	120	3.95	20	

Sample ID	MB-36855	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	36855		RunNo:	49727				
Prep Date:	3/6/2018	Analysis Date:	3/12/2018		SeqNo:	1608906	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060								

Sample ID	LCS-36855	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	36855		RunNo:	49727				
Prep Date:	3/6/2018	Analysis Date:	3/12/2018		SeqNo:	1608908	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.49	0.0060	0.5000	0	97.3	80	120			

Sample ID	LCSD-36855	SampType:	LCSD		TestCode:	EPA 6010B: Metals				
Client ID:	LCSS02	Batch ID:	36855		RunNo:	49727				
Prep Date:	3/6/2018	Analysis Date:	3/12/2018		SeqNo:	1608909	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.50	0.0060	0.5000	0	99.4	80	120	2.07	20	

Sample ID	MB-36855	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	36855		RunNo:	49740				
Prep Date:	3/6/2018	Analysis Date:	3/13/2018		SeqNo:	1608962	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								

Sample ID	LCS-36855	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	36855		RunNo:	49740				
Prep Date:	3/6/2018	Analysis Date:	3/13/2018		SeqNo:	1608964	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49740**							
Prep Date: **3/6/2018**	Analysis Date: **3/13/2018**	SeqNo: **1608964**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.52	0.020	0.5000	0	105	80	120			

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49740**							
Prep Date: **3/6/2018**	Analysis Date: **3/13/2018**	SeqNo: **1608965**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.51	0.020	0.5000	0	102	80	120	2.38	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

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WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001a dup** SampType: **DUP** TestCode: **SM4500-H+B / 9040C: pH**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R49344** RunNo: **49344**

Prep Date: Analysis Date: **2/22/2018** SeqNo: **1592953** Units: **pH units**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.57									*H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-R49787**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R49787**	RunNo: **49787**							
Prep Date:	Analysis Date: **2/23/2018**	SeqNo: **1610825**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID **LCS-R49787**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R49787**	RunNo: **49787**							
Prep Date:	Analysis Date: **2/23/2018**	SeqNo: **1610826**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.107		0.1000	0	107	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-R49787**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R49787**	RunNo: **49787**
Prep Date:	Analysis Date: **2/20/2018**	SeqNo: **1610828** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID **LCS-R49787**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R49787**	RunNo: **49787**
Prep Date:	Analysis Date: **2/20/2018**	SeqNo: **1610829** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.50		0.5000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592876**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592877**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.16	20.00	80.00	0	99.0	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592900**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592901**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.04	20.00	80.00	0	100	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36630**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **36630**	RunNo: **49297**
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**	SeqNo: **1590748** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-36630**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **36630**	RunNo: **49297**
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**	SeqNo: **1590749** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1802968 RcptNo: 1

Received By: Sophia Campuzano 2/16/2018 9:30:00 AM Sophia Campuzano
Completed By: Anne Thorne 2/19/2018 7:17:43 AM Anne Thorne
Reviewed By:

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 4 2 (<2 or >12 unless noted)
Adjusted? _____
Checked by: AT 02/19/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks: Custody seals intact on sample bottles / AT 02/19/18

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turnaround Time: X Standard Rush

Project Name: Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager: Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: X Yes ☐ No

Sample Temperature: 0.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1802968	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
2/14/18	1:11	Liquid	WDW-1, 2, & 3 Effluent	15	H2SO4/HNO3/HCL	001	X	X	X	X	X	X	X	X

Date:	Time:	Relinquished by:	Received by:	Date	Time
2.15.18	10:00	Brady Hubbard	courier	02/16/18	0930
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH: 8.15
Temp: 42.7°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	Contaminant	SW-846 Method	Regulatory Level (mg/l)
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D006	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallower 200 - 250 ftbgs

Need All

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HOLLYFRONTIER.

April 20, 2017

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 6274

RE: 2017 1st Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2017 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1315 psig and the average flows were 129 gpm for WDW-1, 107 gpm for WDW-2 and 140 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2017 to March 31, 2017. We have disposed a total of 1,162,526 barrels of fluid into the three wells during the first quarter of 2017. The volume per well is:

- 398,023 barrels into WDW-1
- 332,126 barrels into WDW-2
- 432,377 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-748-5487.

Respectfully,

Scott Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R. O'Brien, R Orosco, R Combs, M. Holder, L Dade
Environmental File: Injection Wells/Reports C-115 & Quarterly/2017/1st quarter/2017-4-20 1st QTR Inj. Rpt. for Wells WDW-1,2,3

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2017 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	38,368,242
Jan-17	1,390	1,400	1,364	130	144	80	414	690	175	4,028	4,937	2,743	138,103	38,506,345
Feb-17	1,318	1,400	1,195	120	142	96	247	446	134	3,370	4,869	3,291	115,543	38,621,888
Mar-17	1,272	1,400	1,374	136	454	96	419	639	123	4,211	15,566	3,291	144,377	38,766,265
30-015-20894 WDW-2													**Previous Quarter**	25,195,125
Jan-17	1,383	1,400	1,344	132	351	107	249	394	103	4,101	12,034	3,669	140,606	25,335,731
Feb-17	1,313	1,400	1,177	100	118	69	274	407	175	2,801	4,046	2,366	96,034	25,431,765
Mar-17	1,267	1,400	1,081	90	111	54	330	561	192	2,785	3,806	1,851	95,486	25,527,251
30-015-26575 WDW-3													**Previous Quarter**	15,743,225
Jan-17	1,344	1,400	1,248	151	162	119	712	800	629	4,684	5,554	4,080	160,594	15,903,819
Feb-17	1,301	1,400	1,155	142	159	100	714	804	600	3,970	5,451	3,429	136,114	16,039,933
Mar-17	1,246	1,400	1,082	128	157	53	679	859	568	3,957	5,383	1,817	135,669	16,175,602
													Total Injected fluids:	80,469,118

	Monthly Avg.	Monthly Avg.
WDW-1	1,327	129
WDW-2	1,321	107
WDW-3	1,297	140

	Total BBLS	Beginning Volume	Ending Volume
WDW1	398,023	38,368,242	38,766,265
WDW2	332,126	25,195,125	25,527,251
WDW3	432,377	15,743,225	16,175,602
	1,162,526	79,306,592	80,469,118

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 28, 2017

Micki Schultz

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1701255

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/9/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **LGT**
Fluoride	4.2	0.50	*	mg/L	5	1/9/2017 10:45:27 PM
Chloride	800	25		mg/L	50	1/11/2017 1:20:45 AM
Bromide	2.7	0.50		mg/L	5	1/9/2017 10:45:27 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	1/9/2017 10:45:27 PM
Sulfate	1300	25		mg/L	50	1/11/2017 1:20:45 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/10/2017 12:24:43 AM
EPA METHOD 7470: MERCURY						Analyst: **MED**
Mercury	ND	0.00020		mg/L	1	1/10/2017 12:31:08 PM
MERCURY, TCLP						Analyst: **pmf**
Mercury	ND	0.10		mg/L	5	1/11/2017 5:09:34 PM
EPA METHOD 6010B: TCLP METALS						Analyst: **pmf**
Arsenic	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Barium	ND	100		mg/L	1	1/20/2017 12:57:03 PM
Cadmium	ND	1.0		mg/L	1	1/20/2017 12:57:03 PM
Chromium	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Lead	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Selenium	ND	1.0		mg/L	1	1/20/2017 12:57:03 PM
Silver	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
EPA 6010B: METALS						Analyst: **pmf**
Aluminum	0.62	0.020		mg/L	1	1/18/2017 2:20:24 PM
Antimony	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Arsenic	0.026	0.020		mg/L	1	1/18/2017 2:20:24 PM
Barium	0.025	0.020		mg/L	1	1/18/2017 2:20:24 PM
Beryllium	ND	0.0030		mg/L	1	1/18/2017 2:20:24 PM
Cadmium	ND	0.0020		mg/L	1	1/18/2017 2:20:24 PM
Calcium	99	5.0		mg/L	5	1/18/2017 3:52:07 PM
Chromium	ND	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Cobalt	ND	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Copper	0.011	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Iron	1.3	0.050		mg/L	1	1/18/2017 2:20:24 PM
Lead	ND	0.0050		mg/L	1	1/18/2017 2:20:24 PM
Magnesium	31	1.0		mg/L	1	1/18/2017 2:20:24 PM
Manganese	0.13	0.0020		mg/L	1	1/18/2017 2:20:24 PM
Nickel	0.011	0.010		mg/L	1	1/18/2017 2:20:24 PM
Potassium	31	1.0		mg/L	1	1/18/2017 2:20:24 PM
Selenium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Silver	ND	0.0050		mg/L	1	1/18/2017 2:20:24 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: METALS						Analyst: **pmf**
Sodium	950	20		mg/L	20	1/20/2017 1:05:10 PM
Thallium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Vanadium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Zinc	ND	0.020		mg/L	1	1/18/2017 2:20:24 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
2-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Acetonitrile	ND	2.5		µg/L	1	1/16/2017
Allyl chloride	ND	0.50		µg/L	1	1/16/2017
Chloroprene	ND	0.50		µg/L	1	1/16/2017
Cyclohexane	ND	2.0		µg/L	1	1/16/2017
Diethyl ether	ND	2.0		µg/L	1	1/16/2017
Diisopropyl ether	ND	2.0		µg/L	1	1/16/2017
Epichlorohydrin	ND	5.0		µg/L	1	1/16/2017
Ethyl acetate	ND	2.0		µg/L	1	1/16/2017
Ethyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Ethyl tert-butyl ether	ND	2.0		µg/L	1	1/16/2017
Freon-113	ND	2.0		µg/L	1	1/16/2017
Isobutanol	ND	10		µg/L	1	1/16/2017
Isopropyl acetate	ND	2.0		µg/L	1	1/16/2017
Methacrylonitrile	ND	2.5		µg/L	1	1/16/2017
Methyl acetate	ND	2.0		µg/L	1	1/16/2017
Methyl ethyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl isobutyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Methylcyclohexane	ND	2.0		µg/L	1	1/16/2017
n-Amyl acetate	ND	2.0		µg/L	1	1/16/2017
n-Hexane	ND	2.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
Pentachloroethane	ND	5.0		µg/L	1	1/16/2017
p-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Propionitrile	ND	2.5		µg/L	1	1/16/2017
Tetrahydrofuran	ND	0.50		µg/L	1	1/16/2017
Benzene	ND	0.50		µg/L	1	1/16/2017
Toluene	ND	0.50		µg/L	1	1/16/2017
Ethylbenzene	ND	0.50		µg/L	1	1/16/2017
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	1/16/2017
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	1/16/2017
Naphthalene	ND	0.50		µg/L	1	1/16/2017
Acetone	8.4	2.5		µg/L	1	1/16/2017
Bromobenzene	ND	0.50		µg/L	1	1/16/2017
Bromodichloromethane	ND	0.50		µg/L	1	1/16/2017
Bromoform	ND	0.50		µg/L	1	1/16/2017
Bromomethane	ND	0.50		µg/L	1	1/16/2017
2-Butanone	ND	2.5		µg/L	1	1/16/2017
Carbon disulfide	0.56	0.50		µg/L	1	1/16/2017
Carbon Tetrachloride	ND	0.50		µg/L	1	1/16/2017
Chlorobenzene	ND	0.50		µg/L	1	1/16/2017
Chloroethane	5.9	0.50		µg/L	1	1/16/2017
Chloroform	ND	0.50		µg/L	1	1/16/2017
Chloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
4-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
cis-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	1/16/2017
Dibromochloromethane	ND	0.50		µg/L	1	1/16/2017
Dibromomethane	ND	0.50		µg/L	1	1/16/2017
1,2-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,3-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,4-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
Dichlorodifluoromethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,3-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
2,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	0.50		µg/L	1	1/16/2017
2-Hexanone	ND	0.50		µg/L	1	1/16/2017
Isopropylbenzene	ND	0.50		µg/L	1	1/16/2017
Methylene Chloride	ND	2.5		µg/L	1	1/16/2017
n-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
n-Propylbenzene	ND	0.50		µg/L	1	1/16/2017
sec-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
Styrene	ND	0.50		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
tert-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	1/16/2017
trans-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
Trichloroethene (TCE)	ND	0.50		µg/L	1	1/16/2017
Trichlorofluoromethane	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichloropropane	ND	0.50		µg/L	1	1/16/2017
Vinyl chloride	ND	0.50		µg/L	1	1/16/2017
mp-Xylenes	ND	1.0		µg/L	1	1/16/2017
o-Xylene	ND	0.50		µg/L	1	1/16/2017
tert-Amyl methyl ether	ND	2.0		µg/L	1	1/16/2017
tert-Butyl alcohol	ND	10		µg/L	1	1/16/2017
Acrolein	ND	2.5		µg/L	1	1/16/2017
Acrylonitrile	ND	2.5		µg/L	1	1/16/2017
Bromochloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chloroethyl vinyl ether	ND	4.0		µg/L	1	1/16/2017
Iodomethane	ND	0.50		µg/L	1	1/16/2017
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	1/16/2017
Vinyl acetate	ND	0.50		µg/L	1	1/16/2017
1,4-Dioxane	ND	20		µg/L	1	1/16/2017
Surr: 1,2-Dichlorobenzene-d4	103	70-130		%Rec	1	1/16/2017
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	1/16/2017
Surr: Toluene-d8	106	70-130		%Rec	1	1/16/2017
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
1,1-Biphenyl	ND	0.50		µg/L	1	1/16/2017
Atrazine	ND	0.50		µg/L	1	1/16/2017
Benzaldehyde	1.4	0.50		µg/L	1	1/16/2017
Caprolactam	ND	0.50		µg/L	1	1/16/2017
N-Nitroso-di-n-butylamine	ND	0.50		µg/L	1	1/16/2017
Acetophenone	ND	5.0		µg/L	1	1/16/2017
1-Methylnaphthalene	ND	5.0		µg/L	1	1/16/2017
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dichlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dimethylphenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dinitrophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dinitrotoluene	ND	5.0		µg/L	1	1/16/2017
2,6-Dinitrotoluene	ND	5.0		µg/L	1	1/16/2017
2-Chloronaphthalene	ND	5.0		µg/L	1	1/16/2017
2-Chlorophenol	ND	5.0		µg/L	1	1/16/2017
2-Methylnaphthalene	ND	5.0		µg/L	1	1/16/2017
2-Methylphenol	ND	5.0		µg/L	1	1/16/2017
2-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
2-Nitrophenol	ND	5.0		µg/L	1	1/16/2017
3,3´-Dichlorobenzidine	ND	5.0		µg/L	1	1/16/2017
3-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	1/16/2017
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	1/16/2017
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	1/16/2017
4-Chloroaniline	ND	5.0		µg/L	1	1/16/2017
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	1/16/2017
4-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
4-Nitrophenol	ND	5.0		µg/L	1	1/16/2017
Acenaphthene	ND	5.0		µg/L	1	1/16/2017
Acenaphthylene	ND	5.0		µg/L	1	1/16/2017
Anthracene	ND	5.0		µg/L	1	1/16/2017
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	1/16/2017
Benz(a)anthracene	ND	0.50		µg/L	1	1/16/2017
Benzo(a)pyrene	ND	0.50		µg/L	1	1/16/2017
Benzo(b)fluoranthene	ND	0.50		µg/L	1	1/16/2017
Benzo(k)fluoranthene	ND	0.50		µg/L	1	1/16/2017
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	1/16/2017
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	1/16/2017
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	1/16/2017
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	1/16/2017
Butyl benzyl phthalate	ND	5.0		µg/L	1	1/16/2017
Carbazole	ND	5.0		µg/L	1	1/16/2017
Chrysene	ND	0.50		µg/L	1	1/16/2017
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	1/16/2017
Dibenzofuran	ND	5.0		µg/L	1	1/16/2017
Diethyl phthalate	ND	5.0		µg/L	1	1/16/2017

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
Dimethyl phthalate	ND	5.0		µg/L	1	1/16/2017
Di-n-butyl phthalate	ND	5.0		µg/L	1	1/16/2017
Di-n-octyl phthalate	ND	5.0		µg/L	1	1/16/2017
Fluoranthene	ND	5.0		µg/L	1	1/16/2017
Fluorene	ND	5.0		µg/L	1	1/16/2017
Hexachlorobenzene	ND	1.0		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	5.0		µg/L	1	1/16/2017
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	1/16/2017
Hexachloroethane	ND	5.0		µg/L	1	1/16/2017
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	1/16/2017
Isophorone	ND	5.0		µg/L	1	1/16/2017
Naphthalene	ND	5.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	1/16/2017
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	1/16/2017
Pentachlorophenol	ND	5.0		µg/L	1	1/16/2017
Phenanthrene	ND	5.0		µg/L	1	1/16/2017
Phenol	ND	5.0		µg/L	1	1/16/2017
Pyrene	ND	5.0		µg/L	1	1/16/2017
o-Toluidine	ND	2.0		µg/L	1	1/16/2017
Pyridine	ND	5.0		µg/L	1	1/16/2017
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	1/16/2017
Surr: 2,4,6-Tribromophenol	134	63-110	S	%Rec	1	1/16/2017
Surr: 2-Fluorobiphenyl	88.4	58-112		%Rec	1	1/16/2017
Surr: 2-Fluorophenol	88.2	47-109		%Rec	1	1/16/2017
Surr: Nitrobenzene-d5	99.6	58-110		%Rec	1	1/16/2017
Surr: Phenol-d5	97.0	52-105		%Rec	1	1/16/2017
Surr: Terphenyl-d14	23.9	22-133		%Rec	1	1/16/2017
CORROSIVITY						Analyst: **SUB**
pH	7.47			pH Units	1	1/12/2017
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>200			°F	1	1/12/2017
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	0.0802	0.0100		mg/L	1	1/18/2017
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	0.50	0.50		mg/L	1	1/16/2017
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5300	1.0		µmhos/cm	1	1/9/2017 3:38:00 PM
SM4500-H+B: PH						Analyst: **JRR**
pH	7.51	1.68	H	pH units	1	1/9/2017 3:38:00 PM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	165.9	20.00		mg/L CaCO3	1	1/11/2017 4:55:22 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	1/11/2017 4:55:22 PM
Total Alkalinity (as CaCO3)	165.9	20.00		mg/L CaCO3	1	1/11/2017 4:55:22 PM
SPECIFIC GRAVITY						Analyst: **LGT**
Specific Gravity	1.000	0			1	1/10/2017 12:21:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3310	40.0	*D	mg/L	1	1/11/2017 5:59:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well **Collection Date:** 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
2-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Acetonitrile	ND	2.5		µg/L	1	1/16/2017
Allyl chloride	ND	0.50		µg/L	1	1/16/2017
Chloroprene	ND	0.50		µg/L	1	1/16/2017
Cyclohexane	ND	2.0		µg/L	1	1/16/2017
Diethyl ether	ND	2.0		µg/L	1	1/16/2017
Diisopropyl ether	ND	2.0		µg/L	1	1/16/2017
Epichlorohydrin	ND	5.0		µg/L	1	1/16/2017
Ethyl acetate	ND	2.0		µg/L	1	1/16/2017
Ethyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Ethyl tert-butyl ether	ND	2.0		µg/L	1	1/16/2017
Freon-113	ND	2.0		µg/L	1	1/16/2017
Isobutanol	ND	10		µg/L	1	1/16/2017
Isopropyl acetate	ND	2.0		µg/L	1	1/16/2017
Methacrylonitrile	ND	2.5		µg/L	1	1/16/2017
Methyl acetate	ND	2.0		µg/L	1	1/16/2017
Methyl ethyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl isobutyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Methylcyclohexane	ND	2.0		µg/L	1	1/16/2017
n-Amyl acetate	ND	2.0		µg/L	1	1/16/2017
n-Hexane	ND	2.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
Pentachloroethane	ND	5.0		µg/L	1	1/16/2017
p-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Propionitrile	ND	2.5		µg/L	1	1/16/2017
Tetrahydrofuran	ND	0.50		µg/L	1	1/16/2017
Benzene	ND	0.50		µg/L	1	1/16/2017
Toluene	ND	0.50		µg/L	1	1/16/2017
Ethylbenzene	ND	0.50		µg/L	1	1/16/2017
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	1/16/2017
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	1/16/2017
Naphthalene	ND	0.50		µg/L	1	1/16/2017
Acetone	ND	2.5		µg/L	1	1/16/2017
Bromobenzene	ND	0.50		µg/L	1	1/16/2017
Bromodichloromethane	ND	0.50		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
Bromoform	ND	0.50		µg/L	1	1/16/2017
Bromomethane	ND	0.50		µg/L	1	1/16/2017
2-Butanone	ND	2.5		µg/L	1	1/16/2017
Carbon disulfide	ND	0.50		µg/L	1	1/16/2017
Carbon Tetrachloride	ND	0.50		µg/L	1	1/16/2017
Chlorobenzene	ND	0.50		µg/L	1	1/16/2017
Chloroethane	ND	0.50		µg/L	1	1/16/2017
Chloroform	ND	0.50		µg/L	1	1/16/2017
Chloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
4-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
cis-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	1/16/2017
Dibromochloromethane	ND	0.50		µg/L	1	1/16/2017
Dibromomethane	ND	0.50		µg/L	1	1/16/2017
1,2-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,3-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,4-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
Dichlorodifluoromethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,3-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
2,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	0.50		µg/L	1	1/16/2017
2-Hexanone	ND	0.50		µg/L	1	1/16/2017
Isopropylbenzene	ND	0.50		µg/L	1	1/16/2017
Methylene Chloride	ND	2.5		µg/L	1	1/16/2017
n-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
n-Propylbenzene	ND	0.50		µg/L	1	1/16/2017
sec-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
Styrene	ND	0.50		µg/L	1	1/16/2017
tert-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	1/16/2017
trans-1,2-DCE	ND	0.50		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well **Collection Date:** 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
Trichloroethene (TCE)	ND	0.50		µg/L	1	1/16/2017
Trichlorofluoromethane	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichloropropane	ND	0.50		µg/L	1	1/16/2017
Vinyl chloride	ND	0.50		µg/L	1	1/16/2017
mp-Xylenes	ND	1.0		µg/L	1	1/16/2017
o-Xylene	ND	0.50		µg/L	1	1/16/2017
tert-Amyl methyl ether	ND	2.0		µg/L	1	1/16/2017
tert-Butyl alcohol	ND	10		µg/L	1	1/16/2017
Acrolein	ND	2.5		µg/L	1	1/16/2017
Acrylonitrile	ND	2.5		µg/L	1	1/16/2017
Bromochloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chloroethyl vinyl ether	ND	4.0		µg/L	1	1/16/2017
Iodomethane	ND	0.50		µg/L	1	1/16/2017
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	1/16/2017
Vinyl acetate	ND	0.50		µg/L	1	1/16/2017
1,4-Dioxane	ND	20		µg/L	1	1/16/2017
Surr: 1,2-Dichlorobenzene-d4	101	70-130		%Rec	1	1/16/2017
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	1/16/2017
Surr: Toluene-d8	104	70-130		%Rec	1	1/16/2017

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**

28-Feb-17

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R39919**	RunNo: **39919**
Prep Date:	Analysis Date: **1/9/2017**	SeqNo: **1251098** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R39919**	RunNo: **39919**
Prep Date:	Analysis Date: **1/9/2017**	SeqNo: **1251099** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.8	90	110			
Bromide	2.5	0.10	2.500	0	99.5	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.9	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R39952**	RunNo: **39952**
Prep Date:	Analysis Date: **1/10/2017**	SeqNo: **1251860** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R39952**	RunNo: **39952**
Prep Date:	Analysis Date: **1/10/2017**	SeqNo: **1251861** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.2	90	110			
Sulfate	9.4	0.50	10.00	0	94.5	90	110			

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279689** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,1-Dichloropropene	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
2-Butanone	ND	2.5								
2-Hexanone	ND	0.50								
Acetone	ND	2.5								
Acetonitrile	ND	2.5								
Acrolein	ND	2.5								
Acrylonitrile	ND	2.5								
Allyl chloride	ND	0.50								
Benzene	ND	0.50								
Bromochloromethane	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
Chloroprene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
Dichlorodifluoromethane	ND	0.50								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**		TestCode: **EPA Method 8260B: VOLATILES**		
Client ID: **PBW**	Batch ID: **R40852**		RunNo: **40852**		
Prep Date:	Analysis Date: **1/16/2017**		SeqNo: **1279689**	Units: **µg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Ethyl methacrylate	ND	2.5								
Ethylbenzene	ND	0.50								
Iodomethane	ND	0.50								
Isobutanol	ND	10								
mp-Xylenes	ND	1.0								
Methacrylonitrile	ND	2.5								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	2.5								
Methylene Chloride	ND	2.5								
o-Xylene	ND	0.50								
Propionitrile	ND	2.5								
Styrene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
Toluene	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
Vinyl acetate	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
Vinyl chloride	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dioxane	ND	20								
2-Chloroethyl vinyl ether	ND	4.0								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
Bromobenzene	ND	0.50								
Cyclohexane	ND	2.0								
Diethyl ether	ND	2.0								
Diisopropyl ether	ND	2.0								
Epichlorohydrin	ND	5.0								
Ethyl acetate	ND	2.0								
Ethyl tert-butyl ether	ND	2.0								
Freon-113	ND	2.0								
Hexachlorobutadiene	ND	0.50								

Qualifiers:

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **R40852** RunNo: **40852**
Prep Date: Analysis Date: **1/16/2017** SeqNo: **1279689** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Isopropyl acetate	ND	2.0								
Isopropylbenzene	ND	0.50								
Methyl acetate	ND	2.0								
Methylcyclohexane	ND	2.0								
Methyl tert-butyl ether (MTBE)	ND	10								
n-Amyl acetate	ND	2.0								
Naphthalene	ND	0.50								
n-Butylbenzene	ND	0.50								
n-Hexane	ND	2.0								
Nitrobenzene	ND	5.0								
n-Propylbenzene	ND	0.50								
Pentachloroethane	ND	5.0								
p-isopropyltoluene	ND	0.50								
sec-Butylbenzene	ND	0.50								
tert-Amyl methyl ether	ND	2.0								
tert-Butyl alcohol	ND	10								
tert-Butylbenzene	ND	0.50								
Tetrahydrofuran	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
2,2-Dichloropropane	ND	0.50								
2-isopropyltoluene	ND	0.50								

Sample ID **LCS-R40852** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW** Batch ID: **R40852** RunNo: **40852**
Prep Date: Analysis Date: **1/16/2017** SeqNo: **1279690** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	2.1		2.000	0	107	80	120			
Benzene	2.0		2.000	0	102	80	120			
Chlorobenzene	1.9		2.000	0	96.5	80	120			
Ethylbenzene	2.0		2.000	0	99.2	80	120			
o-Xylene	2.0		2.000	0	102	80	120			
Tetrachloroethene (PCE)	1.9		2.000	0	95.0	80	120			
Toluene	2.1		2.000	0	106	80	120			
Trichloroethene (TCE)	2.1		2.000	0	103	80	120			
Cyclohexane	3.9		4.000	0	96.5	70	130			
n-Hexane	3.8		4.000	0	94.0	70	130			
Tetrahydrofuran	1.7		2.000	0	84.4	70	130			

Qualifiers:

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279692** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	0.50								
Atrazine	ND	0.50								
Benzaldehyde	ND	0.50								
Caprolactam	ND	0.50								
N-Nitroso-di-n-butylamine	ND	0.50								
Acetophenone	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2,3,4,6-Tetrachlorophenol	ND	0.50								
2,4,5-Trichlorophenol	ND	0.50								
2,4,6-Trichlorophenol	ND	0.50								
2,4-Dichlorophenol	ND	0.50								
2,4-Dimethylphenol	ND	0.50								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
2-Chloronaphthalene	ND	0.50								
2-Chlorophenol	ND	0.50								
2-Methylnaphthalene	ND	0.50								
2-Methylphenol	ND	0.50								
2-Nitroaniline	ND	0.50								
2-Nitrophenol	ND	0.50								
3,3′-Dichlorobenzidine	ND	0.50								
3-Nitroaniline	ND	0.50								
4,6-Dinitro-2-methylphenol	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.50								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
4-Chlorophenyl phenyl ether	ND	0.50								
4-Nitroaniline	ND	0.50								
4-Nitrophenol	ND	0.50								
Acenaphthene	ND	0.50								
Acenaphthylene	ND	0.50								
Anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								
Benzo(k)fluoranthene	ND	0.50								
Bis(2-chloroethoxy)methane	ND	0.50								

Qualifiers:

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279692** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroethyl)ether	ND	0.50								
Bis(2-chloroisopropyl)ether	ND	0.50								
Bis(2-ethylhexyl)phthalate	ND	0.50								
Butyl benzyl phthalate	ND	0.50								
Carbazole	ND	0.50								
Chrysene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Dibenzofuran	ND	0.50								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.50								
Di-n-butyl phthalate	ND	0.50								
Di-n-octyl phthalate	ND	0.50								
Fluoranthene	ND	0.50								
Fluorene	ND	0.50								
Hexachlorobenzene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
Hexachlorocyclopentadiene	ND	0.50								
Hexachloroethane	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Isophorone	ND	0.50								
Naphthalene	ND	0.50								
Nitrobenzene	ND	0.50								
N-Nitrosodi-n-propylamine	ND	0.50								
N-Nitrosodiphenylamine	ND	0.50								
Pentachlorophenol	ND	0.50								
Phenanthrene	ND	0.50								
Phenol	ND	0.50								
Pyrene	ND	0.50								
o-Toluidine	ND	0.50								
Pyridine	ND	0.50								
1,2,4,5-Tetrachlorobenzene	ND	0.50								

Sample ID **LCS-R40852**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279693** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	3.9	0.50	5.000	0	78.8	49	145			
2-Chlorophenol	4.1		5.000	0	81.6	50	131			

Qualifiers:

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R40852**	SampType: **LCS**		TestCode: **EPA 8270C: Semivolatiles/Mod**		
Client ID: **LCSW**	Batch ID: **R40852**		RunNo: **40852**		
Prep Date:	Analysis Date: **1/16/2017**		SeqNo: **1279693**	Units: **µg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chloro-3-methylphenol	4.6		5.000	0	93.0	42	139			
4-Nitrophenol	2.8		5.000	0	55.8	19	137			
Acenaphthene	4.5		5.000	0	89.6	36	131			
Bis(2-ethylhexyl)phthalate	4.6		5.000	0	91.6	43	148			
N-Nitrosodi-n-propylamine	4.8		5.000	0	96.4	46	135			
Pentachlorophenol	4.4		5.000	0	87.2	22	138			
Phenol	3.6		5.000	0	71.0	45	134			
Pyrene	4.8		5.000	0	95.6	45	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29607**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**29607**	RunNo:	**39928**					
Prep Date:	**1/9/2017**	Analysis Date:	**1/10/2017**	SeqNo:	**1251289**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-29607**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**29607**	RunNo:	**39928**					
Prep Date:	**1/9/2017**	Analysis Date:	**1/10/2017**	SeqNo:	**1251290**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**

28-Feb-17

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29638**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252475**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-29638**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252476**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.7	80	120			

Sample ID	**1701255-001CMS**	SampType:	**MS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252485**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.10	0.005000	0	116	75	125			

Sample ID	**1701255-001CMSD**	SampType:	**MSD**	TestCode:	**MERCURY, TCLP**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252486**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.10	0.005000	0	114	75	125	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29669**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**PBW**	Batch ID:	**29669**	RunNo:	**40172**					
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259320**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID	**LCS-29669**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**LCSW**	Batch ID:	**29669**	RunNo:	**40172**					
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259321**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.6	80	120			
Barium	ND	100	0.5000	0	97.4	80	120			
Cadmium	ND	1.0	0.5000	0	101	80	120			
Chromium	ND	5.0	0.5000	0	97.3	80	120			
Lead	ND	5.0	0.5000	0	98.1	80	120			
Selenium	ND	1.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**

28-Feb-17

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001BMS** SampType: **MS** TestCode: **EPA 6010B: Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**

Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258095** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.3	0.020	0.5000	0.6211	130	75	125			S
Antimony	0.53	0.050	0.5000	0	106	75	125			
Arsenic	0.57	0.020	0.5000	0.02614	109	75	125			
Barium	0.53	0.020	0.5000	0.02451	102	75	125			
Beryllium	0.52	0.0030	0.5000	0	104	75	125			
Cadmium	0.53	0.0020	0.5000	0	105	75	125			
Chromium	0.50	0.0060	0.5000	0	99.5	75	125			
Cobalt	0.50	0.0060	0.5000	0.001980	100	75	125			
Copper	0.59	0.0060	0.5000	0.01121	117	75	125			
Iron	1.8	0.050	0.5000	1.346	91.7	75	125			
Lead	0.51	0.0050	0.5000	0	102	75	125			
Magnesium	80	1.0	50.00	30.99	98.8	75	125			
Manganese	0.64	0.0020	0.5000	0.1301	101	75	125			
Nickel	0.51	0.010	0.5000	0.01117	99.1	75	125			
Potassium	80	1.0	50.00	30.50	98.6	75	125			
Selenium	0.52	0.050	0.5000	0	105	75	125			
Silver	0.11	0.0050	0.1000	0	107	75	125			
Thallium	0.56	0.050	0.5000	0.04293	104	75	125			
Vanadium	0.53	0.050	0.5000	0.004290	106	75	125			
Zinc	0.52	0.020	0.5000	0.01969	99.7	75	125			

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**

Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.3	0.020	0.5000	0.6211	134	75	125	1.38	20	S
Antimony	0.53	0.050	0.5000	0	105	75	125	0.685	20	
Arsenic	0.57	0.020	0.5000	0.02614	108	75	125	1.24	20	
Barium	0.53	0.020	0.5000	0.02451	102	75	125	0.204	20	
Beryllium	0.52	0.0030	0.5000	0	104	75	125	0.557	20	
Cadmium	0.53	0.0020	0.5000	0	105	75	125	0.243	20	
Chromium	0.50	0.0060	0.5000	0	99.2	75	125	0.346	20	
Cobalt	0.50	0.0060	0.5000	0.001980	99.9	75	125	0.559	20	
Copper	0.59	0.0060	0.5000	0.01121	116	75	125	0.300	20	
Iron	1.8	0.050	0.5000	1.346	98.2	75	125	1.79	20	
Lead	0.51	0.0050	0.5000	0	102	75	125	0.513	20	
Magnesium	80	1.0	50.00	30.99	98.0	75	125	0.479	20	
Manganese	0.64	0.0020	0.5000	0.1301	101	75	125	0.130	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**

28-Feb-17

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	0.51	0.010	0.5000	0.01117	99.0	75	125	0.142	20	
Potassium	79	1.0	50.00	30.50	97.5	75	125	0.698	20	
Selenium	0.55	0.050	0.5000	0	111	75	125	5.59	20	
Silver	0.11	0.0050	0.1000	0	108	75	125	0.214	20	
Thallium	0.57	0.050	0.5000	0.04293	106	75	125	1.14	20	
Vanadium	0.53	0.050	0.5000	0.004290	105	75	125	0.120	20	
Zinc	0.52	0.020	0.5000	0.01969	99.9	75	125	0.172	20	

Sample ID **1701255-001BPS** SampType: **PS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: Analysis Date: **1/18/2017** SeqNo: **1258097** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.2	0.020	0.5000	0.6211	124	80	120			S

Sample ID **1701255-001BMS** SampType: **MS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258099** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	150	5.0	50.00	98.98	97.6	75	125			

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258100** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	150	5.0	50.00	98.98	103	75	125	1.92	20	

Sample ID **MB-29669** SampType: **MBLK** TestCode: **EPA 6010B: Metals**
Client ID: **PBW** Batch ID: **29669** RunNo: **40172**
Prep Date: **1/12/2017** Analysis Date: **1/20/2017** SeqNo: **1259232** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29669**	SampType:	**MBLK**	TestCode:	**EPA 6010B: Metals**
Client ID:	**PBW**	Batch ID:	**29669**	RunNo:	**40172**
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259232** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID	**LCS-29669**	SampType:	**LCS**	TestCode:	**EPA 6010B: Metals**
Client ID:	**LCSW**	Batch ID:	**29669**	RunNo:	**40172**
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259233** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	111	80	120			
Antimony	0.52	0.050	0.5000	0	104	80	120			
Arsenic	0.50	0.020	0.5000	0	99.6	80	120			
Barium	0.49	0.020	0.5000	0	97.4	80	120			
Beryllium	0.51	0.0030	0.5000	0	102	80	120			
Cadmium	0.50	0.0020	0.5000	0	101	80	120			
Calcium	48	1.0	50.00	0	96.9	80	120			
Chromium	0.49	0.0060	0.5000	0	97.3	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.8	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.49	0.050	0.5000	0	97.1	80	120			
Lead	0.49	0.0050	0.5000	0	98.1	80	120			
Magnesium	49	1.0	50.00	0	98.3	80	120			
Manganese	0.48	0.0020	0.5000	0	96.2	80	120			
Nickel	0.48	0.010	0.5000	0	96.2	80	120			
Potassium	48	1.0	50.00	0	95.5	80	120			
Selenium	0.51	0.050	0.5000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**LCS-29669**	SampType:	**LCS**	TestCode:	**EPA 6010B: Metals**		
Client ID:	**LCSW**	Batch ID:	**29669**	RunNo:	**40172**		
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259233**	Units:	**mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.10	0.0050	0.1000	0	101	80	120			
Sodium	49	1.0	50.00	0	97.6	80	120			
Thallium	0.53	0.050	0.5000	0	106	80	120			
Vanadium	0.50	0.050	0.5000	0	100	80	120			
Zinc	0.48	0.020	0.5000	0	95.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-R40852**	SampType:	**MBLK**	TestCode:	**CYANIDE, Reactive**					
Client ID:	**PBW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/18/2017**	SeqNo:	**1279635**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.0100								

Sample ID	**LCS-R40852**	SampType:	**LCS**	TestCode:	**CYANIDE, Reactive**					
Client ID:	**LCSW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/18/2017**	SeqNo:	**1279636**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.486		0.5000	0	97.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-R40852**	SampType:	**MBLK**	TestCode:	**SULFIDE, Reactive**					
Client ID:	**PBW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/16/2017**	SeqNo:	**1279640**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.50								

Sample ID	**LCS-R40852**	SampType:	**LCS**	TestCode:	**SULFIDE, Reactive**					
Client ID:	**LCSW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/16/2017**	SeqNo:	**1279641**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**mb-1**	SampType:	**mblk**	TestCode:	**SM2320B: Alkalinity**					
Client ID:	**PBW**	Batch ID:	**R39972**	RunNo:	**39972**					
Prep Date:		Analysis Date:	**1/11/2017**	SeqNo:	**1252683**	Units:	**mg/L CaCO3**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	**lcs-1**	SampType:	**lcs**	TestCode:	**SM2320B: Alkalinity**					
Client ID:	**LCSW**	Batch ID:	**R39972**	RunNo:	**39972**					
Prep Date:		Analysis Date:	**1/11/2017**	SeqNo:	**1252684**	Units:	**mg/L CaCO3**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.84	20.00	80.00	0	97.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R39926** RunNo: **39926**
Prep Date: Analysis Date: **1/10/2017** SeqNo: **1251236** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.0600	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29623**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**29623**	RunNo:	**39966**					
Prep Date:	**1/10/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252489**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-29623**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**29623**	RunNo:	**39966**					
Prep Date:	**1/10/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252490**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1060	20.0	1000	0	106	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1701255 RcptNo: 1

Received by/date: RE 01/09/17

Logged By: **Ashley Gallegos** 1/9/2017 9:20:00 AM

Completed By: **Ashley Gallegos** 1/9/2017 10:01:26 AM

Reviewed By: 01/09/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes	No	Not Present ✔
2. Is Chain of Custody complete?	Yes ✔	No	Not Present
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ✔	No	NA
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
6. Sample(s) in proper container(s)?	Yes ✔	No	
7. Sufficient sample volume for indicated test(s)?	Yes ✔	No	
8. Are samples (except VOA and ONG) properly preserved?	Yes ✔	No	
9. Was preservative added to bottles?	Yes	No ✔	NA
10. VOA vials have zero headspace?	Yes ✔	No	No VOA Vials
11. Were any sample containers received broken?	Yes	No ✔	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	# of preserved bottles checked for pH: 2,2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ✔	No	Adjusted? NO
14. Is it clear what analyses were requested?	Yes ✔	No	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes No NA ✔

Person Notified: Date

By Whom: Via: eMail Phone Fax In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☒ Standar ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Brady Hubbard

On Ice: ☒ Yes ☐ No

Sample Temperature: 1 - 3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1701257	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
1/5/17	3:57	Liquid	Trip Blank	2	Neat	-002		X					
1/5/17	xxx	Liquid	Temperature Blank	1	Neat	-002							

Date:	Time:	Relinquished by:	Received by:	Date	Time
1.6.17	1:30	Brady Hubbard		1/9/17	0920
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HOLLYFRONTIER.

July 11, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 5918

RE: 2016 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2016 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1355 psig and the average flows were 131 gpm for WDW-1, 104 gpm for WDW-2 and 152 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2016 to June 30, 2016. We have disposed a total of 1,214,229 barrels of fluid into the three wells during the second quarter of 2016. The volume per well is:

- 417,759 barrels into WDW-1
- 331,533 barrels into WDW-2
- 483,519 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-748-5487.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2016 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	37,950,483
Apr-16	1,361	1,400	1,312	125	134	113	338	511	199	3,171	4,594	3,874	133,178	38,083,661
May-16	1,387	1,400	1,383	135	140	125	362	544	222	3,411	4,800	4,286	143,265	38,226,926
Jun-16	1,343	1,400	1,335	133	146	80	607	857	178	3,365	5,006	2,743	141,316	38,368,242
30-015-20894 WDW-2													**Previous Quarter**	24,863,592
Apr-16	1,360	1,400	1,222	103	113	89	312	432	220	2,598	3,874	3,051	109,111	24,972,703
May-16	1,388	1,400	1,377	112	117	105	301	391	218	2,843	4,011	3,600	119,407	25,092,110
Jun-16	1,315	1,400	1,335	97	121	80	346	455	194	2,453	4,149	2,743	103,015	25,195,125
30-015-26575 WDW-3													**Previous Quarter**	15,259,706
Apr-16	1,355	1,395	1,338	152	161	138	726	900	683	3,856	5,520	4,731	161,973	15,421,679
May-16	1,375	1,390	1,335	160	165	148	625	807	621	4,049	5,657	5,074	170,061	15,591,740
Jun-16	1,313	1,386	1,335	143	168	22	668	907	584	3,607	5,760	754	151,485	15,743,225
													Total Injected fluids:	79,306,592

	Monthly Avg.	Monthly Avg.
WDW-1	1,364	131
WDW-2	1,354	104
WDW-3	1,348	152

	Total BBLS	Beginning Volume	Ending Volume
WDW1	417,759	37,950,483	38,368,242
WDW2	331,533	24,863,592	25,195,125
WDW3	483,519	15,259,706	15,743,225
	1,232,811		79,306,592

HOLLYFRONTIER.

May 12, 2016

Submitted electronically via email to jim.griswold@state.nm.us and carlj.chavez@state.nm.us

Oil Conservation Division
New Mexico Energy, Minerals & Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: Discharge Permit GW-028
Monthly Report – April 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's April 2016 monthly report, for the period of April 1-30, 2016, under the Permit.

Specifically, this report covers the April 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

- Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.
- Analytical results of a discharge sample collected on April 5, 2016.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the two permanent RO units and the temporary RO unit on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. (Note that the temporary RO unit operated through April 2016, and will be replaced in the second quarter of 2016 with the permanent unit, as authorized by OCD on April 1, 2016.)

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the second quarter, samples were collected for the RO reject streams from the permanent units and temporary unit on April 5, 2016. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results are provided in Attachment 2.

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

Navajo is committed to proactively meeting the requirements of the Permit and working cooperatively with OCD. If you have any questions or comments, please contact me at 575-746-5487.

Sincerely,

Scott M. Denton
Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates
Attachment 2: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder
OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

	Permanent RO Units				Temporary Unit		Daily Discharge Volume
	Metered Data		Combined RO Reject Discharge (Calculated)		Total RO Reject Discharge (Calculated from Log Data)		
	GPM SOUTH	GPM NORTH	GPM	BBL/DAY	GPM	BBL/DAY	BBL
4/1/2016	68	82	151	5,163	131	4489	9,652
4/2/2016	73	87	160	5,488	133	4557	10,045
4/3/2016	73	85	159	5,443	130	4453	9,896
4/4/2016	72	81	153	5,247	134	4585	9,832
4/5/2016	0	8	8	270	146	4991	5,261
4/6/2016	0	57	57	1,958	132	4509	6,467
4/7/2016	3	8	10	356	136	4646	5,002
4/8/2016	102	36	138	4,730	141	4849	9,579
4/9/2016	111	89	200	6,867	140	4801	11,668
4/10/2016	106	90	195	6,701	134	4596	11,297
4/11/2016	113	94	207	7,090	139	4772	11,862
4/12/2016	113	92	205	7,014	145	4954	11,968
4/13/2016	111	89	200	6,873	148	5091	11,964
4/14/2016	114	102	216	7,392	155	5307	12,699
4/15/2016	109	83	191	6,553	157	5390	11,943
4/16/2016	110	83	194	6,644	149	5110	11,754
4/17/2016	113	86	199	6,824	131	4485	11,309
4/18/2016	109	81	190	6,529	119	4066	10,595
4/19/2016	103	82	186	6,365	148	5081	11,446
4/20/2016	108	85	193	6,611	152	5207	11,818
4/21/2016	108	80	188	6,434	143	4903	11,337
4/22/2016	106	82	188	6,440	137	4688	11,128
4/23/2016	87	77	164	5,616	136	4679	10,295
4/24/2016	84	81	165	5,662	139	4754	10,416
4/25/2016	66	82	149	5,096	134	4593	9,689
4/26/2016	75	88	163	5,603	131	4476	10,079
4/27/2016	82	78	159	5,460	136	4653	10,113
4/28/2016	81	73	154	5,273	139	4768	10,041
4/29/2016	84	82	166	5,708	129	4427	10,135
4/30/2016	82	81	163	5,590	126	4314	9,904

Attachment 2
Analytical Lab Report

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 12, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly R.O. Reject OrderNo.: 1604184

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/6/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**	
Arsenic	ND	0.0050		mg/L	5	4/19/2016 6:19:56 PM	A33644
Lead	ND	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
Selenium	ND	0.020		mg/L	20	4/20/2016 6:29:13 PM	A33677
Uranium	0.0067	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**	
Radium-226	1.02	0.578		pCi/L	1	4/29/2016	R34156
Radium-226 ±	0.608	0.578		pCi/L	1	4/29/2016	R34156
Radium-228	0.143	0.803		pCi/L	1	4/29/2016	R34156
Radium-228 ±	0.361	0.803		pCi/L	1	4/29/2016	R34156
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	4.7	2.0	*	mg/L	20	4/18/2016 10:52:15 PM	R33628
Chloride	390	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	4/7/2016 4:51:08 AM	R33368
Nitrogen, Nitrate (As N)	2.4	0.10		mg/L	1	4/7/2016 4:38:43 AM	R33368
Sulfate	2400	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	5190	20.0	*	mg/L	1	4/7/2016 3:22:00 PM	24656
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**	
Cyanide	ND	0.0100		mg/L	1	4/13/2016	R34156
SM4500-H+B: PH						Analyst: **MRA**	
pH	8.17	1.68	H	pH units	1	4/9/2016 2:23:07 AM	R33424
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Aluminum	ND	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Barium	0.094	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Boron	0.10	0.040		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cadmium	ND	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Chromium	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cobalt	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Copper	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Iron	0.034	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Manganese	ND	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Molybdenum	ND	0.0080		mg/L	1	4/18/2016 5:43:21 PM	A33606
Nickel	ND	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
Silver	ND	0.0050		mg/L	1	4/18/2016 5:43:21 PM	A33606
Zinc	0.027	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	4/15/2016 12:01:33 PM	24817
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:39:53 PM	24682
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1221	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1232	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1242	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1248	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1254	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1260	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Surr: Decachlorobiphenyl	121	26.1-140		%Rec	1	4/19/2016 2:38:24 AM	24708
Surr: Tetrachloro-m-xylene	95.2	15-123		%Rec	1	4/19/2016 2:38:24 AM	24708
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**	
Diesel Range Organics (DRO)	9.4	1.0		mg/L	1	4/8/2016 9:58:45 PM	24652
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/8/2016 9:58:45 PM	24652
Surr: DNOP	114	70-141		%Rec	1	4/8/2016 9:58:45 PM	24652
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 11:55:58 AM	R33412
Surr: BFB	89.0	49.5-130		%Rec	1	4/8/2016 11:55:58 AM	R33412
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
1-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
2-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
Benzo(a)pyrene	ND	0.070		µg/L	1	4/19/2016 11:30:48 AM	24709
Surr: Benzo(e)pyrene	74.7	33.4-129		%Rec	1	4/19/2016 11:30:48 AM	24709
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Toluene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:30:43 PM	R33550
Surr: 1,2-Dichloroethane-d4	98.3	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Dibromofluoromethane	110	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Toluene-d8	94.9	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/21/2016	24923

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-002
Client Sample ID: Trip Blank
Collection Date:
Matrix: TRIP BLANK
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:54:59 PM	24682
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 12:20:35 PM	R33412
Surr: BFB	85.7	49.5-130		%Rec	1	4/8/2016 12:20:35 PM	R33412
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Toluene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:59:37 PM	R33550
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Dibromofluoromethane	111	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Toluene-d8	96.2	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-A** SampType: **MBLK** TestCode: **EPA Method 200.7: Dissolved Metals**

Client ID: **PBW** Batch ID: **A33606** RunNo: **33606**

Prep Date: Analysis Date: **4/18/2016** SeqNo: **1034060** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID **LCS-A** SampType: **LCS** TestCode: **EPA Method 200.7: Dissolved Metals**

Client ID: **LCSW** Batch ID: **A33606** RunNo: **33606**

Prep Date: Analysis Date: **4/18/2016** SeqNo: **1034061** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID **LLLCS-A** SampType: **LCSLL** TestCode: **EPA Method 200.7: Dissolved Metals**

Client ID: **BatchQC** Batch ID: **A33606** RunNo: **33606**

Prep Date: Analysis Date: **4/18/2016** SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	ND	0.0020	0.002000	0	94.5	50	150			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	94.9	50	150			
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	ND	0.0060	0.006000	0	92.7	50	150			
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	ND	0.020	0.02000	0	98.6	50	150			
Manganese	ND	0.0020	0.002000	0	90.5	50	150			
Molybdenum	ND	0.0080	0.008000	0	99.0	50	150			
Nickel	ND	0.010	0.005000	0	86.2	50	150			
Silver	ND	0.0050	0.005000	0	92.6	50	150			
Zinc	ND	0.010	0.005000	0	108	50	150			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036133** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.5	85	115			
Lead	0.011	0.00050	0.01250	0	91.9	85	115			
Uranium	0.011	0.00050	0.01250	0	91.8	85	115			

Sample ID **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			
Lead	0.00052	0.00050	0.0005000	0	105	50	150			
Uranium	ND	0.00050	0.0005000	0	99.1	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Uranium	ND	0.00050								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037321** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.024	0.0010	0.02500	0	97.2	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037322** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0011	0.0010	0.001000	0	106	50	150			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037323** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24817**	SampType: **MBLK**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **PBW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-24817**	SampType: **LCS**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **LCSW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032805** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R33368**	RunNo: **33368**
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025773** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R33368**	RunNo: **33368**
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025774** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R33628**	RunNo: **33628**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035257** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R33628**	RunNo: **33628**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035258** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Chloride	4.8	0.50	5.000	0	96.7	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24682**	SampType: **MBLK**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **PBW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027492** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID **LCS-24682**	SampType: **LCS**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **LCSW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027494** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	116	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24652**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	70	141			

Sample ID **LCS-24652**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	71.3	139			
Surr: DNOP	0.53		0.5000		107	70	141			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027408** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.6	49.5	130			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027409** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.9	80	120			
Surr: BFB	19		20.00		96.6	49.5	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24708**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **PBW**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034347**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			

Sample ID **LCS-24708**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **LCSW**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034348**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5	1.0	5.000	0	130	15	131			
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S

Sample ID **LCSD-24708**	SampType: **LCSD**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **LCSS02**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034349**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **LCSW**	Batch ID: **R33550**	RunNo: **33550**							
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032303**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **PBW**	Batch ID: **R33550**	RunNo: **33550**							
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032305**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24709**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034469** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID **LCSD-24709**	SampType: **LCSD**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSS02**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034484**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.30	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	2[illegible].4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	33.4	129	0		

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24923**	SampType: **MBLK**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **PBW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037376**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID **LCS-24923**	SampType: **LCS**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **LCSW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037377**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	89.0	64.4	135			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-R34156**	SampType: **MBLK**	TestCode: **EPA 335.4: Total Cyanide Subbed**							
Client ID: **PBW**	Batch ID: **R34156**	RunNo: **34156**							
Prep Date:	Analysis Date: **4/13/2016**	SeqNo: **1053134**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID **LCS-R34156**	SampType: **LCS**	TestCode: **EPA 335.4: Total Cyanide Subbed**							
Client ID: **LCSW**	Batch ID: **R34156**	RunNo: **34156**							
Prep Date:	Analysis Date: **4/13/2016**	SeqNo: **1053135**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.507		0.5000	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-R34156**	SampType: **MBLK**	TestCode: **EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID: **PBW**	Batch ID: **R34156**	RunNo: **34156**
Prep Date:	Analysis Date: **4/29/2016**	SeqNo: **1053137** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	-2.01	0.933								
Radium-226 ±	0.459	0.933								
Radium-228	0.321	0.795								
Radium-228 ±	0.376	0.795								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24656**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025974** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-24656**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1604184 RcptNo: 1

Received by/date: 04/06/16

Logged By: Ashley Gallegos 4/6/2016 9:40:00 AM

Completed By: Ashley Gallegos 4/6/2016 12:24:03 PM

Reviewed By: 04/06/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 6 (1) (<2 or >12 unless noted)
Adjusted? NO
Checked by: AJS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

ent: Navajo Refinery

ailing Address: P.O. Box 159 Artesia,

M 88211-0159

one #: 575-748-3311

ail or Fax#: 575-746-5451

VQC Package:

Standard ☐ Level 4 (Full Validation)

Other

EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Brady Hubbard

On Ice: X Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB	Air Bubbles (Y or N)
4/5/16	8:15	liquid	R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001									X		X	X	X	X		Y
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	HCL		X															
4/5/16	8:15	liquid	R.O. Reject	1-500ml P	HNO3						X											
4/5/16	8:15	liquid	R.O. Reject	1-125ml P	HNO3				X													
4/5/16	8:15	liquid	R.O. Reject	1-500ml P	NaOH					X												
4/5/16	8:15	liquid	R.O. Reject	2- 1L P	HNO3									X								
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	Na2S2O3																X	
4/5/16	8:15	liquid	R.O. Reject	2 - 1L Glass	unpres								X									
4/5/16	8:15	liquid	R.O. Reject	1 - 1L Glass	unpres			X														
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	HCl							X										
4/5/16	8:15	liquid	R.O. Reject	1-250mlGlas	unpres							X										
4/5/16	8:15	liquid	R.O. Reject	1 - 1L Glass	H2SO4											X						
4/5/16	8:15	liquid	Trip Blank	2-40ml VOA	HCL	-002																

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/16	12:00	Elizabeth Salstern / Elizabeth Salstern		04/06/16	0940
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:
Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn
VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride
SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene

This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Quarterly RO Reject Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Brady Hubbard
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	4/5/2016 @ 8:05 a.m.
End Date and Time	4/5/2016 @ 8:30 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: ☐ North Field R.O. Reject Discarge ☑ South Field R.O. Reject Discarge

Container	Size	Material	Number	Preservatives: None	Ice	HCl	Nitric Acid	NaOH	Na2S2O3	NaHSO4	H2SO4	Other	Analysis and/or Method Requested
	500ml	Plastic	2	X			X						pH, Cl, F, S04, NO2/NO3, TDS
	40ml	VOA	3		X								8015 GRO
	500ml	Plastic	1			X							6020 total metals, 7470 Hg
	125ml	Plastic	1			X							6020 Dissolved Metals
	500ml	Plastic	2					X					Cyanide
	1L	Plastic	3			X							Radium 226/228
	40ml	VOA	2		X								8260 see attached list
	1L	Glass	1	X									8270 see attached list
	1L	Glass	2	X									8082 PCBs
	40ml	VOA	2	X									8015 DRO
	40ml	VOA	2		X								Radium 226/228

Field Data (Weather, Observations, etc.) and Date and Time: 4/5/2016 Tmp.55.4 °F, Humidity 41%, Wind Dir. SE, Wind Speed 4.6mph, Conditions Clear

Field Temp. 23.6C Field pH 7.05

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 10, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly Temporary R.O. Reject OrderNo.: 1604182

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/6/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1604182**
Date Reported: **5/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject
Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB						Analyst: **JME**
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:24:54 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1221	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1232	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1242	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1248	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1254	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1260	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Surr: Decachlorobiphenyl	106	26.1-140		%Rec	1	4/19/2016 2:04:17 AM
Surr: Tetrachloro-m-xylene	74.4	15-123		%Rec	1	4/19/2016 2:04:17 AM
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**
Diesel Range Organics (DRO)	2.4	1.0		mg/L	1	4/8/2016 9:37:25 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/8/2016 9:37:25 PM
Surr: DNOP	114	70-141		%Rec	1	4/8/2016 9:37:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 10:42:12 AM
Surr: BFB	84.7	49.5-130		%Rec	1	4/8/2016 10:42:12 AM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
1-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
2-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
Benzo(a)pyrene	ND	0.070		µg/L	1	4/19/2016 11:01:30 AM
Surr: Benzo(e)pyrene	101	33.4-129		%Rec	1	4/19/2016 11:01:30 AM
EPA METHOD 300.0: ANIONS						Analyst: **LGT**
Fluoride	1.9	0.10		mg/L	1	4/18/2016 10:02:35 PM
Chloride	55	10		mg/L	20	4/7/2016 5:15:57 AM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/7/2016 5:03:33 AM
Nitrogen, Nitrate (As N)	1.0	0.10		mg/L	1	4/7/2016 5:03:33 AM
Sulfate	880	25		mg/L	50	4/18/2016 10:15:00 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**
Aluminum	ND	0.020		mg/L	1	4/18/2016 5:39:41 PM
Barium	0.040	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Boron	0.052	0.040		mg/L	1	4/18/2016 5:39:41 PM
Cadmium	ND	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Chromium	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604182**
Date Reported: **5/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject
Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**
Cobalt	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM
Copper	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM
Iron	0.051	0.020		mg/L	1	4/18/2016 5:39:41 PM
Manganese	ND	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Molybdenum	ND	0.0080		mg/L	1	4/18/2016 5:39:41 PM
Nickel	ND	0.010		mg/L	1	4/18/2016 5:39:41 PM
Silver	ND	0.0050		mg/L	1	4/18/2016 5:39:41 PM
Zinc	0.032	0.010		mg/L	1	4/18/2016 5:39:41 PM
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**
Arsenic	ND	0.0050		mg/L	5	4/19/2016 6:16:53 PM
Lead	ND	0.00050		mg/L	1	4/19/2016 2:29:28 PM
Selenium	ND	0.0050		mg/L	5	4/20/2016 6:26:09 PM
Uranium	0.0029	0.00050		mg/L	1	4/19/2016 2:29:28 PM
EPA METHOD 245.1: MERCURY						Analyst: **pmf**
Mercury	ND	0.00020		mg/L	1	4/15/2016 11:59:33 AM
EPA METHOD 8260B: VOLATILES						Analyst: **AG**
Benzene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Toluene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:01:59 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:01:59 PM
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: Dibromofluoromethane	117	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: Toluene-d8	103	70-130		%Rec	1	4/14/2016 6:01:59 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604182**
Date Reported: **5/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject
Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/21/2016
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**
Cyanide	ND	0.0100		mg/L	1	4/8/2016
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**
Radium-226	5.67	0.512		pCi/L	1	4/26/2016 7:54:00 PM
Radium-226 ±	2.13	0.512		pCi/L	1	4/26/2016 7:54:00 PM
Radium-228	0.76	0.949		pCi/L	1	4/26/2016 7:54:00 PM
Radium-228 ±	0.5	0.949		pCi/L	1	4/26/2016 7:54:00 PM
SM4500-H+B: PH						Analyst: **MRA**
pH	8.26	1.68	H	pH units	1	4/9/2016 2:18:47 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	1870	20.0	*	mg/L	1	4/7/2016 3:22:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034060** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034061** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	ND	0.0020	0.002000	0	94.5	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	94.9	50	150			
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	ND	0.0060	0.006000	0	92.7	50	150			
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	ND	0.020	0.02000	0	98.6	50	150			
Manganese	ND	0.0020	0.002000	0	90.5	50	150			
Molybdenum	ND	0.0080	0.008000	0	99.0	50	150			
Nickel	ND	0.010	0.005000	0	86.2	50	150			
Silver	ND	0.0050	0.005000	0	92.6	50	150			
Zinc	ND	0.010	0.005000	0	108	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035657** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.013	0.00050	0.01250	0	100	85	115			
Uranium	0.012	0.00050	0.01250	0	97.5	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035658** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00054	0.00050	0.0005000	0	107	50	150			
Uranium	ND	0.00050	0.0005000	0	97.6	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035659** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Uranium	ND	0.00050								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036133** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.5	85	115			

Sample ID **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037321** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.024	0.0010	0.02500	0	97.2	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037322** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0011	0.0010	0.001000	0	106	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037323** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24817**	SampType: **MBLK**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **PBW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-24817**	SampType: **LCS**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **LCSW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032805** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R33368**	RunNo: **33368**							
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025773**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R33368**	RunNo: **33368**							
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025774**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R33628**	RunNo: **33628**							
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035257**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R33628**	RunNo: **33628**							
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035258**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24682**	SampType: **MBLK**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **PBW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027492** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID **LCS-24682**	SampType: **LCS**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **LCSW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027494** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	116	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24652**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	70	141			

Sample ID **LCS-24652**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	71.3	139			
Surr: DNOP	0.53		0.5000		107	70	141			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027408** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.6	49.5	130			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027409** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.9	80	120			
Surr: BFB	19		20.00		96.6	49.5	130			

Sample ID **1604182-001BMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Temporary R.O. Rej**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027412** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.4	70	130			
Surr: BFB	20		20.00		98.2	49.5	130			

Sample ID **1604182-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Temporary R.O. Rej**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027413** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.6	70	130	0.884	20	
Surr: BFB	20		20.00		99.5	49.5	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24708**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBW**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034347** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			

Sample ID **LCS-24708**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSW**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034348** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5	1.0	5.000	0	130	15	131			
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S

Sample ID **LCSD-24708**	SampType: **LCSD**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS02**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034349** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R33550**	RunNo: **33550**
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032303** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R33550**	RunNo: **33550**
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032305** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24709**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034469** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID **LCSD-24709**	SampType: **LCSD**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSS02**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034484** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.80	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	21.4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	33.4	129	0		

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24923**	SampType: **MBLK**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **PBW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037376**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID **LCS-24923**	SampType: **LCS**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **LCSW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037377**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	89.0	64.4	135			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-R34094**	SampType: **MBLK**	TestCode: **EPA 335.4: Total Cyanide Subbed**
Client ID: **PBW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1050918** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID **LCS-R34094**	SampType: **LCS**	TestCode: **EPA 335.4: Total Cyanide Subbed**
Client ID: **LCSW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1050919** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.512		0.5000	0	102	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-R34094**	SampType: **MBLK**	TestCode: **EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID: **PBW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/26/2016**	SeqNo: **1050921** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.965	0.799								
Radium-226 ±	0.644	0.799								
Radium-228	0.0941	0.772								
Radium-228 ±	0.341	0.772								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24656**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025974** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-24656**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1604182 RcptNo: 1

Received by/date: RM 04/06/16

Logged By: Ashley Gallegos 4/6/2016 9:40:00 AM AG

Completed By: Ashley Gallegos 4/6/2016 12:16:42 PM AG

Reviewed By: 04/06/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved? AJ	~~Yes ☑~~	No ☑	
9. Was preservative added to bottles?	Yes ☑	~~No ☑~~ AJ	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 6 1 (<2 or >12 unless noted)

Adjusted? Yes

Checked by: AJ

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks: For metals analysis: added 1 mL HNO3 to -0016 for acceptable PH

4/7 @ 1150 AJ

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

lient: Navajo Refinery

lailing Address: P.O. Box 159 Artesia,

M 88211-0159

hone #: 575-748-3311

mail or Fax#: 575-746-5451

A/QC Package:

St ndard ☐ Level 4 (Full Validation)

] Other

] EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly Temporary R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Brady Hubbard

On Ice: X Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type		8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB	Air Bubbles (Y or N)
4/5/16	7:45	liquid	Temporary R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001 -002									X		X	X	X	X		Y
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	HCL		X															
4/5/16	7:45	liquid	Temporary R.O. Reject	1-500ml P	HNO3						X											
4/5/16	7:45	liquid	Temporary R.O. Reject	1-125ml P	HNO3				X													
4/5/16	7:45	liquid	Temporary R.O. Reject	1-500ml P	NaOH					X												
4/5/16	7:45	liquid	Temporary R.O. Reject	2- 1L P	HNO3									X								
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	Na2S2O3																X	
4/5/16	7:45	liquid	Temporary R.O. Reject	2 - 1L Glass	unpres								X									
4/5/16	7:45	liquid	Temporary R.O. Reject	1 - 1L Glass	unpres			X														
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	HCl							X										
4/5/16	7:45	liquid	Temporary R.O. Reject	1-250mlGlass	unpres							X										
4/5/16	7:45	liquid	Temporary R.O. Reject	1 - 1L Glass	H2SO4	* Did not receive TB										X						
4/5/16	7:45	liquid	~~Trip Blank~~	2-40ml VOA	HCL	-003																

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/11/16	12:00	Elizabeth Salsbury		04/26/16	0940
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride

SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Quarterly Temporary RO Reject Sample Details

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Brady Hubbard
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	4/5/2016 @ 7:30 a.m.
End Date and Time	4/5/2016 @ 8:00 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall/Sample Location: ☐ North Field R.O. Reject Discarge ☑ South Field R.O. Reject Discarge

Container	Size	Container Material	# of Containers	Preservative: Ice	HCl	HNO3	H2SO4	NaOH	ZnAcetate	NaHSO4	Other	Analysis and Method Requested
	500ml	Plastic	2	X			X					pH, Cl, F, S04, NO2/NO3, TDS
	40ml	VOA	3		X							8015 GRO
	500ml	Plastic	1			X						6020 total metals, 7470 Hg
	125ml	Plastic	1			X						6020 Dissolved Metals
	500ml	Plastic	2					X				Cyanide
	1L	Plastic	3			X						Radium 226/228
	40ml	VOA	2		X							8260 see attached list
	1L	Glass	1	X								8270 see attached list
	1L	Glass	2	X								8082 PCBs
	40ml	VOA	2	X								8015 DRO
	40ml	VOA	2		X							Radium 226/228

Field Data (Weather Observations Etc) Time and Date: 4/5/2016 Tmp. 48.2 °F, Humidity 46%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear

Field Temp. 23.6C Field pH 7.05

Storage Method:	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media:	
Ice	☑
Other	☐

HOLLYFRONTIER.

May 13, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 3010 0000 3143 3326

RE: 2016 1st Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2016 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1338 psig and the average flows were 132 gpm for WDW-1, 98 gpm for WDW-2 and 155 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2016 to March 31, 2016. We have disposed a total of 1,214,229 barrels of fluid into the three wells during the first quarter of 2016. The volume per well is:

- 415,338 barrels into WDW-1
- 308,949 barrels into WDW-2
- 489,942 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, L.L.C.

2016 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	37,535,146
Jan-16	1,377	1,400	1,312	135	209	120	411	577	199	4,629	7,166	4,114	143,486	37,678,632
Feb-16	1,399	1,400	1,383	131	142	128	401	637	222	4,491	4,869	4,389	134,743	37,813,375
Mar-16	1,389	1,400	1,335	129	133	119	284	417	178	4,423	4,560	4,080	137,109	37,950,483
30-015-20894 WDW-2													**Previous Quarter**	24,554,643
Jan-16	1,329	1,390	1,222	85	104	52	271	350	220	2,914	3,566	1,783	90,343	24,644,986
Feb-16	1,394	1,400	1,377	103	107	98	300	423	218	3,531	3,669	3,360	105,943	24,750,929
Mar-16	1,385	1,400	1,335	106	111	95	292	437	194	3,634	3,806	3,257	112,663	24,863,592
30-015-26575 WDW-3													**Previous Quarter**	14,769,763
Jan-16	1,377	1,390	1,338	152	158	139	849	965	683	5,211	5,417	4,766	161,554	14,931,317
Feb-16	1,387	1,390	1,335	156	159	143	699	768	621	5,349	5,451	4,903	160,457	15,091,774
Mar-16	1,384	1,400	1,335	158	162	147	675	732	584	5,417	5,554	5,040	167,931	15,259,706
													Total Injected fluids:	78,073,781

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 15, 2016

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1601864

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/22/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	1/29/2016	R32136
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	ND	1.0		mg/L	1	1/29/2016	R32136
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.006	0			1	1/27/2016 3:13:00 PM	R31723
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	20	2.0	*	mg/L	20	1/23/2016 12:57:44 AM	R31638
Chloride	570	25		mg/L	50	1/26/2016 11:44:39 PM	R31714
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	1/23/2016 12:45:19 AM	R31638
Bromide	2.1	2.0		mg/L	20	1/23/2016 12:57:44 AM	R31638
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	1/23/2016 12:45:19 AM	R31638
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	1/23/2016 12:45:19 AM	R31638
Sulfate	2000	25		mg/L	50	1/26/2016 11:44:39 PM	R31714
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5600	0.010		µmhos/cm	1	1/25/2016 8:12:02 PM	R31664
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	220.4	20.00		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
Total Alkalinity (as CaCO3)	220.4	20.00		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3780	40.0	*D	mg/L	1	1/28/2016 6:43:00 PM	23428
CORROSIVITY						Analyst: **SUB**	
pH	7.16			pH Units	1	1/28/2016	R32136
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	2/4/2016	R32136
EPA METHOD 7470: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	1/25/2016 4:48:50 PM	23378
MERCURY, TCLP						Analyst: **pmf**	
Mercury	ND	0.020		mg/L	1	1/28/2016 11:50:30 AM	23438
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Barium	ND	100		mg/L	1	1/25/2016 11:17:08 AM	23359
Cadmium	ND	1.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Chromium	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Lead	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Selenium	ND	1.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Silver	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	1.0	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Antimony	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Arsenic	ND	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Barium	ND	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Beryllium	ND	0.0030		mg/L	1	1/27/2016 10:18:42 AM	23359
Cadmium	ND	0.0020		mg/L	1	1/27/2016 10:18:42 AM	23359
Calcium	39	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Chromium	ND	0.0060		mg/L	1	1/27/2016 10:18:42 AM	23359
Cobalt	ND	0.0060		mg/L	1	1/28/2016 10:29:14 AM	23359
Copper	0.012	0.0060		mg/L	1	1/27/2016 10:18:42 AM	23359
Iron	7.6	0.25		mg/L	5	1/27/2016 10:20:32 AM	23359
Lead	ND	0.0050		mg/L	1	1/27/2016 10:18:42 AM	23359
Magnesium	13	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Manganese	0.15	0.0020		mg/L	1	1/27/2016 10:18:42 AM	23359
Nickel	0.042	0.010		mg/L	1	1/27/2016 10:18:42 AM	23359
Potassium	72	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Selenium	0.53	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Silver	ND	0.0050		mg/L	1	1/27/2016 10:18:42 AM	23359
Sodium	1200	50		mg/L	50	1/29/2016 11:10:54 AM	23359
Thallium	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Vanadium	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Zinc	0.035	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	12		µg/L	1	2/2/2016	R32136
Allyl chloride	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroprene	ND	2.5		µg/L	1	2/2/2016	R32136
Cyclohexane	ND	2.5		µg/L	1	2/2/2016	R32136
Diethyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Diisopropyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Epichlorohydrin	ND	25		µg/L	1	2/2/2016	R32136
Ethyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Ethyl methacrylate	ND	12		µg/L	1	2/2/2016	R32136
Ethyl tert-butyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Freon-113	ND	2.5		µg/L	1	2/2/2016	R32136

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EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Isobutanol	ND	25		µg/L	1	2/2/2016	R32136
Isopropyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Methacrylonitrile	ND	12		µg/L	1	2/2/2016	R32136
Methyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl ethyl ketone	ND	12		µg/L	1	2/2/2016	R32136
Methyl isobutyl ketone	ND	12		µg/L	1	2/2/2016	R32136
Methyl methacrylate	ND	12		µg/L	1	2/2/2016	R32136
Methylcyclohexane	ND	5.0		µg/L	1	2/2/2016	R32136
n-Amyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
n-Hexane	ND	2.5		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	25		µg/L	1	2/2/2016	R32136
Pentachloroethane	ND	25		µg/L	1	2/2/2016	R32136
p-isopropyltoluene	ND	2.5		µg/L	1	2/2/2016	R32136
Propionitrile	ND	12		µg/L	1	2/2/2016	R32136
Tetrahydrofuran	ND	2.5		µg/L	1	2/2/2016	R32136
Benzene	ND	2.5		µg/L	1	2/2/2016	R32136
Toluene	ND	2.5		µg/L	1	2/2/2016	R32136
Ethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl tert-butyl ether (MTBE)	3.2	2.5		µg/L	1	2/2/2016	R32136
1,2,4-Trimethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,3,5-Trimethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	1	2/2/2016	R32136
Naphthalene	ND	2.5		µg/L	1	2/2/2016	R32136
Acetone	100	12		µg/L	1	2/2/2016	R32136
Bromobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Bromodichloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
Bromoform	ND	2.5		µg/L	1	2/2/2016	R32136
Bromomethane	ND	2.5		µg/L	1	2/2/2016	R32136
Carbon disulfide	ND	2.5		µg/L	1	2/2/2016	R32136
Carbon Tetrachloride	ND	2.5		µg/L	1	2/2/2016	R32136
Chlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroform	ND	2.5		µg/L	1	2/2/2016	R32136
Chloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
2-Chlorotoluene	ND	2.5		µg/L	1	2/2/2016	R32136
4-Chlorotoluene	ND	2.5		µg/L	1	2/2/2016	R32136
cis-1,2-DCE	ND	2.5		µg/L	1	2/2/2016	R32136
cis-1,3-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136

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Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2-Dibromo-3-chloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
Dibromochloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
Dibromomethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,3-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,4-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Dichlorodifluoromethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloroethene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
1,3-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
2,2-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	2.5		µg/L	1	2/2/2016	R32136
2-Hexanone	ND	2.5		µg/L	1	2/2/2016	R32136
Isopropylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Methylene Chloride	ND	12		µg/L	1	2/2/2016	R32136
n-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
n-Propylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
sec-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Styrene	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Tetrachloroethene (PCE)	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,2-DCE	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,3-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,3-Trichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,4-Trichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,1-Trichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,2-Trichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Trichloroethene (TCE)	ND	2.5		µg/L	1	2/2/2016	R32136
Trichlorofluoromethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,3-Trichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
Vinyl chloride	ND	2.5		µg/L	1	2/2/2016	R32136
mp-Xylenes	ND	5.0		µg/L	1	2/2/2016	R32136
o-Xylene	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Amyl methyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Butyl alcohol	ND	25		µg/L	1	2/2/2016	R32136

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EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acrolein	ND	12		µg/L	1	2/2/2016	R32136
Acrylonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Bromochloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Iodomethane	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,4-Dichloro-2-butene	ND	2.5		µg/L	1	2/2/2016	R32136
Vinyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	100		µg/L	1	2/2/2016	R32136
Surr: 1,2-Dichlorobenzene-d4	89.2	70-130		%Rec	1	2/2/2016	R32136
Surr: 4-Bromofluorobenzene	94.0	70-130		%Rec	1	2/2/2016	R32136
Surr: Toluene-d8	99.6	70-130		%Rec	1	2/2/2016	R32136
EPA 8270D: SEMIVOLATILES							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	5.0		µg/L	1	2/2/2016	R32136
Atrazine	ND	5.0		µg/L	1	2/2/2016	R32136
Benzaldehyde	ND	5.0		µg/L	1	2/2/2016	R32136
Caprolactam	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	2/2/2016	R32136
Acetophenone	ND	5.0		µg/L	1	2/2/2016	R32136
1-Methylnaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dimethylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dinitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dinitrotoluene	ND	5.0		µg/L	1	2/2/2016	R32136
2,6-Dinitrotoluene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Chloronaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Chlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2-Methylnaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
2-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
2-Nitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	2/2/2016	R32136
3-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	2/2/2016	R32136
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136

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EPA 8270D: SEMIVOLATILES						Analyst: **SUB**	
4-Chloroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	2/2/2016	R32136
4-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4-Nitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
Acenaphthene	ND	5.0		µg/L	1	2/2/2016	R32136
Acenaphthylene	ND	5.0		µg/L	1	2/2/2016	R32136
Anthracene	ND	5.0		µg/L	1	2/2/2016	R32136
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	2/2/2016	R32136
Benz(a)anthracene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(a)pyrene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(b)fluoranthene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(k)fluoranthene	ND	0.50		µg/L	1	2/2/2016	R32136
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Butyl benzyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Carbazole	ND	5.0		µg/L	1	2/2/2016	R32136
Chrysene	ND	0.50		µg/L	1	2/2/2016	R32136
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	2/2/2016	R32136
Dibenzofuran	ND	5.0		µg/L	1	2/2/2016	R32136
Diethyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Dimethyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Di-n-butyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Di-n-octyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Fluoranthene	ND	5.0		µg/L	1	2/2/2016	R32136
Fluorene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachloroethane	ND	5.0		µg/L	1	2/2/2016	R32136
Indeno(1,2,3-cd)pyrene	ND	0.50		µg/L	1	2/2/2016	R32136
Isophorone	ND	5.0		µg/L	1	2/2/2016	R32136
Naphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	2/2/2016	R32136
Pentachlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
Phenanthrene	ND	5.0		µg/L	1	2/2/2016	R32136

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270D: SEMIVOLATILES						Analyst: **SUB**	
Phenol	ND	5.0		µg/L	1	2/2/2016	R32136
Pyrene	ND	5.0		µg/L	1	2/2/2016	R32136
o-Toluidine	ND	5.0		µg/L	1	2/2/2016	R32136
Pyridine	ND	5.0		µg/L	1	2/2/2016	R32136
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Surr: 2,4,6-Tribromophenol	94.2	10-123		%Rec	1	2/2/2016	R32136
Surr: 2-Fluorobiphenyl	80.4	19-130		%Rec	1	2/2/2016	R32136
Surr: 2-Fluorophenol	82.8	21-120		%Rec	1	2/2/2016	R32136
Surr: Nitrobenzene-d5	89.6	25-130		%Rec	1	2/2/2016	R32136
Surr: Phenol-d5	86.0	10-130		%Rec	1	2/2/2016	R32136
Surr: Terphenyl-d14	32.8	20-137		%Rec	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1601864-002 **Matrix:** TRIP BLANK **Received Date:** 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Allyl chloride	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroprene	ND	0.50		µg/L	1	2/2/2016	R32136
Cyclohexane	ND	0.50		µg/L	1	2/2/2016	R32136
Diethyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Diisopropyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Epichlorohydrin	ND	5.0		µg/L	1	2/2/2016	R32136
Ethyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Ethyl methacrylate	ND	2.5		µg/L	1	2/2/2016	R32136
Ethyl tert-butyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Freon-113	ND	0.50		µg/L	1	2/2/2016	R32136
Isobutanol	ND	5.0		µg/L	1	2/2/2016	R32136
Isopropyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Methacrylonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Methyl ethyl ketone	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl isobutyl ketone	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl methacrylate	ND	2.5		µg/L	1	2/2/2016	R32136
Methylcyclohexane	ND	1.0		µg/L	1	2/2/2016	R32136
n-Amyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
n-Hexane	ND	0.50		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Pentachloroethane	ND	5.0		µg/L	1	2/2/2016	R32136
p-isopropyltoluene	ND	0.50		µg/L	1	2/2/2016	R32136
Propionitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Tetrahydrofuran	ND	0.50		µg/L	1	2/2/2016	R32136
Benzene	ND	0.50		µg/L	1	2/2/2016	R32136
Toluene	ND	0.50		µg/L	1	2/2/2016	R32136
Ethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	2/2/2016	R32136
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	2/2/2016	R32136
Naphthalene	ND	0.50		µg/L	1	2/2/2016	R32136
Acetone	ND	2.5		µg/L	1	2/2/2016	R32136
Bromobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Bromodichloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
Bromoform	ND	0.50		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	2/2/2016	R32136
Carbon disulfide	ND	0.50		µg/L	1	2/2/2016	R32136
Carbon Tetrachloride	ND	0.50		µg/L	1	2/2/2016	R32136
Chlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroform	ND	0.50		µg/L	1	2/2/2016	R32136
Chloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
2-Chlorotoluene	ND	0.50		µg/L	1	2/2/2016	R32136
4-Chlorotoluene	ND	0.50		µg/L	1	2/2/2016	R32136
cis-1,2-DCE	ND	0.50		µg/L	1	2/2/2016	R32136
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
Dibromochloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
Dibromomethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,3-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,4-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Dichlorodifluoromethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloroethene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
1,3-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
2,2-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	0.50		µg/L	1	2/2/2016	R32136
2-Hexanone	ND	0.50		µg/L	1	2/2/2016	R32136
Isopropylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Methylene Chloride	ND	2.5		µg/L	1	2/2/2016	R32136
n-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
n-Propylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
sec-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Styrene	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,2-DCE	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,1-Trichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,2-Trichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Trichloroethene (TCE)	ND	0.50		µg/L	1	2/2/2016	R32136
Trichlorofluoromethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,2,3-Trichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
Vinyl chloride	ND	0.50		µg/L	1	2/2/2016	R32136
mp-Xylenes	ND	1.0		µg/L	1	2/2/2016	R32136
o-Xylene	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Amyl methyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Butyl alcohol	ND	5.0		µg/L	1	2/2/2016	R32136
Acrolein	ND	2.5		µg/L	1	2/2/2016	R32136
Acrylonitrile	ND	0.50		µg/L	1	2/2/2016	R32136
Bromochloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Iodomethane	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	2/2/2016	R32136
Vinyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	20		µg/L	1	2/2/2016	R32136
Surr: 1,2-Dichlorobenzene-d4	89.2	70-130		%Rec	1	2/2/2016	R32136
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	1	2/2/2016	R32136
Surr: Toluene-d8	99.6	70-130		%Rec	1	2/2/2016	R32136

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R31638**	RunNo: **31638**
Prep Date:	Analysis Date: **1/22/2016**	SeqNo: **968134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R31638**	RunNo: **31638**
Prep Date:	Analysis Date: **1/22/2016**	SeqNo: **968135** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.4	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.1	90	110			
Bromide	2.5	0.10	2.500	0	98.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.2	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.3	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R31714**	RunNo: **31714**
Prep Date:	Analysis Date: **1/26/2016**	SeqNo: **970466** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R31714**	RunNo: **31714**
Prep Date:	Analysis Date: **1/26/2016**	SeqNo: **970467** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.5	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	2.5								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	10								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	2.5								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	2.5								
Methylcyclohexane	ND	0.50								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	0.50								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	2.5								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	2.5								
Acrylonitrile	ND	2.5								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	0.50								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982422** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.8		10.00	0	97.7	80	120			
Toluene	9.8		10.00	0	98.4	80	120			
Ethylbenzene	10		10.00	0	102	80	120			
Chlorobenzene	9.6		10.00	0	96.0	80	120			
1,1-Dichloroethene	9.6		10.00	0	96.4	80	120			
Tetrachloroethene (PCE)	9.2		10.00	0	92.4	80	120			
Trichloroethene (TCE)	9.8		10.00	0	98.0	80	120			
o-Xylene	10		10.00	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982533** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	5.0								
1,4-Dioxane	ND	5.0								
Atrazine	ND	5.0								
Benzaldehyde	ND	5.0								
Caprolactam	ND	5.0								
N-Nitroso-di-n-butylamine	ND	5.0								
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3'-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982533** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	5.0								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
o-Toluidine	ND	2.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982534** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.6		5.000	0	93.0	49	134			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982534** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Chlorophenol	4.6		5.000	0	91.6	50	131			
4-Chloro-3-methylphenol	4.7		5.000	0	94.4	42	139			
4-Nitrophenol	4.5		5.000	0	90.2	19	137			
Acenaphthene	5.0		5.000	0	100	36	122			
Bis(2-ethylhexyl)phthalate	5.2		5.000	0	105	50	150			
N-Nitrosodi-n-propylamine	4.7		5.000	0	93.6	46	135			
Pentachlorophenol	3.7		5.000	0	73.2	22	138			
Phenol	5.2		5.000	0	103	45	134			
Pyrene	4.7		5.000	0	93.2	45	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-23378**	SampType: **MBLK**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968855**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-23378**	SampType: **LCS**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968856**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	80	120			

Sample ID	**1601864-001BMS**	SampType: **MS**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968858**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0040	0.00020	0.005000	.00006177	79.6	75	125			

Sample ID	**1601864-001BMSD**	SampType: **MSD**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968859**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0041	0.00020	0.005000	.00006177	80.1	75	125	0.688	20	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-23438**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**23438**	RunNo:	**31746**					
Prep Date:	**1/27/2016**	Analysis Date:	**1/28/2016**	SeqNo:	**971551**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-23438**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**23438**	RunNo:	**31746**					
Prep Date:	**1/27/2016**	Analysis Date:	**1/28/2016**	SeqNo:	**971552**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968535** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968536** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	96.1	80	120			
Barium	ND	100	0.5000	0	94.0	80	120			
Cadmium	ND	1.0	0.5000	0	92.5	80	120			
Chromium	ND	5.0	0.5000	0	93.7	80	120			
Lead	ND	5.0	0.5000	0	92.9	80	120			
Selenium	ND	1.0	0.5000	0	95.8	80	120			
Silver	ND	5.0	0.1000	0	92.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968316** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968317** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	91.9	80	120			
Antimony	0.48	0.050	0.5000	0	95.5	80	120			
Arsenic	0.48	0.020	0.5000	0	96.1	80	120			
Barium	0.47	0.020	0.5000	0	94.0	80	120			
Beryllium	0.49	0.0030	0.5000	0	99.0	80	120			
Cadmium	0.46	0.0020	0.5000	0	92.5	80	120			
Chromium	0.47	0.0060	0.5000	0	93.7	80	120			
Copper	0.47	0.0060	0.5000	0	94.5	80	120			
Iron	0.48	0.050	0.5000	0	95.5	80	120			
Lead	0.46	0.0050	0.5000	0	92.9	80	120			
Manganese	0.47	0.0020	0.5000	0	93.5	80	120			
Nickel	0.46	0.010	0.5000	0	92.2	80	120			
Potassium	44	1.0	50.00	0	88.6	80	120			
Selenium	0.48	0.050	0.5000	0	95.8	80	120			
Silver	0.092	0.0050	0.1000	0	92.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968317** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.47	0.050	0.5000	0	93.8	80	120			
Vanadium	0.49	0.050	0.5000	0	98.1	80	120			
Zinc	0.48	0.020	0.5000	0	95.2	80	120			

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31648**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968397** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Sodium	ND	1.0								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31648**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968398** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.1	80	120			
Magnesium	49	1.0	50.00	0	98.8	80	120			
Sodium	48	1.0	50.00	0	96.6	80	120			

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31737**
Prep Date: **1/22/2016**	Analysis Date: **1/28/2016**	SeqNo: **971326** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	ND	0.0060								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31737**
Prep Date: **1/22/2016**	Analysis Date: **1/28/2016**	SeqNo: **971327** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	0.46	0.0060	0.5000	0	91.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **2/4/2016**	SeqNo: **982430**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **2/4/2016**	SeqNo: **982431**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.542		0.5000	0	108	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **1/29/2016**	SeqNo: **982433**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **1/29/2016**	SeqNo: **982434**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R31664**	RunNo: **31664**							
Prep Date:	Analysis Date: **1/25/2016**	SeqNo: **968939**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R31664**	RunNo: **31664**							
Prep Date:	Analysis Date: **1/25/2016**	SeqNo: **968940**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.44	20.00	80.00	0	94.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1601864-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R31723** RunNo: **31723**

Prep Date: Analysis Date: **1/27/2016** SeqNo: **970796** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.004	0						0.179	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23428**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971754** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-23428**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971755** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Sample ID **1601864-001AMS**	SampType: **MS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971765** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	5800	40.0	2000	3784	101	80	120			D

Sample ID **1601864-001AMSD**	SampType: **MSD**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971766** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	5820	40.0	2000	3784	102	80	120	0.379	5	D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1601864 RcptNo: 1

Received by/date: LM 01/22/16

Logged By: Michelle Garcia 1/22/2016 9:40:00 AM Michelle Garcia

Completed By: Michelle Garcia 1/22/2016 11:23:27 AM Michelle Garcia

Reviewed By: JO 01/27/16

Chain of Custody

		Yes	No	Not Present
1	Custody seals intact on sample bottles?	☐	☐	☑
2.	Is Chain of Custody complete?	☑	☐	☐
3.	How was the sample delivered?	Courier		

Log In

		Yes	No	NA
4	Was an attempt made to cool the samples?	☑	☐	☐
5.	Were all samples received at a temperature of >0° C to 6.0°C	☑	☐	☐
6	Sample(s) in proper container(s)?	☑	☐	
7	Sufficient sample volume for indicated test(s)?	☑	☐	
8	Are samples (except VOA and ONG) properly preserved?	☑	☐	
9	Was preservative added to bottles?	☐	☑	☐
10.	VOA vials have zero headspace?	☐	☐	☑ No VOA Vials
11.	Were any sample containers received broken?	☐	☑	
12.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	☑	☐	# of preserved bottles checked for pH: 2,2 (2 or >12 unless noted)
13.	Are matrices correctly identified on Chain of Custody?	☑	☐	Adjusted? No
14.	Is it clear what analyses were requested?	☑	☐	
15.	Were all holding times able to be met? (If no, notify customer for authorization.)	☑	☐	Checked by: MG

Special Handling (if applicable)

16.	Was client notified of all discrepancies with this order?	☐	☐	☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.2	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standar ☐ **Rush**

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1601864	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH cond ,Fl, Cation/anion bal., Br, Fh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136 3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
1/21/16	7 35	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
1/21/16	7 35	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
1/21/16	7:35	Liquid	Trip Blank	2	Neat	-002		X					
1/21/16	7:35	Liquid	Temperature Blank	1	Neat								

Date	Time	Relinquished by	Received by	Date	Time
1/21/2016	1:00	Elizabeth Salsberry			
Date	Time	Relinquished by	Received by	01/22/16	0440

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	1/21/2016 @ 7:30 a.m.
End Date and Time	1/21/2016 @ 7:40 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east) ☐ P-856 sample point (third from east)
☑ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

Container	Size	Material	# of Containers	Preservatives: Ice (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/Or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS pH, cond., Fl Cation/anion ba., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc):	1/21/2016 Temp. 37.4 °F Humidity 70% Wind direction NW Wind Speed 11.5 mph Condition Clear
Date and Time	

Field Temp. 40.7C Field pH 7.49

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

February 4, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 3010 0000 3143 3111

RE: 2015 4th Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1361 psig and the average flows were 123 gpm for WDW-1, 91 gpm for WDW-2 and 140 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from October 1, 2015 to December 31, 2015. We have disposed a total of 1,115,486 barrels of fluid into the three wells during the fourth quarter of 2015. The volume per well is:

- 388,046 barrels into WDW-1
- 287,006 barrels into WDW-2
- 440,434 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2015 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	37,147,100
Oct-15	1,379	1,400	1,234	124	129	95	480	837	305	4,251	4,423	3,257	131,794	37,278,894
Nov-15	1,376	1,400	1,252	121	128	94	335	447	91	4,149	4,389	3,223	124,457	37,403,351
Dec-15	1,342	1,400	1,256	124	256	99	398	661	193	4,251	8,777	3,394	131,794	37,535,146
WDW-2													**Previous Quarter**	24,267,637
Oct-15	1,378	1,234	1,252	102	181	59	467	769	248	3,497	6,206	2,023	108,411	24,376,048
Nov-15	1,376	1,400	1,252	92	100	54	341	787	217	3,154	3,429	1,851	94,629	24,470,677
Dec-15	1,326	1,400	1,253	79	99	55	281	345	209	2,709	3,394	1,886	83,966	24,554,643
WDW-3													**Previous Quarter**	14,329,329
Oct-15	1,370	1,390	1,233	141	769	52	855	1,006	708	4,834	26,366	1,783	149,863	14,479,192
Nov-15	1,369	1,390	1,252	143	151	110	857	983	686	4,903	5,177	3,771	147,086	14,626,278
Dec-15	1,334	1,390	1,255	135	151	108	812	965	715	4,629	5,177	3,703	143,486	14,769,763
													Total Injected fluids:	76,859,552

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Navajo Refining Company, L.L.C.

2015 FOURTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/6/15	10/12/15	10/19/15	10/26/15	11/2/15	11/9/15	11/16/15	11/23/15	11/30/15	12/7/15	12/14/16	12/16/15	12/21/15	12/28/15
WDW -1[1]	100	100	155**	150	150	150	145	145	145	145	145		145	Inaccessible
WDW-2[1]	100	100	150**	150	145	145	150	150	150	150	150		150	Inaccessible
WDW-3[1]	255*	170	250	310***	150	250	130****	150	200	245	255	300*****	145	Inaccessible
Comments: * Removed 130 gal. ** Added 55 gal. glycol *** Removed 255 gal. ****Removed 180 gal. *****Removed 200 gal.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

Page 662 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 24, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1510908

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/20/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	10/23/2015	R30423
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	ND	1.0		mg/L	1	10/23/2015	R30423
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9991	0			1	10/20/2015 1:22:00 PM	R29675
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	5.5	0.50	*	mg/L	5	10/20/2015 2:08:09 PM	R29684
Chloride	520	50		mg/L	100	10/27/2015 11:24:40 PM	R29842
Bromide	0.72	0.50		mg/L	5	10/20/2015 2:08:09 PM	R29684
Phosphorus, Orthophosphate (As P)	ND	10	H	mg/L	20	11/7/2015 4:57:03 AM	A30103
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	11/3/2015 11:53:29 PM	R29992
Sulfate	2700	50		mg/L	100	10/27/2015 11:24:40 PM	R29842
Nitrate+Nitrite as N	ND	1.0		mg/L	5	10/30/2015 11:15:10 AM	R29930
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	6800	0.010		µmhos/cm	1	10/20/2015 2:13:12 PM	R29677
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	296.6	20.00		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
Total Alkalinity (as CaCO3)	296.6	20.00		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4880	100	*D	mg/L	1	10/23/2015 11:44:00 AM	21952
CORROSIVITY						Analyst: **SUB**	
pH	7.63			pH Units	1	10/26/2015	R30423
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	10/28/2015	R30423
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.75	1.68	H	pH units	1	10/20/2015 2:13:12 PM	R29677
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	10/21/2015 3:46:07 PM	21960
MERCURY, TCLP						Analyst: **DBD**	
Mercury	ND	0.020		mg/L	1	11/3/2015 4:41:03 PM	22145
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Barium	ND	100		mg/L	1	10/22/2015 5:15:45 PM	21978
Cadmium	ND	1.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Chromium	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Lead	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Selenium	ND	1.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Silver	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	0.57	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Antimony	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Arsenic	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Barium	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Beryllium	ND	0.0060		mg/L	2	10/22/2015 4:50:43 PM	21972
Cadmium	ND	0.0040		mg/L	2	10/22/2015 4:50:43 PM	21972
Calcium	65	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Chromium	ND	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Cobalt	ND	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Copper	0.016	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Iron	0.45	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Lead	ND	0.010		mg/L	2	10/22/2015 4:50:43 PM	21972
Magnesium	20	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Manganese	0.089	0.0040		mg/L	2	10/22/2015 4:50:43 PM	21972
Nickel	ND	0.020		mg/L	2	10/22/2015 4:50:43 PM	21972
Potassium	28	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Selenium	0.27	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Silver	ND	0.010		mg/L	2	10/22/2015 4:50:43 PM	21972
Sodium	1400	50		mg/L	50	10/22/2015 4:46:39 PM	21972
Thallium	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Vanadium	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Zinc	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Allyl chloride	ND	2.0		µg/L	1	11/2/2015	R30423
Chloroprene	ND	2.0		µg/L	1	11/2/2015	R30423
Cyclohexane	ND	2.0		µg/L	1	11/2/2015	R30423
Diethyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Diisopropyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Epichlorohydrin	ND	5.0		µg/L	1	11/2/2015	R30423
Ethyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl methacrylate	ND	2.0		µg/L	1	11/2/2015	R30423
Ethyl tert-butyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Freon-113	ND	2.0		µg/L	1	11/2/2015	R30423
Isobutanol	ND	2.0		µg/L	1	11/2/2015	R30423
Isopropyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
Methacrylonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Methyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
Methyl ethyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl isobutyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl methacrylate	ND	2.0		µg/L	1	11/2/2015	R30423
Methylcyclohexane	ND	2.0		µg/L	1	11/2/2015	R30423
n-Amyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
n-Hexane	ND	0.50		µg/L	1	11/2/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	11/2/2015	R30423
Pentachloroethane	ND	5.0		µg/L	1	11/2/2015	R30423
p-isopropyltoluene	ND	0.50		µg/L	1	11/2/2015	R30423
Propionitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Tetrahydrofuran	ND	2.0		µg/L	1	11/2/2015	R30423
Benzene	ND	0.50		µg/L	1	11/2/2015	R30423
Toluene	ND	0.50		µg/L	1	11/2/2015	R30423
Ethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	11/2/2015	R30423
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	11/2/2015	R30423
Naphthalene	ND	0.50		µg/L	1	11/2/2015	R30423
Acetone	ND	2.5		µg/L	1	11/2/2015	R30423
Bromobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Bromodichloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Bromoform	ND	0.50		µg/L	1	11/2/2015	R30423
Bromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon disulfide	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon Tetrachloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroform	ND	0.50		µg/L	1	11/2/2015	R30423
Chloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423

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Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
4-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Dichlorodifluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
2,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
Hexachlorobutadiene	ND	0.50		µg/L	1	11/2/2015	R30423
2-Hexanone	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methylene Chloride	ND	2.5		µg/L	1	11/2/2015	R30423
n-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
n-Propylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
sec-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Styrene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Trichloroethene (TCE)	ND	0.50		µg/L	1	11/2/2015	R30423
Trichlorofluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
mp-Xylenes	ND	1.0		µg/L	1	11/2/2015	R30423

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Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
o-Xylene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Amyl methyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
tert-Butyl alcohol	ND	0.50		µg/L	1	11/2/2015	R30423
Acrolein	ND	2.0		µg/L	1	11/2/2015	R30423
Acrylonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Bromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chloroethyl vinyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Iodomethane	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
1,4-Dioxane	ND	20		µg/L	1	11/2/2015	R30423
Surr: 1,2-Dichlorobenzene-d4	111	70-130		%REC	1	11/2/2015	R30423
Surr: 4-Bromofluorobenzene	106	70-130		%REC	1	11/2/2015	R30423
Surr: Toluene-d8	104	70-130		%REC	1	11/2/2015	R30423
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	2.0		µg/L	1	10/30/2015	R30423
Atrazine	ND	2.0		µg/L	1	10/30/2015	R30423
Benzaldehyde	3.6	2.0		µg/L	1	10/30/2015	R30423
Caprolactam	ND	2.0		µg/L	1	10/30/2015	R30423
N-Nitroso-di-n-butylamine	ND	2.0		µg/L	1	10/30/2015	R30423
Acetophenone	ND	5.0		µg/L	1	10/30/2015	R30423
1-Methylnaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dimethylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dinitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dinitrotoluene	ND	5.0		µg/L	1	10/30/2015	R30423
2,6-Dinitrotoluene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Chloronaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Chlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2-Methylnaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
2-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
2-Nitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	10/30/2015	R30423
3-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423

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Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chloroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	10/30/2015	R30423
4-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4-Nitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
Acenaphthene	ND	5.0		µg/L	1	10/30/2015	R30423
Acenaphthylene	ND	5.0		µg/L	1	10/30/2015	R30423
Anthracene	ND	5.0		µg/L	1	10/30/2015	R30423
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	10/30/2015	R30423
Benz(a)anthracene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(a)pyrene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(b)fluoranthene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(k)fluoranthene	ND	0.10		µg/L	1	10/30/2015	R30423
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Butyl benzyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Carbazole	ND	5.0		µg/L	1	10/30/2015	R30423
Chrysene	ND	0.10		µg/L	1	10/30/2015	R30423
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	10/30/2015	R30423
Dibenzofuran	ND	5.0		µg/L	1	10/30/2015	R30423
Diethyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Dimethyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Di-n-butyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Di-n-octyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Fluoranthene	ND	5.0		µg/L	1	10/30/2015	R30423
Fluorene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachlorobenzene	ND	1.0		µg/L	1	10/30/2015	R30423
Hexachlorobutadiene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachloroethane	ND	5.0		µg/L	1	10/30/2015	R30423
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	10/30/2015	R30423
Isophorone	ND	5.0		µg/L	1	10/30/2015	R30423
Naphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	10/30/2015	R30423
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	10/30/2015	R30423
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	10/30/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Pentachlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
Phenanthrene	ND	5.0		µg/L	1	10/30/2015	R30423
Phenol	ND	5.0		µg/L	1	10/30/2015	R30423
Pyrene	ND	5.0		µg/L	1	10/30/2015	R30423
o-Toluidine	ND	2.0		µg/L	1	10/30/2015	R30423
Pyridine	ND	5.0		µg/L	1	10/30/2015	R30423
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	10/30/2015	R30423
Surr: 2,4,6-Tribromophenol	104	10-123		%REC	1	10/30/2015	R30423
Surr: 2-Fluorobiphenyl	90.8	19-130		%REC	1	10/30/2015	R30423
Surr: 2-Fluorophenol	70.2	21-120		%REC	1	10/30/2015	R30423
Surr: Nitrobenzene-d5	85.6	25-130		%REC	1	10/30/2015	R30423
Surr: Phenol-d5	121	10-130		%REC	1	10/30/2015	R30423
Surr: Terphenyl-d14	44.4	21-141		%REC	1	10/30/2015	R30423

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Duc to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1510908-002
Matrix: TRIP BLANK
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Allyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroprene	ND	0.50		µg/L	1	11/2/2015	R30423
Cyclohexane	ND	0.50		µg/L	1	11/2/2015	R30423
Diethyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Diisopropyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Epichlorohydrin	ND	5.0		µg/L	1	11/2/2015	R30423
Ethyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Ethyl methacrylate	ND	0.50		µg/L	1	11/2/2015	R30423
Ethyl tert-butyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Freon-113	ND	0.50		µg/L	1	11/2/2015	R30423
Isobutanol	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Methacrylonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl ethyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl isobutyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl methacrylate	ND	0.50		µg/L	1	11/2/2015	R30423
Methylcyclohexane	ND	1.0		µg/L	1	11/2/2015	R30423
n-Amyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
n-Hexane	ND	0.50		µg/L	1	11/2/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	11/2/2015	R30423
Pentachloroethane	ND	5.0		µg/L	1	11/2/2015	R30423
p-isopropyltoluene	ND	0.50		µg/L	1	11/2/2015	R30423
Propionitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrahydrofuran	ND	0.50		µg/L	1	11/2/2015	R30423
Benzene	ND	0.50		µg/L	1	11/2/2015	R30423
Toluene	ND	0.50		µg/L	1	11/2/2015	R30423
Ethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	11/2/2015	R30423
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	11/2/2015	R30423
Naphthalene	ND	0.50		µg/L	1	11/2/2015	R30423
Acetone	ND	2.5		µg/L	1	11/2/2015	R30423
Bromobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Bromodichloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Bromoform	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon disulfide	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon Tetrachloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroform	ND	0.50		µg/L	1	11/2/2015	R30423
Chloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
4-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Dichlorodifluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
2,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
Hexachlorobutadiene	ND	0.50		µg/L	1	11/2/2015	R30423
2-Hexanone	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methylene Chloride	ND	2.5		µg/L	1	11/2/2015	R30423
n-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
n-Propylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
sec-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Styrene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1510908-002
Matrix: TRIP BLANK
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Trichloroethene (TCE)	ND	0.50		µg/L	1	11/2/2015	R30423
Trichlorofluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
mp-Xylenes	ND	1.0		µg/L	1	11/2/2015	R30423
o-Xylene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Amyl methyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butyl alcohol	ND	0.50		µg/L	1	11/2/2015	R30423
Acrolein	ND	0.50		µg/L	1	11/2/2015	R30423
Acrylonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Bromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Iodomethane	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dioxane	ND	20		µg/L	1	11/2/2015	R30423
Surr: 1,2-Dichlorobenzene-d4	108	70-130		%REC	1	11/2/2015	R30423
Surr: 4-Bromofluorobenzene	105	70-130		%REC	1	11/2/2015	R30423
Surr: Toluene-d8	102	70-130		%REC	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Valuc above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29842**	RunNo: **29842**
Prep Date:	Analysis Date: **10/27/2015**	SeqNo: **908890** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29842**	RunNo: **29842**
Prep Date:	Analysis Date: **10/27/2015**	SeqNo: **908891** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29930**	RunNo: **29930**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **911773** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29930**	RunNo: **29930**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **911774** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	96.6	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29992**	RunNo: **29992**
Prep Date:	Analysis Date: **11/3/2015**	SeqNo: **913762** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29992**	RunNo: **29992**
Prep Date:	Analysis Date: **11/3/2015**	SeqNo: **913763** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A30103**	RunNo: **30103**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916979** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A30103**	RunNo: **30103**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916980** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.3	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928381** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
p-isopropyltoluene	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928381** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	2.5								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	0.50								
o-Xylene	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928382** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.2	0	10.00	0	92.1	80	120			
Toluene	9.6	0	10.00	0	96.5	80	120			
Ethylbenzene	9.7	0	10.00	0	96.9	80	120			
Chlorobenzene	9.5	0	10.00	0	94.7	80	120			
1,1-Dichloroethene	10	0	10.00	0	102	80	120			
Tetrachloroethene (PCE)	9.9	0	10.00	0	99.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928382** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	10	0	10.00	0	102	80	120			
o-Xylene	10	0	10.00	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928385** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	5.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928385** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
o-Toluidine	ND	2.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928386** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.8	0	5.000	0	95.6	49	134			
2-Chlorophenol	4.7	0	5.000	0	94.4	50	31			S
4-Chloro-3-methylphenol	4.8	0	5.000	0	95.4	42	139			
4-Nitrophenol	3.2	0	5.000	0	65.0	19	137			
Acenaphthene	5.2	0	5.000	0	105	36	122			
Bis(2-ethylhexyl)phthalate	5.9	0	5.000	0	118	43	142			
N-Nitrosodi-n-propylamine	4.7	0	5.000	0	94.4	46	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928386** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	4.8	0	5.000	0	95.4	22	138			
Phenol	4.5	0	5.000	0	90.8	45	134			
Pyrene	4.6	0	5.000	0	92.2	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21960**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **21960**	RunNo: **29703**							
Prep Date: **10/21/2015**	Analysis Date: **10/21/2015**	SeqNo: **904542**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-21960**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **21960**	RunNo: **29703**							
Prep Date: **10/21/2015**	Analysis Date: **10/21/2015**	SeqNo: **904543**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.3	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-22145**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **22145**	RunNo: **29977**
Prep Date: **11/3/2015**	Analysis Date: **11/3/2015**	SeqNo: **913123** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-22145**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **22145**	RunNo: **29977**
Prep Date: **11/3/2015**	Analysis Date: **11/3/2015**	SeqNo: **913124** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	101	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21978**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **21978**	RunNo: **29736**
Prep Date: **10/22/2015**	Analysis Date: **10/22/2015**	SeqNo: **905688** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-21978**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **21978**	RunNo: **29736**
Prep Date: **10/22/2015**	Analysis Date: **10/22/2015**	SeqNo: **905689** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	107	80	120			
Barium	ND	100	0.5000	0	100	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	100	80	120			
Lead	ND	5.0	0.5000	0	101	80	120			
Selenium	ND	1.0	0.5000	0	107	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21972** SampType: **MBLK** TestCode: **EPA 6010B: Total Metals**

Client ID: **PBW** Batch ID: **21972** RunNo: **29736**

Prep Date: **10/21/2015** Analysis Date: **10/22/2015** SeqNo: **905617** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-21972** SampType: **LCS** TestCode: **EPA 6010B: Total Metals**

Client ID: **LCSW** Batch ID: **21972** RunNo: **29736**

Prep Date: **10/21/2015** Analysis Date: **10/22/2015** SeqNo: **905618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.52	0.020	0.5000	0	103	80	120			
Antimony	0.52	0.050	0.5000	0	103	80	120			
Arsenic	0.51	0.020	0.5000	0	101	80	120			
Barium	0.49	0.020	0.5000	0	97.9	80	120			
Beryllium	0.51	0.0030	0.5000	0	103	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.2	80	120			
Calcium	49	1.0	50.00	0	97.9	80	120			
Chromium	0.49	0.0060	0.5000	0	97.6	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.3	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.49	0.050	0.5000	0	97.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-21972**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.49	0.0050	0.5000	0	97.9	80	120			
Magnesium	50	1.0	50.00	0	99.1	80	120			
Manganese	0.48	0.0020	0.5000	0	96.9	80	120			
Nickel	0.48	0.010	0.5000	0	95.8	80	120			
Potassium	47	1.0	50.00	0	94.3	80	120			
Selenium	0.49	0.050	0.5000	0	98.4	80	120			
Silver	0.099	0.0050	0.1000	0	99.2	80	120			
Sodium	49	1.0	50.00	0	98.4	80	120			
Thallium	0.51	0.050	0.5000	0	103	80	120			
Vanadium	0.51	0.050	0.5000	0	102	80	120			
Zinc	0.48	0.020	0.5000	0	95.3	80	120			

Sample ID **1510908-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.2	0.040	0.5000	0.5719	126	75	125			S
Antimony	0.60	0.10	0.5000	0	120	75	125			
Arsenic	0.63	0.040	0.5000	0	126	75	125			S
Barium	0.54	0.040	0.5000	0.01050	106	75	125			
Beryllium	0.55	0.0060	0.5000	0	110	75	125			
Cadmium	0.56	0.0040	0.5000	0	111	75	125			
Calcium	120	2.0	50.00	65.14	113	75	125			
Chromium	0.52	0.012	0.5000	0	105	75	125			
Cobalt	0.53	0.012	0.5000	0	106	75	125			
Copper	0.62	0.012	0.5000	0.01570	121	75	125			
Iron	0.99	0.10	0.5000	0.4468	110	75	125			
Lead	0.55	0.010	0.5000	0	110	75	125			
Magnesium	74	2.0	50.00	19.57	110	75	125			
Manganese	0.62	0.0040	0.5000	0.08908	106	75	125			
Nickel	0.54	0.020	0.5000	0	108	75	125			
Potassium	85	2.0	50.00	27.55	115	75	125			
Selenium	0.86	0.10	0.5000	0.2670	118	75	125			
Silver	0.11	0.010	0.1000	0	112	75	125			
Thallium	0.58	0.10	0.5000	0	115	75	125			
Vanadium	0.57	0.10	0.5000	0.01404	110	75	125			
Zinc	0.59	0.040	0.5000	0.03952	110	75	125			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1510908-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **21972** RunNo: **29736**

Prep Date: **10/21/2015** Analysis Date: **10/22/2015** SeqNo: **905635** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.040	0.5000	0.5719	115	75	125	4.76	20	
Antimony	0.54	0.10	0.5000	0	108	75	125	10.5	20	
Arsenic	0.59	0.040	0.5000	0	118	75	125	6.26	20	
Barium	0.51	0.040	0.5000	0.01050	99.5	75	125	6.53	20	
Beryllium	0.50	0.0060	0.5000	0	101	75	125	8.90	20	
Cadmium	0.52	0.0040	0.5000	0	104	75	125	6.55	20	
Calcium	110	2.0	50.00	65.14	88.0	75	125	11.0	20	
Chromium	0.49	0.012	0.5000	0	98.8	75	125	5.80	20	
Cobalt	0.50	0.012	0.5000	0	99.8	75	125	6.05	20	
Copper	0.58	0.012	0.5000	0.01570	112	75	125	7.19	20	
Iron	0.90	0.10	0.5000	0.4468	91.6	75	125	9.48	20	
Lead	0.51	0.010	0.5000	0	102	75	125	7.39	20	
Magnesium	69	2.0	50.00	19.57	99.3	75	125	7.30	20	
Manganese	0.58	0.0040	0.5000	0.08908	98.6	75	125	6.53	20	
Nickel	0.51	0.020	0.5000	0	101	75	125	6.22	20	
Potassium	77	2.0	50.00	27.55	98.0	75	125	10.6	20	
Selenium	0.80	0.10	0.5000	0.2670	108	75	125	6.07	20	
Silver	0.10	0.010	0.1000	0	102	75	125	8.73	20	
Thallium	0.54	0.10	0.5000	0	107	75	125	7.22	20	
Vanadium	0.53	0.10	0.5000	0.01404	103	75	125	6.69	20	
Zinc	0.55	0.040	0.5000	0.03952	103	75	125	6.44	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/28/2015**	SeqNo: **928390** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/28/2015**	SeqNo: **928391** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.478		0.5000	0	95.6	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/23/2015**	SeqNo: **928393** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/23/2015**	SeqNo: **928394** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.20		0.2000	0	100	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R29677**	RunNo: **29677**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904176** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R29677**	RunNo: **29677**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904177** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.04	20.00	80.00	0	96.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1510908-001ADUP**	SampType: **DUP**			TestCode: **Specific Gravity**						
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R29675**			RunNo: **29675**						
Prep Date:	Analysis Date: **10/20/2015**			SeqNo: **903627**		Units:				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.000	0						0.0900	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21952**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **21952**	RunNo: **29751**
Prep Date: **10/21/2015**	Analysis Date: **10/23/2015**	SeqNo: **906219** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-21952**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **21952**	RunNo: **29751**
Prep Date: **10/21/2015**	Analysis Date: **10/23/2015**	SeqNo: **906220** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1510908 RcptNo: 1

Received by/date: 10/20/15

Logged By: Lindsay Mangin 10/20/2015 8:55:00 AM

Completed By: Lindsay Mangin 10/20/2015 9:15:21 AM

Reviewed By: 10/20/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2 (2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? no
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.	Turn-Around Time: ☐ Standar ☐ **Rush**
	Project Name: Quarterly WDW-1, 2, & 3 Inj Well
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Micki Schultz / Scott Denton / Mike Holder
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler: Elizabeth Salsberry
	On Ice: ☑ Yes ☐ No
	Sample Temperature: 2.4

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1510908	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Ehv40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
10/19/15	7:40	Liquid	Trip Blank	2	Neat	-002		X					
10/19/15	7:40	Liquid	Temperature Blank	1	Neat	-							

Date	Time	Relinquished by	Received by	Date	Time
10/19/15	11:30	Elizabeth Salsberry			
				10/20/15	0855
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	10/19/2015 @ 7:30am
End Date and Time	10/19/2015 @ 7:45 am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Parts / Sample Intervals	One

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells

☑ P-846 sample point (first from east) ☐ P-856 sample point (third from east)
☐ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc):	10/19/2015 Temp 55.4 °F Humidity 100% Wind Direction South Wind Speed 8.1 mph Condition Clear
Date and Time	
Field Temp. 42.8C	Field pH 7.54

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

October 29, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 5100

RE: 2015 3rd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1381 psig and the average flows were 125 gpm for WDW-1, 158 gpm for WDW-2 and 133 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2015 to September 30, 2015. We have disposed a total of 1,317,417 barrels of fluid into the three wells during the third quarter of 2015. The volume per well is:

- 396,103 barrels into WDW-1
- 501,110 barrels into WDW-2
- 420,204 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/3rd quarter/2015-10-29 3rd QTR Inj. Rpt. for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2015 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	36,750,997
Jul-15	1,392	1,400	1,267	128	131	114	622	866	331	4,389	4,491	3,909	136,059	36,887,056
Aug-15	1,389	1,400	1,152	126	128	97	495	858	134	4,320	4,389	3,326	133,695	37,020,751
Sep-15	1,381	1,400	1,100	123	127	84	598	762	59	4,217	4,354	2,880	126,349	37,147,100
WDW-2													**Previous Quarter**	23,766,527
Jul-15	1,391	1,400	1,269	149	278	79	252	314	208	5,109	9,531	2,709	158,379	23,924,906
Aug-15	1,392	1,400	1,156	202	293	146	250	379	217	6,926	10,046	5,006	214,764	24,139,670
Sep-15	1,369	1,400	1,110	124	260	59	263	387	226	4,251	8,914	2,023	127,967	24,267,637
WDW-3													**Previous Quarter**	13,909,125
Jul-15	1,373	1,390	1,265	124	134	75	680	881	500	4,251	4,594	2,571	131,781	14,040,906
Aug-15	1,382	1,390	1,157	119	132	24	849	970	527	4,080	4,526	823	126,544	14,167,450
Sep-15	1,362	1,390	1,113	157	297	86	780	909	539	5,383	10,183	2,949	161,879	14,329,329
													Total Injected fluids:	75,744,066

T:\Injection Wells\Reports C-115 and Quarterly\2015\3rd quarter\
3rd 2015 qtrly rpt data
Injection fluids

10/15/20152:19 PM

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Navajo Refining Company, L.L.C.

2015 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/6/15	7/13/15	7/20/15	7/27/15	8/3/15	8/10/15	8/14/15	8/24/15	9/1/15	9/8/15	9/14/15	9/21/15	9/30/15
WDW -1[1]	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	150	155	235	150*	170	220	253	130**	230	240	254	170***	240

Comments: * Removed 145 gal. ** Removed 180 gal. *** Removed 100 gal.

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 10, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1507D99

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/31/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1507D99**
Date: **9/10/2015**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	8/11/2015	R28710
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	1.4	1.0		mg/L	1	8/7/2015	R28710
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9967	0			1	8/5/2015 3:14:00 PM	R27979
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	42	5.0	*	mg/L	50	7/31/2015 2:33:11 PM	R27901
Chloride	330	25		mg/L	50	7/31/2015 2:33:11 PM	R27901
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Bromide	1.2	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	7/31/2015 2:20:46 PM	R27901
Sulfate	2200	25		mg/L	50	7/31/2015 2:33:11 PM	R27901
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5900	0.010		µmhos/cm	1	8/6/2015 4:51:43 PM	R28029
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	392.7	20.00		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
Total Alkalinity (as CaCO3)	392.7	20.00		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3580	20.0	*	mg/L	1	8/5/2015 7:28:00 PM	20581
CORROSIVITY						Analyst: **SUB**	
pH	8.31	0.100		pH Units	1	8/5/2015	R28710
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	8/13/2015	R28710
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.17	1.68	H	pH units	1	8/6/2015 4:51:43 PM	R28029
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	8/4/2015 2:15:41 PM	20588
MERCURY, TCLP						Analyst: **JLF**	
Mercury	0.078	0.020		mg/L	20	8/6/2015 1:58:10 PM	20636
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Barium	ND	100		mg/L	1	8/6/2015 9:36:29 AM	20620
Cadmium	ND	1.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Chromium	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Lead	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Selenium	ND	1.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Silver	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	1.2	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Antimony	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Arsenic	0.029	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Barium	ND	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Beryllium	ND	0.0030		mg/L	1	8/6/2015 9:44:36 AM	20620
Cadmium	ND	0.0020		mg/L	1	8/6/2015 9:44:36 AM	20620
Calcium	52	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Chromium	ND	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Cobalt	0.0085	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Copper	0.017	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Iron	0.89	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Lead	ND	0.0050		mg/L	1	8/6/2015 9:44:36 AM	20620
Magnesium	17	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Manganese	0.10	0.0020		mg/L	1	8/6/2015 9:44:36 AM	20620
Nickel	0.021	0.010		mg/L	1	8/6/2015 9:44:36 AM	20620
Potassium	77	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Selenium	0.19	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Silver	ND	0.0050		mg/L	1	8/6/2015 9:44:36 AM	20620
Sodium	980	10		mg/L	10	8/10/2015 1:27:17 PM	20675
Thallium	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Vanadium	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Zinc	0.31	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Allyl chloride	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroprene	ND	2.5		µg/L	1	8/11/2015	R28710
Cyclohexane	ND	2.5		µg/L	1	8/11/2015	R28710
Diethyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Diisopropyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Epichlorohydrin	ND	25		µg/L	1	8/11/2015	R28710
Ethyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710

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Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl methacrylate	ND	2.5		µg/L	1	8/11/2015	R28710
Ethyl tert-butyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Freon-113	ND	2.5		µg/L	1	8/11/2015	R28710
Isobutanol	ND	2.5		µg/L	1	8/11/2015	R28710
Isopropyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
Methacrylonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl ethyl ketone	24	12		µg/L	1	8/11/2015	R28710
Methyl isobutyl ketone	ND	12		µg/L	1	8/11/2015	R28710
Methyl methacrylate	ND	2.5		µg/L	1	8/11/2015	R28710
Methylcyclohexane	ND	5.0		µg/L	1	8/11/2015	R28710
n-Amyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
n-Hexane	ND	2.5		µg/L	1	8/11/2015	R28710
Nitrobenzene	ND	25		µg/L	1	8/11/2015	R28710
Pentachloroethane	ND	25		µg/L	1	8/11/2015	R28710
p-isopropyltoluene	ND	2.5		µg/L	1	8/11/2015	R28710
Propionitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Tetrahydrofuran	ND	2.5		µg/L	1	8/11/2015	R28710
Benzene	ND	2.5		µg/L	1	8/11/2015	R28710
Toluene	ND	2.5		µg/L	1	8/11/2015	R28710
Ethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	1	8/11/2015	R28710
1,2,4-Trimethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,3,5-Trimethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	1	8/11/2015	R28710
Naphthalene	3.4	2.5		µg/L	1	8/11/2015	R28710
Acetone	890	12		µg/L	1	8/11/2015	R28710
Bromobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Bromodichloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
Bromoform	ND	2.5		µg/L	1	8/11/2015	R28710
Bromomethane	ND	2.5		µg/L	1	8/11/2015	R28710
Carbon disulfide	ND	2.5		µg/L	1	8/11/2015	R28710
Carbon Tetrachloride	ND	2.5		µg/L	1	8/11/2015	R28710
Chlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroform	ND	2.5		µg/L	1	8/11/2015	R28710
Chloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
2-Chlorotoluene	ND	2.5		µg/L	1	8/11/2015	R28710

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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
4-Chlorotoluene	ND	2.5		µg/L	1	8/11/2015	R28710
cis-1,2-DCE	ND	2.5		µg/L	1	8/11/2015	R28710
cis-1,3-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dibromo-3-chloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
Dibromochloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
Dibromomethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,3-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,4-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Dichlorodifluoromethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloroethene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
1,3-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
2,2-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
Hexachlorobutadiene	ND	2.5		µg/L	1	8/11/2015	R28710
2-Hexanone	ND	2.5		µg/L	1	8/11/2015	R28710
Isopropylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Methylene Chloride	ND	12		µg/L	1	8/11/2015	R28710
n-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
n-Propylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
sec-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Styrene	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Tetrachloroethene (PCE)	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,2-DCE	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,3-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,3-Trichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,4-Trichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,1-Trichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,2-Trichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Trichloroethene (TCE)	ND	2.5		µg/L	1	8/11/2015	R28710
Trichlorofluoromethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,3-Trichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
Vinyl chloride	ND	2.5		µg/L	1	8/11/2015	R28710
mp-Xylenes	ND	5.0		µg/L	1	8/11/2015	R28710

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Qualifiers:

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S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
o-Xylene	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Amyl methyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Butyl alcohol	ND	2.5		µg/L	1	8/11/2015	R28710
Acrolein	ND	2.5		µg/L	1	8/11/2015	R28710
Acrylonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Bromochloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Iodomethane	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,4-Dichloro-2-butene	ND	2.5		µg/L	1	8/11/2015	R28710
Vinyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
1,4-Dioxane	ND	100		µg/L	1	8/11/2015	R28710
Surr: 1,2-Dichlorobenzene-d4	94.0	70-130		%REC	1	8/11/2015	R28710
Surr: 4-Bromofluorobenzene	96.0	70-130		%REC	1	8/11/2015	R28710
Surr: Toluene-d8	100	70-130		%REC	1	8/11/2015	R28710
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	8/12/2015	R28710
Atrazine	ND	5.0		µg/L	1	8/12/2015	R28710
Benzaldehyde	ND	5.0		µg/L	1	8/12/2015	R28710
Caprolactam	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	8/12/2015	R28710
Acetophenone	ND	5.0		µg/L	1	8/12/2015	R28710
1-Methylnaphthalene	7.1	5.0		µg/L	1	8/12/2015	R28710
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dimethylphenol	6.7	5.0		µg/L	1	8/12/2015	R28710
2,4-Dinitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dinitrotoluene	ND	5.0		µg/L	1	8/12/2015	R28710
2,6-Dinitrotoluene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Chloronaphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Chlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2-Methylnaphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710
2-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
2-Nitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	8/12/2015	R28710
3-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chloroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	8/12/2015	R28710
4-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4-Nitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
Acenaphthene	ND	5.0		µg/L	1	8/12/2015	R28710
Acenaphthylene	ND	5.0		µg/L	1	8/12/2015	R28710
Anthracene	ND	5.0		µg/L	1	8/12/2015	R28710
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	8/12/2015	R28710
Benz(a)anthracene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(a)pyrene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(b)fluoranthene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(k)fluoranthene	ND	1.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Butyl benzyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Carbazole	ND	5.0		µg/L	1	8/12/2015	R28710
Chrysene	ND	1.0		µg/L	1	8/12/2015	R28710
Dibenz(a,h)anthracene	ND	1.0		µg/L	1	8/12/2015	R28710
Dibenzofuran	5.7	5.0		µg/L	1	8/12/2015	R28710
Diethyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Dimethyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Di-n-butyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Di-n-octyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Fluoranthene	ND	5.0		µg/L	1	8/12/2015	R28710
Fluorene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorobenzene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorobutadiene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachloroethane	ND	5.0		µg/L	1	8/12/2015	R28710
Indeno(1,2,3-cd)pyrene	ND	1.0		µg/L	1	8/12/2015	R28710
Isophorone	ND	5.0		µg/L	1	8/12/2015	R28710
Naphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
Nitrobenzene	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	8/12/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Pentachlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
Phenanthrene	ND	5.0		µg/L	1	8/12/2015	R28710
Phenol	5.0	5.0		µg/L	1	8/12/2015	R28710
Pyrene	ND	5.0		µg/L	1	8/12/2015	R28710
o-Toluidine	ND	5.0		µg/L	1	8/12/2015	R28710
Pyridine	ND	5.0		µg/L	1	8/12/2015	R28710
1,2,4,5-Tetrachlorobenzene	ND	0		µg/L	1	8/12/2015	R28710
Surr: 2,4,6-Tribromophenol	111	10-123		%REC	1	8/12/2015	R28710
Surr: 2-Fluorobiphenyl	84.4	19-130		%REC	1	8/12/2015	R28710
Surr: 2-Fluorophenol	85.2	21-120		%REC	1	8/12/2015	R28710
Surr: Nitrobenzene-d5	84.0	25-130		%REC	1	8/12/2015	R28710
Surr: Phenol-d5	66.4	10-130		%REC	1	8/12/2015	R28710
Surr: Terphenyl-d14	51.6	21-141		%REC	1	8/12/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Duc to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002
Matrix: TRIP BLANK
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Allyl chloride	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroprene	ND	0.50		µg/L	1	8/11/2015	R28710
Cyclohexane	ND	0.50		µg/L	1	8/11/2015	R28710
Diethyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Diisopropyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Epichlorohydrin	ND	5.0		µg/L	1	8/11/2015	R28710
Ethyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Ethyl methacrylate	ND	0.50		µg/L	1	8/11/2015	R28710
Ethyl tert-butyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Freon-113	ND	0.50		µg/L	1	8/11/2015	R28710
Isobutanol	ND	0.50		µg/L	1	8/11/2015	R28710
Isopropyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Methacrylonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl ethyl ketone	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl isobutyl ketone	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl methacrylate	ND	0.50		µg/L	1	8/11/2015	R28710
Methylcyclohexane	ND	1.0		µg/L	1	8/11/2015	R28710
n-Amyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
n-Hexane	ND	0.50		µg/L	1	8/11/2015	R28710
Nitrobenzene	ND	5.0		µg/L	1	8/11/2015	R28710
Pentachloroethane	ND	5.0		µg/L	1	8/11/2015	R28710
p-isopropyltoluene	ND	0.50		µg/L	1	8/11/2015	R28710
Propionitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Tetrahydrofuran	ND	0.50		µg/L	1	8/11/2015	R28710
Benzene	ND	0.50		µg/L	1	8/11/2015	R28710
Toluene	ND	0.50		µg/L	1	8/11/2015	R28710
Ethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	8/11/2015	R28710
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	8/11/2015	R28710
Naphthalene	ND	0.50		µg/L	1	8/11/2015	R28710
Acetone	ND	2.5		µg/L	1	8/11/2015	R28710
Bromobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Bromodichloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
Bromoform	ND	0.50		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002
Matrix: TRIP BLANK
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	8/11/2015	R28710
Carbon disulfide	ND	0.50		µg/L	1	8/11/2015	R28710
Carbon Tetrachloride	ND	0.50		µg/L	1	8/11/2015	R28710
Chlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroform	ND	0.50		µg/L	1	8/11/2015	R28710
Chloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
2-Chlorotoluene	ND	0.50		µg/L	1	8/11/2015	R28710
4-Chlorotoluene	ND	0.50		µg/L	1	8/11/2015	R28710
cis-1,2-DCE	ND	0.50		µg/L	1	8/11/2015	R28710
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
Dibromochloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
Dibromomethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,3-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,4-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Dichlorodifluoromethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloroethene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
1,3-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
2,2-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
Hexachlorobutadiene	ND	0.50		µg/L	1	8/11/2015	R28710
2-Hexanone	ND	0.50		µg/L	1	8/11/2015	R28710
Isopropylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Methylene Chloride	ND	2.5		µg/L	1	8/11/2015	R28710
n-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
n-Propylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
sec-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Styrene	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,2-DCE	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002 **Matrix:** TRIP BLANK **Received Date:** 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,1-Trichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,2-Trichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Trichloroethene (TCE)	ND	0.50		µg/L	1	8/11/2015	R28710
Trichlorofluoromethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,2,3-Trichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
Vinyl chloride	ND	0.50		µg/L	1	8/11/2015	R28710
mp-Xylenes	ND	1.0		µg/L	1	8/11/2015	R28710
o-Xylene	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Amyl methyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Butyl alcohol	ND	0.50		µg/L	1	8/11/2015	R28710
Acrolein	ND	0.50		µg/L	1	8/11/2015	R28710
Acrylonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Bromochloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Iodomethane	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	8/11/2015	R28710
Vinyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
1,4-Dioxane	ND	20		µg/L	1	8/11/2015	R28710
Surr: 1,2-Dichlorobenzene-d4	95.6	70-130		%REC	1	8/11/2015	R28710
Surr: 4-Bromofluorobenzene	95.2	70-130		%REC	1	8/11/2015	R28710
Surr: Toluene-d8	93.6	70-130		%REC	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R27901**	RunNo: **27901**
Prep Date:	Analysis Date: **7/31/2015**	SeqNo: **839136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R27901**	RunNo: **27901**
Prep Date:	Analysis Date: **7/31/2015**	SeqNo: **839137** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.8	0.50	5.000	0	95.8	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	95.9	90	110			
Bromide	2.5	0.10	2.500	0	98.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.3	90	110			
Sulfate	9.8	0.50	10.00	0	97.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	0.50								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	5.0								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Methylcyclohexane	ND	0.50								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	0.50								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	0.50								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	0.50								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.6	0	10.00	0	96.3	80	120			
Toluene	9.7	0	10.00	0	97.3	80	120			
Ethylbenzene	9.7	0	10.00	0	97.3	80	120			
Chlorobenzene	9.5	0	10.00	0	95.2	80	120			
1,1-Dichloroethene	9.6	0	10.00	0	95.5	80	120			
Tetrachloroethene (PCE)	9.0	0	10.00	0	89.9	80	120			
Trichloroethene (TCE)	9.4	0	10.00	0	93.6	80	120			
o-Xylene	10	0	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870225** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	0.50								
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870225** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Carbazole	ND	5.0								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	2.0								
o-Toluidine	ND	5.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870226** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.0	0	5.000	0	99.8	49	134			
2-Chlorophenol	4.8	0	5.000	0	95.4	50	131			
4-Chloro-3-methylphenol	5.4	0	5.000	0	109	42	139			
4-Nitrophenol	5.6	0	5.000	0	111	19	137			
Acenaphthene	5.2	0	5.000	0	103	36	122			
Bis(2-ethylhexyl)phthalate	5.6	0	5.000	0	112	43	142			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870226** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodi-n-propylamine	5.3	0	5.000	0	106	46	140			
Pentachlorophenol	5.9	0	5.000	0	118	22	138			
Phenol	4.7	0	5.000	0	94.6	45	134			
Pyrene	4.9	0	5.000	0	98.0	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**1507d99-001adup**	SampType:	**DUP**	TestCode:	**SM2510B: Specific Conductance**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**R28029**	RunNo:	**28029**					
Prep Date:		Analysis Date:	**8/6/2015**	SeqNo:	**843890**	Units:	**µmhos/cm**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	5900	0.010						0.354	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20588**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **20588**	RunNo: **27941**
Prep Date: **8/4/2015**	Analysis Date: **8/4/2015**	SeqNo: **840615** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-20588**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **20588**	RunNo: **27941**
Prep Date: **8/4/2015**	Analysis Date: **8/4/2015**	SeqNo: **840616** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-20636**	SampType: **MBLK**			TestCode: **MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID: **20636**			RunNo: **28011**					
Prep Date:	**8/6/2015**	Analysis Date: **8/6/2015**			SeqNo: **843195**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-20636**	SampType: **LCS**			TestCode: **MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID: **20636**			RunNo: **28011**					
Prep Date:	**8/6/2015**	Analysis Date: **8/6/2015**			SeqNo: **843196**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	111	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20620**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842847** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-20620**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842848** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	95.8	80	120			
Barium	ND	100	0.5000	0	98.8	80	120			
Cadmium	ND	1.0	0.5000	0	96.2	80	120			
Chromium	ND	5.0	0.5000	0	98.4	80	120			
Lead	ND	5.0	0.5000	0	97.5	80	120			
Selenium	ND	1.0	0.5000	0	97.8	80	120			
Silver	ND	5.0	0.1000	0	97.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20620**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842849** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-20620**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842850** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.47	0.020	0.5000	0	94.7	80	120			
Antimony	0.49	0.050	0.5000	0	98.3	80	120			
Arsenic	0.49	0.020	0.5000	0	98.5	80	120			
Barium	0.50	0.020	0.5000	0	100	80	120			
Beryllium	0.50	0.0030	0.5000	0	101	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.7	80	120			
Chromium	0.50	0.0060	0.5000	0	100	80	120			
Copper	0.51	0.0060	0.5000	0	103	80	120			
Iron	0.51	0.050	0.5000	0	102	80	120			
Lead	0.50	0.0050	0.5000	0	99.7	80	120			
Manganese	0.50	0.0020	0.5000	0	101	80	120			
Nickel	0.51	0.010	0.5000	0	101	80	120			
Selenium	0.49	0.050	0.5000	0	97.5	80	120			
Silver	0.098	0.0050	0.1000	0	98.2	80	120			
Thallium	0.50	0.050	0.5000	0	99.1	80	120			
Vanadium	0.50	0.050	0.5000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-20620**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842850** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.49	0.020	0.5000	0	97.2	80	120			

Sample ID **1507D99-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842864** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.7	0.020	0.5000	1.205	107	75	125			
Antimony	0.44	0.050	0.5000	0	88.8	75	125			
Arsenic	0.49	0.020	0.5000	0.02853	92.4	75	125			
Barium	0.43	0.020	0.5000	0.006150	85.7	75	125			
Beryllium	0.44	0.0030	0.5000	0	87.6	75	125			
Cadmium	0.44	0.0020	0.5000	0	87.4	75	125			
Chromium	0.42	0.0060	0.5000	0.003330	84.3	75	125			
Cobalt	0.43	0.0060	0.5000	0.008460	84.7	75	125			
Copper	0.49	0.0060	0.5000	0.01740	93.8	75	125			
Iron	1.3	0.050	0.5000	0.8854	92.2	75	125			
Lead	0.43	0.0050	0.5000	0	85.8	75	125			
Manganese	0.53	0.0020	0.5000	0.1014	84.8	75	125			
Nickel	0.45	0.010	0.5000	0.02121	85.8	75	125			
Selenium	0.66	0.050	0.5000	0.1944	92.2	75	125			
Silver	0.086	0.0050	0.1000	0	85.9	75	125			
Thallium	0.44	0.050	0.5000	0	88.4	75	125			
Vanadium	0.46	0.050	0.5000	0.01240	89.4	75	125			
Zinc	0.77	0.020	0.5000	0.3098	92.1	75	125			

Sample ID **1507D99-001BMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.7	0.020	0.5000	1.205	96.2	75	125	3.27	20	
Antimony	0.42	0.050	0.5000	0	84.7	75	125	4.66	20	
Arsenic	0.47	0.020	0.5000	0.02853	88.6	75	125	4.01	20	
Barium	0.42	0.020	0.5000	0.006150	82.9	75	125	3.32	20	
Beryllium	0.43	0.0030	0.5000	0	85.0	75	125	3.04	20	
Cadmium	0.43	0.0020	0.5000	0	85.0	75	125	2.73	20	
Chromium	0.41	0.0060	0.5000	0.003330	82.1	75	125	2.67	20	
Cobalt	0.42	0.0060	0.5000	0.008460	82.7	75	125	2.33	20	
Copper	0.47	0.0060	0.5000	0.01740	90.7	75	125	3.26	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507D99-001BMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	1.3	0.050	0.5000	0.8854	83.8	75	125	3.16	20	
Lead	0.42	0.0050	0.5000	0	83.6	75	125	2.58	20	
Manganese	0.51	0.0020	0.5000	0.1014	81.7	75	125	2.98	20	
Nickel	0.44	0.010	0.5000	0.02121	82.8	75	125	3.38	20	
Selenium	0.64	0.050	0.5000	0.1944	88.6	75	125	2.79	20	
Silver	0.083	0.0050	0.1000	0	83.2	75	125	3.16	20	
Thallium	0.44	0.050	0.5000	0	88.0	75	125	0.497	20	
Vanadium	0.44	0.050	0.5000	0.01240	86.5	75	125	3.22	20	
Zinc	0.74	0.020	0.5000	0.3098	87.0	75	125	3.34	20	

Sample ID **MB-20675**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **20675**	RunNo: **28076**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **845664** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID **LCS-20675**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **20675**	RunNo: **28076**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **845665** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	50	1.0	50.00	0	100	80	120			
Potassium	48	1.0	50.00	0	95.7	80	120			
Sodium	49	1.0	50.00	0	98.7	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507d99-001adup**	SampType: **DUP**			TestCode: **SM4500-H+B: pH**						
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R28029**			RunNo: **28029**						
Prep Date:	Analysis Date: **8/6/2015**			SeqNo: **843901**		Units: **pH units**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.15	1.68								H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/13/2015**	SeqNo: **870230**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/13/2015**	SeqNo: **870231**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.478		0.5000	0	95.6	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **870233**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **870234**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.22		0.2000	0	110	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843850**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843851**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.64	20.00	80.00	0	98.3	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843874**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843875**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.72	20.00	80.00	0	99.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507D99-001ADUP**	SampType: **DUP**			TestCode: **Specific Gravity**					
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R27979**			RunNo: **27979**					
Prep Date:	Analysis Date: **8/5/2015**			SeqNo: **841885**		Units:			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9985	0						0.180	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20581**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **20581**	RunNo: **27984**
Prep Date: **8/4/2015**	Analysis Date: **8/5/2015**	SeqNo: **842184** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-20581**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **20581**	RunNo: **27984**
Prep Date: **8/4/2015**	Analysis Date: **8/5/2015**	SeqNo: **842185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1507D99 RcptNo: 1

Received by/date: SA 07/31/15

Logged By: Lindsay Mangin 7/31/2015 8:00:00 AM

Completed By: Lindsay Mangin 7/31/2015 9:58:04 AM

Reviewed By: IO 07/31/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2, 2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? no
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.	Turn-Around Time: ☐ Standar ☐ Rush
	Project Name: Quarterly WDW-1, 2, & 3 Inj Well
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Micki Schultz / Scott Denton / Mike Holder
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler: Elizabeth Salsberry
	On Ice: ☒ Yes ☐ No
	Sample Temperature: 1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1507D99	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attachec list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-845 Method 1311
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
7/30/15	0855	Liquid	Trip Blank	2	Neat	-002		X					
7/30/15	0855	Liquid	Temperature Blank	1	Neat	—							

Date	Time	Relinquished by	Received by	Date	Time
7/30/2015	10:30	Elizabeth Salsberry			
		Elizabeth Salsberry		07/31/15	0800
Date:	Time:	Relinquished by:	Received by	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Comb and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	7/30/2015 @ 8:50 am
End Date and Time	7/30/2015 @ 9:01 am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp:75.2 °F Humidity: 69% Wind Direction: North Wind Speed: 10.0 mi Over all Condition:Partly Cloudy

Date and Time:

Field Temp. 111.4 F Field pH 7.90

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, July 21, 2015 10:52 AM
To: Denton, Scott (Scott.Denton@HollyFrontier.com)
Cc: Griswold, Jim, EMNRD
Subject: 2015 2nd Quarter Injection Report for WDW-1, WDW-2 and WDW-3 July 15, 2015

Mr. Denton:

The New Mexico Oil Conservation Division (OCD) received the above subject environmental laboratory analytical data report(s) for the quarter of April through June 2015.

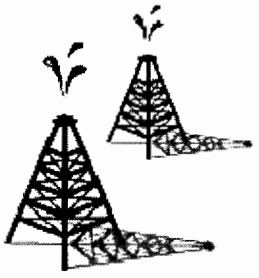
Carl noticed the following:

1) During Data Quality Objective evaluation of received samples from the refinery the lab detected bubbles in all 3 VOC sample containers.
2) There was a metals preservative issue.
3) The sample containment temperature upon delivery was 6.9 °C instead of 4 °C.

OCD requires that the operator comply with USEPA Quality Assurance/Quality Control and Data Quality Objectives when sampling, handling, and shipping environmental samples to the laboratory for analyses.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
O: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US
Web: http://www.emnrd.state.nm.us/ocd/
"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental



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HOLLYFRONTIER

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July 15, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 9944 5666

RE: 2015 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1377 psig and the average flows were 127 gpm for WDW-1, 116 gpm for WDW-2 and 125 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2015 to June 30, 2015. We have disposed a total of 1,150,921 barrels of fluid into the three wells during the second quarter of 2015. The volume per well is:

- 397,034 barrels into WDW-1
- 364,011 barrels into WDW-2
- 389,876 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/2nd quarter/2015-7-15 2nd QTR Inj. Rpt. for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2015 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	36,354,894
Apr-15	1,350	1,400	1,075	121	132	85	426	845	225	4,149	4,526	2,914	124,457	36,479,351
May-15	1,393	1,400	1,273	130	132	116	298	793	173	4,457	4,526	3,977	138,167	36,617,518
Jun-15	1,398	1,400	1,375	130	132	127	446	864	230	4,457	4,526	4,354	133,710	36,751,228
WDW-2													**Previous Quarter**	23,265,417
Apr-15	1,365	1,400	1,245	112	122	76	280	717	241	3,840	4,183	2,606	115,200	23,380,617
May-15	1,389	1,400	1,194	117	121	61	248	274	225	4,011	4,149	2,091	124,341	23,504,958
Jun-15	1,400	1,400	1,391	121	183	105	249	266	239	4,149	6,274	3,600	124,470	23,629,428
WDW-3													**Previous Quarter**	13,488,921
Apr-15	1,364	1,390	1,300	126	138	106	593	1,026	464	4,320	4,731	3,634	129,600	13,618,521
May-15	1,359	1,390	1,098	121	137	4	526	919	259	4,149	4,697	137	128,619	13,747,140
Jun-15	1,379	1,390	1,149	128	137	20	685	931	307	4,389	4,697	686	131,657	13,878,797
													Total Injected fluids:	74,259,453

T:\Injection Wells\Reports C-115 and Quarterly\2015\2nd quarter\
2nd 2015 qtrly rpt data
Injection fluids

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Navajo Refining Company, L.L.C.

2015 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/1/15	4/7/15	4/14/15	4/22/15	4/30/15	5/4/15	5/11/15	5/19/15	5/29/15	6/1/15	6/8/15	6/15/15	6/22/15	6/29/15
WDW -1[1]	145	145	145	145	145	145	100**	75**	100	100	100	100	100	100
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	255	225*	225	225	225	255	290	150***	160	160	160	245	260	285
					Comments:									

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

T:\Injection Wells\Reports C-115 and Quarterly\2015\2nd quarter\
2nd 2015 qtrly rpt data
WAMS Tanks

7/13/20152:56 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 16, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1505504

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/12/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

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Case Narrative

WO#: **1505504**
Date: **6/16/2015**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	11	0.15	1.0	*	mg/L	10	5/12/2015 9:30:50 PM	R26148
Chloride	550	2.2	50		mg/L	100	5/12/2015 9:43:14 PM	R26148
Nitrogen, Nitrite (As N)	0.32	0.10	1.0	J	mg/L	10	5/12/2015 9:30:50 PM	R26148
Bromide	2.2	0.26	1.0		mg/L	10	5/12/2015 9:30:50 PM	R26148
Nitrogen, Nitrate (As N)	0.80	0.064	1.0	J	mg/L	10	5/12/2015 9:30:50 PM	R26148
Phosphorus, Orthophosphate (As P)	ND	0.75	5.0		mg/L	10	5/12/2015 9:30:50 PM	R26148
Sulfate	2600	8.2	50		mg/L	100	5/12/2015 9:43:14 PM	R26148
EPA METHOD 7470: MERCURY							Analyst: **MED**	
Mercury	ND	0.000059	0.00020		mg/L	1	5/14/2015 2:31:19 PM	19224
MERCURY, TCLP							Analyst: **MED**	
Mercury	0.0012	0.00075	0.020	J	mg/L	1	5/27/2015 3:12:30 PM	19406
EPA METHOD 6010B: TCLP METALS							Analyst: **ELS**	
Arsenic	0.049	0.011	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Barium	0.051	0.00060	100	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Cadmium	ND	0.00090	1.0		mg/L	1	5/27/2015 10:03:57 AM	19377
Chromium	0.016	0.0014	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Lead	0.0015	0.0013	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Selenium	0.13	0.019	1.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Silver	ND	0.0013	5.0		mg/L	1	5/27/2015 10:03:57 AM	19377
EPA 6010B: TOTAL METALS							Analyst: **ELS**	
Aluminum	0.48	0.0038	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
Antimony	ND	0.015	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Arsenic	0.042	0.018	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
Barium	0.010	0.00098	0.020	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Beryllium	ND	0.00046	0.0030		mg/L	1	5/27/2015 9:51:20 AM	19377
Cadmium	ND	0.00071	0.0020		mg/L	1	5/27/2015 9:51:20 AM	19377
Calcium	51	0.063	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Chromium	ND	0.0015	0.0060		mg/L	1	5/27/2015 9:51:20 AM	19377
Cobalt	0.0026	0.0021	0.0060	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Copper	0.0051	0.0039	0.0060	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Iron	0.33	0.0079	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Lead	ND	0.0023	0.0050		mg/L	1	5/27/2015 9:51:20 AM	19377
Magnesium	19	0.062	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Manganese	0.10	0.0012	0.0020		mg/L	1	5/27/2015 9:51:20 AM	19377
Nickel	0.011	0.0060	0.010		mg/L	1	5/27/2015 9:51:20 AM	19377
Potassium	62	0.13	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Selenium	0.13	0.017	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 6010B: TOTAL METALS							Analyst: **ELS**	
Silver	ND	0.0013	0.0050		mg/L	1	5/27/2015 9:51:20 AM	19377
Sodium	1400	10	20		mg/L	20	5/27/2015 10:17:24 AM	19377
Thallium	ND	0.010	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Vanadium	0.0078	0.0018	0.050	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Zinc	0.030	0.0020	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Acetonitrile	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Allyl chloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroprene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Cyclohexane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Diethyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Diisopropyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Epichlorohydrin	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Ethyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Ethyl methacrylate	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Ethyl tert-butyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Freon-113	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Isobutanol	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Isopropyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methacrylonitrile	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methyl ethyl ketone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl isobutyl ketone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl methacrylate	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methylcyclohexane	ND	1.0	1.0		µg/L	1	5/22/2015	R26752
n-Amyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
n-Hexane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Nitrobenzene	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Pentachloroethane	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
p-isopropyltoluene	0.83	0.50	0.50		µg/L	1	5/22/2015	R26752
Propionitrile	7.3	2.5	2.5		µg/L	1	5/22/2015	R26752
Tetrahydrofuran	1.3	0.50	0.50		µg/L	1	5/22/2015	R26752
Benzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Toluene	0.66	0.50	0.50		µg/L	1	5/22/2015	R26752
Ethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methyl tert-butyl ether (MTBE)	ND	10	10		µg/L	1	5/22/2015	R26752
1,2,4-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3,5-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichloroethane (EDC)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,2-Dibromoethane (EDB)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Naphthalene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Acetone	10	2.5	2.5		µg/L	1	5/22/2015	R26752
Bromobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromodichloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromoform	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Carbon disulfide	1.0	0.50	0.50		µg/L	1	5/22/2015	R26752
Carbon Tetrachloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroform	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
4-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
cis-1,2-DCE	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
cis-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dibromo-3-chloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dibromochloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dibromomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,4-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dichlorodifluoromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloroethene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Hexachlorobutadiene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Hexanone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Isopropylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methylene Chloride	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
n-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
n-Propylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
sec-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Styrene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,1,1,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,2,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Tetrachloroethene (PCE)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,2-DCE	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,3-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,4-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,1-Trichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,2-Trichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Trichloroethene (TCE)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Trichlorofluoromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,3-Trichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Vinyl chloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
mp-Xylenes	ND	1.0	1.0		µg/L	1	5/22/2015	R26752
o-Xylene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Amyl methyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Butyl alcohol	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Acrolein	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Acrylonitrile	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromochloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Chloroethyl vinyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Iodomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,4-Dichloro-2-butene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Vinyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,4-Dioxane	ND	20	20		µg/L	1	5/22/2015	R26752
Surr: 1,2-Dichlorobenzene-d4	111		70-130		%REC	1	5/22/2015	R26752
Surr: 4-Bromofluorobenzene	106	0	70-130		%REC	1	5/22/2015	R26752
Surr: Toluene-d8	104	0	70-130		%REC	1	5/22/2015	R26752
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
1,1-Biphenyl	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Atrazine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Benzaldehyde	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Caprolactam	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
N-Nitroso-di-n-butylamine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Acetophenone	ND	10	10		µg/L	1	5/21/2015	R26752
1-Methylnaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2,3,4,6-Tetrachlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4,5-Trichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4,6-Trichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752

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Lab ID: 1505504-001 **Matrix:** AQUEOUS

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Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
2,4-Dichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dimethylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dinitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dinitrotoluene	ND	10	10		µg/L	1	5/21/2015	R26752
2,6-Dinitrotoluene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Chloronaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Chlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2-Methylnaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Methylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
2-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
2-Nitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
3,3´-Dichlorobenzidine	ND	10	10		µg/L	1	5/21/2015	R26752
3-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4,6-Dinitro-2-methylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
4-Bromophenyl phenyl ether	ND	10	10		µg/L	1	5/21/2015	R26752
4-Chloro-3-methylphenol	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
4-Chloroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4-Chlorophenyl phenyl ether	ND	10	10		µg/L	1	5/21/2015	R26752
4-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4-Nitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
Acenaphthene	ND	10	10		µg/L	1	5/21/2015	R26752
Acenaphthylene	ND	10	10		µg/L	1	5/21/2015	R26752
Anthracene	ND	10	10		µg/L	1	5/21/2015	R26752
Benzo(g,h,i)perylene	ND	10	10		µg/L	1	5/21/2015	R26752
Benz(a)anthracene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(a)pyrene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(b)fluoranthene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(k)fluoranthene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Bis(2-chloroethoxy)methane	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-chloroethyl)ether	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-chloroisopropyl)ether	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-ethylhexyl)phthalate	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Butyl benzyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Carbazole	ND	10	10		µg/L	1	5/21/2015	R26752
Chrysene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Dibenz(a,h)anthracene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Dibenzofuran	ND	10	10		µg/L	1	5/21/2015	R26752
Diethyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Dimethyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
Di-n-butyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Di-n-octyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Fluoranthene	ND	10	10		µg/L	1	5/21/2015	R26752
Fluorene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachlorobenzene	ND	1.0	1.0		µg/L	1	5/21/2015	R26752
Hexachlorobutadiene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachlorocyclopentadiene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachloroethane	ND	10	10		µg/L	1	5/21/2015	R26752
Indeno(1,2,3-cd)pyrene	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Isophorone	ND	10	10		µg/L	1	5/21/2015	R26752
Naphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
Nitrobenzene	ND	10	10		µg/L	1	5/21/2015	R26752
N-Nitrosodi-n-propylamine	ND	10	10		µg/L	1	5/21/2015	R26752
N-Nitrosodiphenylamine	ND	2.0	2.0		µg/L	1	5/21/2015	R26752
Pentachlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
Phenanthrene	ND	10	10		µg/L	1	5/21/2015	R26752
Phenol	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pyrene	ND	10	10		µg/L	1	5/21/2015	R26752
o-Toluidine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pyridine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
1,2,4,5-Tetrachlorobenzene	ND	10	10		µg/L	1	5/21/2015	R26752
Surr: 2,4,6-Tribromophenol	111	0	10-123		%REC	1	5/21/2015	R26752
Surr: 2-Fluorobiphenyl	90.0	0	19-130		%REC	1	5/21/2015	R26752
Surr: 2-Fluorophenol	74.4	0	21-120		%REC	1	5/21/2015	R26752
Surr: Nitrobenzene-d5	80.4	0	25-130		%REC	1	5/21/2015	R26752
Surr: Phenol-d5	64.0	0	10-130		%REC	1	5/21/2015	R26752
Surr: Terphenyl-d14	74.8	0	21-141		%REC	1	5/21/2015	R26752
CORROSIVITY							Analyst: **SUB**	
pH	7.99				pH Units	1	5/19/2015	R26752
IGNITABILITY METHOD 1010							Analyst: **SUB**	
Ignitability	>200	0	0		°F	1	5/22/2015	R26752
CYANIDE, REACTIVE							Analyst: **SUB**	
Cyanide, Reactive	ND	1.00	1.00		mg/L	1	5/22/2015	R26752
SULFIDE, REACTIVE							Analyst: **SUB**	
Reactive Sulfide	ND	1.0	1.0		mg/L	1	5/21/2015	R26752
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	6600	0.010	0.010		µmhos/c	1	5/12/2015 4:15:42 PM	R26154

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM4500-H+B: PH							Analyst: **JRR**	
pH	7.95	0.100	1.68	H	pH units	1	5/12/2015 4:15:42 PM	R26154
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	313.4	0.9399	20.00		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
Total Alkalinity (as CaCO3)	313.4	0.9399	20.00		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
SPECIFIC GRAVITY							Analyst: **JRR**	
Specific Gravity	0.9990	0	0			1	5/18/2015 11:44:00 AM	R26252
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JML**	
Total Dissolved Solids	4260	145	200	*	mg/L	1	5/15/2015 5:40:00 PM	19225

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Qualifiers:

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Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well **Collection Date:**
Lab ID: 1505504-002 **Matrix:** TRIP BLANK **Received Date:** 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Acetonitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Allyl chloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroprene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Cyclohexane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Diethyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Diisopropyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Epichlorohydrin	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Ethyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Ethyl methacrylate	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Ethyl tert-butyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Freon-113	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Isobutanol	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Isopropyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methacrylonitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Methyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methyl ethyl ketone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Methyl isobutyl ketone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Methyl methacrylate	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Methylcyclohexane	ND	1.0	1.0		µg/L	1	5/21/2015	R26752
n-Amyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
n-Hexane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Nitrobenzene	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pentachloroethane	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
p-isopropyltoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Propionitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Tetrahydrofuran	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Benzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Toluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Ethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methyl tert-butyl ether (MTBE)	ND	10	0.50		µg/L	1	5/21/2015	R26752
1,2,4-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3,5-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichloroethane (EDC)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dibromoethane (EDB)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Naphthalene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Acetone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Bromobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Bromodichloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Bromoform	ND	0.50	0.50		µg/L	1	5/21/2015	R26752

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Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Rccovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well **Collection Date:**
Lab ID: 1505504-002 **Matrix:** TRIP BLANK **Received Date:** 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Bromomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Carbon disulfide	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Carbon Tetrachloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroform	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
4-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
cis-1,2-DCE	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
cis-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dibromo-3-chloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dibromochloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dibromomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,4-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dichlorodifluoromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloroethene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Hexachlorobutadiene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Hexanone	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Isopropylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methylene Chloride	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
n-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
n-Propylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
sec-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Styrene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,1,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,2,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Tetrachloroethene (PCE)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,2-DCE	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2,3-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752

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Qualifiers:

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Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well **Collection Date:**
Lab ID: 1505504-002 **Matrix:** TRIP BLANK **Received Date:** 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,1-Trichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,2-Trichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Trichloroethene (TCE)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Trichlorofluoromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2,3-Trichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Vinyl chloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
mp-Xylenes	ND	1.0	0.50		µg/L	1	5/21/2015	R26752
o-Xylene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Amyl methyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Butyl alcohol	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Acrolein	ND	2.5	10		µg/L	1	5/21/2015	R26752
Acrylonitrile	ND	2.5	10		µg/L	1	5/21/2015	R26752
Bromochloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Chloroethyl vinyl ether	ND	0.50	1.0		µg/L	1	5/21/2015	R26752
Iodomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,4-Dichloro-2-butene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Vinyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,4-Dioxane	ND	20	20		µg/L	1	5/21/2015	R26752
Surr: 1,2-Dichlorobenzene-d4	105		70-130		%REC	1	5/21/2015	R26752
Surr: 4-Bromofluorobenzene	101	0	70-130		%REC	1	5/21/2015	R26752
Surr: Toluene-d8	102	0	70-130		%REC	1	5/21/2015	R26752

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R26148**	RunNo: **26148**
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775809** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R26148**	RunNo: **26148**
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775815** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.55	0.10	0.5000	0	110	90	110			
Chloride	4.8	0.50	5.000	0	96.6	90	110			
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	102	90	110			
Bromide	2.5	0.10	2.500	0	99.3	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	102	90	110			
Phosphorus, Orthophosphate (As P	5.1	0.50	5.000	0	102	90	110			
Sulfate	10	0.50	10.00	0	99.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797217** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Ethyl methacrylate	ND	0.50								
Isobutanol	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Propionitrile	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797217** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50								
2-Hexanone	ND	0.50								
Methylene Chloride	ND	2.5								
Styrene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797218** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.4		10.00	0	93.8	80	120			
Toluene	9.9		10.00	0	99.0	80	120			
Ethylbenzene	10		10.00	0	99.9	80	120			
Chlorobenzene	9.8		10.00	0	97.9	80	120			
1,1-Dichloroethene	9.7		10.00	0	96.9	80	120			
Tetrachloroethene (PCE)	11		10.00	0	106	80	120			
Trichloroethene (TCE)	10		10.00	0	101	80	120			
o-Xylene	10		10.00	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2,3,4,6-Tetrachlorophenol	ND	0.50								
2,4,5-Trichlorophenol	ND	0.50								
2,4,6-Trichlorophenol	ND	0.50								
2,4-Dichlorophenol	ND	0.50								
2,4-Dimethylphenol	ND	0.50								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
2-Chloronaphthalene	ND	0.50								
2-Chlorophenol	ND	0.50								
2-Methylnaphthalene	ND	0.50								
2-Methylphenol	ND	0.50								
2-Nitroaniline	ND	0.50								
2-Nitrophenol	ND	0.50								
3,3´-Dichlorobenzidine	ND	0.50								
3-Nitroaniline	ND	0.50								
4,6-Dinitro-2-methylphenol	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.50								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
4-Chlorophenyl phenyl ether	ND	0.50								
4-Nitroaniline	ND	0.50								
4-Nitrophenol	ND	0.50								
Acenaphthene	ND	0.50								
Acenaphthylene	ND	0.50								
Anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								
Benzo(k)fluoranthene	ND	0.50								
Bis(2-chloroethoxy)methane	ND	0.50								
Bis(2-chloroethyl)ether	ND	0.50								
Bis(2-chloroisopropyl)ether	ND	0.50								
Bis(2-ethylhexyl)phthalate	ND	0.50								
Butyl benzyl phthalate	ND	0.50								
Carbazole	ND	0.50								

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Dibenzofuran	ND	0.50								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.50								
Di-n-butyl phthalate	ND	0.50								
Di-n-octyl phthalate	ND	0.50								
Fluoranthene	ND	0.50								
Fluorene	ND	0.50								
Hexachlorobenzene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
Hexachlorocyclopentadiene	ND	0.50								
Hexachloroethane	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Isophorone	ND	0.50								
Naphthalene	ND	0.50								
Nitrobenzene	ND	0.50								
N-Nitrosodi-n-propylamine	ND	0.50								
N-Nitrosodiphenylamine	ND	0.50								
Pentachlorophenol	ND	0.50								
Phenanthrene	ND	0.50								
Phenol	ND	0.50								
Pyrene	ND	0.50								
Pyridine	ND	0.50								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797223** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.6		5.000	0	93.0	49	145			
2-Chlorophenol	4.8		5.000	0	96.2	50	131			
4-Chloro-3-methylphenol	5.4		5.000	0	108	42	139			
4-Nitrophenol	5.3		5.000	0	106	19	137			
Acenaphthene	4.8		5.000	0	96.6	36	131			
Bis(2-ethylhexyl)phthalate	5.6		5.000	0	113	43	148			
N-Nitrosodi-n-propylamine	6.1		5.000	0	122	46	135			
Pentachlorophenol	5.1		5.000	0	101	22	138			
Phenol	4.4		5.000	0	88.8	45	134			

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**LCS-R26752**	SampType:	**LCS**	TestCode:	**EPA 8270C: Semivolatiles/Mod**					
Client ID:	**LCSW**	Batch ID:	**R26752**	RunNo:	**26752**					
Prep Date:		Analysis Date:	**5/21/2015**	SeqNo:	**797223**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pyrene	5.4		5.000	0	109	45	139			

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19224**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777328** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-19224**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

Sample ID **LCSD-19224**	SampType: **LCSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSS02**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	101	80	120	0.438	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19406**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **19406**	RunNo: **26436**							
Prep Date: **5/27/2015**	Analysis Date: **5/27/2015**	SeqNo: **785575**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-19406**	SampType: **LCS**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSW**	Batch ID: **19406**	RunNo: **26436**							
Prep Date: **5/27/2015**	Analysis Date: **5/27/2015**	SeqNo: **785576**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.020	0.005000	0	95.3	80	120			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19377**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785370** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-19377**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785371** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	5.0	0.5000	0	98.7	80	120			J
Barium	0.47	100	0.5000	0	94.3	80	120			J
Cadmium	0.48	1.0	0.5000	0	96.3	80	120			J
Chromium	0.47	5.0	0.5000	0	94.2	80	120			J
Lead	0.46	5.0	0.5000	0	92.7	80	120			J
Selenium	0.48	1.0	0.5000	0	95.9	80	120			J
Silver	0.099	5.0	0.1000	0	98.7	80	120			J

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19377**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785351** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	0.031	0.050								J
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	0.0083	0.050								J
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-19377**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785352** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	101	80	120			
Antimony	0.49	0.050	0.5000	0	97.9	80	120			
Arsenic	0.49	0.020	0.5000	0	98.7	80	120			
Barium	0.47	0.020	0.5000	0	94.3	80	120			
Beryllium	0.49	0.0030	0.5000	0	97.9	80	120			
Cadmium	0.48	0.0020	0.5000	0	96.3	80	120			
Calcium	48	1.0	50.00	0	96.6	80	120			
Chromium	0.47	0.0060	0.5000	0	94.2	80	120			
Cobalt	0.46	0.0060	0.5000	0	92.4	80	120			
Copper	0.48	0.0060	0.5000	0	95.6	80	120			
Iron	0.47	0.050	0.5000	0	94.1	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-19377**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785352** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.46	0.0050	0.5000	0	92.7	80	120			
Magnesium	48	1.0	50.00	0	96.9	80	120			
Manganese	0.47	0.0020	0.5000	0	93.6	80	120			
Nickel	0.47	0.010	0.5000	0	93.1	80	120			
Potassium	46	1.0	50.00	0	93.0	80	120			
Selenium	0.48	0.050	0.5000	0	95.9	80	120			
Silver	0.099	0.0050	0.1000	0	98.7	80	120			
Sodium	48	1.0	50.00	0	96.1	80	120			
Thallium	0.49	0.050	0.5000	0	97.0	80	120			
Vanadium	0.49	0.050	0.5000	0	98.0	80	120			
Zinc	0.47	0.020	0.5000	0	93.5	80	120			

Sample ID **1505504-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785354** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.020	0.5000	0.4834	114	75	125			
Antimony	0.51	0.050	0.5000	0	103	75	125			
Arsenic	0.57	0.020	0.5000	0.04239	105	75	125			
Barium	0.50	0.020	0.5000	0.01049	97.1	75	125			
Beryllium	0.49	0.0030	0.5000	0	98.5	75	125			
Cadmium	0.51	0.0020	0.5000	0	102	75	125			
Calcium	100	1.0	50.00	51.14	97.3	75	125			
Chromium	0.48	0.0060	0.5000	0	95.4	75	125			
Cobalt	0.48	0.0060	0.5000	0.002620	96.1	75	125			
Copper	0.55	0.0060	0.5000	0.005100	110	75	125			
Iron	0.80	0.050	0.5000	0.3329	92.5	75	125			
Lead	0.48	0.0050	0.5000	0	95.9	75	125			
Magnesium	70	1.0	50.00	19.14	101	75	125			
Manganese	0.58	0.0020	0.5000	0.1030	96.0	75	125			
Nickel	0.49	0.010	0.5000	0.01120	95.5	75	125			
Selenium	0.66	0.050	0.5000	0.1334	105	75	125			
Silver	0.10	0.0050	0.1000	0	104	75	125			
Thallium	0.51	0.050	0.5000	0	101	75	125			
Vanadium	0.51	0.050	0.5000	0.007830	101	75	125			
Zinc	0.52	0.020	0.5000	0.03044	98.1	75	125			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **1505504-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.020	0.5000	0.4834	123	75	125	4.31	20	
Antimony	0.53	0.050	0.5000	0	106	75	125	3.03	20	
Arsenic	0.58	0.020	0.5000	0.04239	108	75	125	2.76	20	
Barium	0.51	0.020	0.5000	0.01049	100	75	125	3.03	20	
Beryllium	0.50	0.0030	0.5000	0	101	75	125	2.04	20	
Cadmium	0.52	0.0020	0.5000	0	105	75	125	2.76	20	
Chromium	0.49	0.0060	0.5000	0	97.8	75	125	2.49	20	
Cobalt	0.50	0.0060	0.5000	0.002620	98.6	75	125	2.48	20	
Copper	0.57	0.0060	0.5000	0.005100	113	75	125	3.29	20	
Iron	0.83	0.050	0.5000	0.3329	99.1	75	125	4.06	20	
Lead	0.49	0.0050	0.5000	0	98.1	75	125	2.26	20	
Magnesium	71	1.0	50.00	19.14	104	75	125	1.82	20	
Manganese	0.60	0.0020	0.5000	0.1030	99.9	75	125	3.33	20	
Nickel	0.50	0.010	0.5000	0.01120	98.0	75	125	2.50	20	
Selenium	0.67	0.050	0.5000	0.1334	106	75	125	1.30	20	
Silver	0.11	0.0050	0.1000	0	108	75	125	3.31	20	
Thallium	0.53	0.050	0.5000	0	107	75	125	4.89	20	
Vanadium	0.53	0.050	0.5000	0.007830	104	75	125	3.13	20	
Zinc	0.53	0.020	0.5000	0.03044	101	75	125	2.60	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797254**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797255**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.486		0.5000	0	97.2	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797257**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.10								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797258**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R26154**	RunNo: **26154**							
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775904**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	4.120	20.00								J

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R26154**	RunNo: **26154**							
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775905**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	87.40	20.00	80.00	0	109	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19225**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **19225**	RunNo: **26231**
Prep Date: **5/14/2015**	Analysis Date: **5/15/2015**	SeqNo: **778508** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-19225**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **19225**	RunNo: **26231**
Prep Date: **5/14/2015**	Analysis Date: **5/15/2015**	SeqNo: **778509** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1505504 RcptNo: 1

Received by/date: CS 05/12/15

Logged By: Ashley Gallegos 5/12/2015 8:56:00 AM

Completed By: Ashley Gallegos 5/12/2015 12:36:44 PM

Reviewed By: 05/12/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☑	NA ☐
	Approved by client.		
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and CNG) properly preserved?	Yes ☑	No ☑ CS 05/12/15	
9. Was preservative added to bottles?	Yes ☑	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☑	No VOA Vials ☐
11. Were any sample containers received broken? CS 05/12/15	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

For metals analysis, added 1ml HNO3 to -001B for acceptable pH. Held in Login for 24 hours. CS 05/12

# of preserved bottles checked for pH: 2 (2) (<2 or >12 unless noted)

Adjusted? yes

Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks: Sample -001D (all 3 vials) and -002A (2 of 2) have bubbles. CS 05/12,

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	6.9	Good	Not Present			

Released to Imaging: 7/12/2024 10:49:45 AM

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☒ Standar ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☒ Yes ☐ No

Sample Temperature: 6.9°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1505604	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond. Fl, Cation/anion bal., Br, Eh/4D	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311									
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X									
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X										
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X														
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X													
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X												
5-11-15	0820	Liquid	Trip Blank	2	Neat	-002		X														
5-11-15	0820	Liquid	Temperature Blank	1	Neat																	

Date:	Time:	Relinquished by:	Received by:	Date	Time
5-11-15	1000	Elizabeth Salsberry	Celina Sanchez	05/12/15	0856
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras

Client approved temp. Spoke with Micki. CS 05/12/15

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	7/9/2015 @ 08:57am
End Date and Time	7/9/2015 @ 09:08am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc):	Temp:78.8 °F Humidity: 47% Wind Direction: NNE Wind Speed: 10.4 mph Overall Condition: clear
Date and Time:	

Field Temp. 45.3 Field pH : 7.62

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER

January 22, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 1200 0000 1832 3280

RE: 2014 4th Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for all three wells was 1345 psig and the average flows were 111 gpm for WDW-1, 113 gpm for WDW-2 and 128 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from October 1, 2014 to December 31, 2014. We have disposed a total of 1,088,093 barrels of fluid into the three wells during the fourth quarter of 2014. The volume per well is:

- 350,826 barrels into WDW-1
- 360,020 barrels into WDW-2
- 377,247 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/4th quarter/2015-1-22 4th QTR Inj Rpt for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2014 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	35,589,080
Oct-14	1,341	1,350	1,310	93	125	67	360	569	203	3,189	4,286	2,297	99,503	35,688,583
Nov-14	1,356	1,375	1,300	122	128	112	305	380	193	4,183	4,389	3,840	125,348	35,813,931
Dec-14	1,346	1,380	1,244	118	269	94	285	402	156	4,046	9,223	3,223	125,975	35,939,906
WDW-2													**Previous Quarter**	22,558,499
Oct-14	1,341	1,350	1,306	119	126	110	298	366	256	4,080	4,320	3,771	127,175	22,685,674
Nov-14	1,353	1,375	1,300	115	123	105	515	1,617	253	3,943	4,217	3,600	118,739	22,804,413
Dec-14	1,347	1,380	1,255	107	117	83	808	1,492	256	3,669	4,011	2,846	114,106	22,918,519
WDW-3													**Previous Quarter**	12,735,189
Oct-14	1,341	1,350	1,063	122	144	0	784	938	331	4,183	4,937	0	129,877	12,865,066
Nov-14	1,342	1,375	1,205	124	139	54	847	1,002	676	4,251	4,766	1,851	127,146	12,992,212
Dec-14	1,340	1,373	1,258	138	127	82	706	799	616	4,731	4,354	2,811	120,224	13,112,436
													Total Injected fluids:	71,970,861

T:\Injection Wells\Reports C-115 and Quarterly\2014\4th quarter\
4th 2014 qtrly rpt data
Injection fluids

1/15/20159:33 AM

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Navajo Refining Company, L.L.C.

2014 FOURTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/8/14	10/13/14	10/21/14	10/27/02	11/4/14	11/10/14	11/17/14	11/24/14	12/1/14	12/9/14	12/15/14	12/22/14	12/29/14	
WDW -1[1]	145	145	145	145	145	145	145	145	145	145	145	145	145	
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100	
WDW-3[1]	145	145	145	145	145	145	145	200	200	200	200	200	200	
				Comments:										

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 09, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1411288

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/7/2014 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued December 08, 2014

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1411288**
Date: **12/9/2014**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Fluoride	5.3	0.50	*	mg/L	5	11/7/2014 11:52:12 PM	R22427
Chloride	330	25		mg/L	50	11/19/2014 12:14:33 AM	R22629
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Bromide	0.68	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Nitrogen, Nitrate (As N)	1.3	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	11/7/2014 11:52:12 PM	R22427
Sulfate	1300	25		mg/L	50	11/19/2014 12:14:33 AM	R22629
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	11/13/2014 11:05:18 AM	16357
MERCURY, TCLP						Analyst: **MMD**	
Mercury	ND	0.020		mg/L	1	11/13/2014 2:54:22 PM	16358
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	0.20		mg/L	1	11/12/2014 11:08:39 AM	16345
Barium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Cadmium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Chromium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Lead	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Selenium	ND	0.20		mg/L	1	11/12/2014 11:08:39 AM	16345
Silver	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	0.48	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Antimony	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Arsenic	0.050	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Barium	ND	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Beryllium	ND	0.0030		mg/L	1	11/12/2014 11:06:42 AM	16345
Cadmium	ND	0.0020		mg/L	1	11/12/2014 11:06:42 AM	16345
Calcium	50	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Chromium	ND	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Cobalt	ND	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Copper	0.0092	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Iron	0.86	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Lead	ND	0.0050		mg/L	1	11/12/2014 11:06:42 AM	16345
Magnesium	17	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Manganese	0.10	0.0020		mg/L	1	11/12/2014 11:06:42 AM	16345
Nickel	0.010	0.010		mg/L	1	11/12/2014 11:06:42 AM	16345
Potassium	22	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Selenium	0.058	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
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Hall Environmental Analysis Laboratory, Inc.

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Lab ID: 1411288-001 **Matrix:** AQUEOUS

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Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	11/12/2014 11:06:42 AM	16345
Sodium	ND	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Thallium	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Vanadium	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Zinc	0.049	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Allyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroprene	ND	0.500		µg/L	1	11/13/2014	R22819
Cyclohexane	ND	0.500		µg/L	1	11/13/2014	R22819
Diethyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Diisopropyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Epichlorohydrin	ND	5.00		µg/L	1	11/13/2014	R22819
Ethyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl tert-butyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Freon-113	ND	0.500		µg/L	1	11/13/2014	R22819
Isobutanol	ND	50.0		µg/L	1	11/13/2014	R22819
Isopropyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methacrylonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl ethyl ketone	2.82	2.50		µg/L	1	11/13/2014	R22819
Methyl isobutyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Methylcyclohexane	ND	1.00		µg/L	1	11/13/2014	R22819
n-Amyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
n-Hexane	ND	0.500		µg/L	1	11/13/2014	R22819
Nitrobenzene	ND	5.00		µg/L	1	11/13/2014	R22819
Pentachloroethane	ND	5.00		µg/L	1	11/13/2014	R22819
p-isopropyltoluene	ND	0.500		µg/L	1	11/13/2014	R22819
Propionitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrahydrofuran	ND	0.500		µg/L	1	11/13/2014	R22819
Benzene	ND	0.500		µg/L	1	11/13/2014	R22819
Toluene	ND	0.500		µg/L	1	11/13/2014	R22819
Ethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl tert-butyl ether (MTBE)	ND	10.0		µg/L	1	11/13/2014	R22819
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3,5-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloroethane (EDC)	ND	0.500		µg/L	1	11/13/2014	R22819

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EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.500		µg/L	1	11/13/2014	R22819
Naphthalene	ND	0.500		µg/L	1	11/13/2014	R22819
Acetone	47.2	2.50		µg/L	1	11/13/2014	R22819
Bromobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Bromodichloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Bromoform	ND	0.500		µg/L	1	11/13/2014	R22819
Bromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon disulfide	0.930	0.500		µg/L	1	11/13/2014	R22819
Carbon Tetrachloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroform	ND	0.500		µg/L	1	11/13/2014	R22819
Chloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
4-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromo-3-chloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Dichlorodifluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
2,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
Hexachlorobutadiene	ND	0.500		µg/L	1	11/13/2014	R22819
2-Hexanone	ND	0.500		µg/L	1	11/13/2014	R22819
Isopropylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methylene Chloride	ND	2.50		µg/L	1	11/13/2014	R22819
n-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
n-Propylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
sec-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Styrene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819

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CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
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Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,1,1,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrachloroethene (PCE)	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,4-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Trichloroethene (TCE)	ND	0.500		µg/L	1	11/13/2014	R22819
Trichlorofluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Xylenes, Total	ND	1.00		µg/L	1	11/13/2014	R22819
mp-Xylenes	ND	1.00		µg/L	1	11/13/2014	R22819
o-Xylene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Amyl methyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butyl alcohol	46.8	0.500		µg/L	1	11/13/2014	R22819
Acrolein	ND	0.500		µg/L	1	11/13/2014	R22819
Acrylonitrile	ND	10.0		µg/L	1	11/13/2014	R22819
Bromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chloroethyl vinyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Iodomethane	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,4-Dichloro-2-butene	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dioxane	ND	20.0		µg/L	1	11/13/2014	R22819
Surr: 1,2-Dichlorobenzene-d4	108	70-130		%REC	1	11/13/2014	R22819
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	11/13/2014	R22819
Surr: Toluene-d8	99.2	70-130		%REC	1	11/13/2014	R22819
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	11/14/2014	R22918
Atrazine	ND	5.0		µg/L	1	11/14/2014	R22918
Benzaldehyde	ND	5.0		µg/L	1	11/14/2014	R22918
Caprolactam	ND	5.0		µg/L	1	11/14/2014	R22918
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	11/14/2014	R22918
Acetophenone	ND	10		µg/L	1	11/14/2014	R22918
1-Methylnaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4,5-Trichlorophenol	ND	10		µg/L	1	11/14/2014	R22918

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EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
2,4,6-Trichlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dichlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dimethylphenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dinitrophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dinitrotoluene	ND	10		µg/L	1	11/14/2014	R22918
2,6-Dinitrotoluene	ND	10		µg/L	1	11/14/2014	R22918
2-Chloronaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2-Chlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2-Methylnaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2-Methylphenol	ND	10		µg/L	1	11/14/2014	R22918
2-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
2-Nitrophenol	ND	10		µg/L	1	11/14/2014	R22918
3,3'-Dichlorobenzidine	ND	10		µg/L	1	11/14/2014	R22918
3-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	11/14/2014	R22918
4-Bromophenyl phenyl ether	ND	10		µg/L	1	11/14/2014	R22918
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	11/14/2014	R22918
4-Chloroaniline	ND	10		µg/L	1	11/14/2014	R22918
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	11/14/2014	R22918
4-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
4-Nitrophenol	ND	10		µg/L	1	11/14/2014	R22918
Acenaphthene	ND	10		µg/L	1	11/14/2014	R22918
Acenaphthylene	ND	10		µg/L	1	11/14/2014	R22918
Anthracene	ND	10		µg/L	1	11/14/2014	R22918
Benzo(g,h,i)perylene	ND	10		µg/L	1	11/14/2014	R22918
Benz(a)anthracene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(a)pyrene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(b)fluoranthene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(k)fluoranthene	ND	0.10		µg/L	1	11/14/2014	R22918
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-chloroethyl)ether	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	11/14/2014	R22918
Butyl benzyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Carbazole	ND	10		µg/L	1	11/14/2014	R22918
Chrysene	ND	0.10		µg/L	1	11/14/2014	R22918
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	11/14/2014	R22918
Dibenzofuran	ND	10		µg/L	1	11/14/2014	R22918
Diethyl phthalate	ND	10		µg/L	1	11/14/2014	R22918

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EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Dimethyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Di-n-butyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Di-n-octyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Fluoranthene	ND	10		µg/L	1	11/14/2014	R22918
Fluorene	ND	10		µg/L	1	11/14/2014	R22918
Hexachlorobenzene	ND	1.0		µg/L	1	11/14/2014	R22918
Hexachlorobutadiene	ND	10		µg/L	1	11/14/2014	R22918
Hexachlorocyclopentadiene	ND	10		µg/L	1	11/14/2014	R22918
Hexachloroethane	ND	10		µg/L	1	11/14/2014	R22918
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	11/14/2014	R22918
Isophorone	ND	10		µg/L	1	11/14/2014	R22918
Naphthalene	ND	10		µg/L	1	11/14/2014	R22918
Nitrobenzene	ND	10		µg/L	1	11/14/2014	R22918
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	11/14/2014	R22918
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	11/14/2014	R22918
Pentachlorophenol	ND	10		µg/L	1	11/14/2014	R22918
Phenanthrene	ND	10		µg/L	1	11/14/2014	R22918
Phenol	ND	5.0		µg/L	1	11/14/2014	R22918
Pyrene	ND	10		µg/L	1	11/14/2014	R22918
o-Toluidine	ND	5.0		µg/L	1	11/14/2014	R22918
Pyridine	ND	5.0		µg/L	1	11/14/2014	R22918
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	11/14/2014	R22918
Surr: 2,4,6-Tribromophenol	131	10-123	S	%REC	1	11/14/2014	R22918
Surr: 2-Fluorobiphenyl	88.8	19-130		%REC	1	11/14/2014	R22918
Surr: 2-Fluorophenol	82.4	21-110		%REC	1	11/14/2014	R22918
Surr: Nitrobenzene-d5	86.4	25-130		%REC	1	11/14/2014	R22918
Surr: Phenol-d5	90.8	10-125		%REC	1	11/14/2014	R22918
Surr: Terphenyl-d14	35.6	33-141		%REC	1	11/14/2014	R22918
CORROSIVITY							Analyst: **SUB**
pH	7.51			pH Units	1	11/13/2014	R22918
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	11/18/2014	R22918
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	11/18/2014	R22918
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	11/21/2014	R22918
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date: 11/6/2014 10:30:00 AM
Lab ID: 1411288-001 **Matrix:** AQUEOUS **Received Date:** 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3500	0.010		µmhos/cm	1	11/11/2014 1:35:05 PM	R22485
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	320	20		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
Total Alkalinity (as CaCO3)	320	20		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.001	0			1	11/20/2014 2:11:00 PM	R22669
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2380	100	*	mg/L	1	11/12/2014 1:18:00 PM	16340

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002 **Matrix:** TRIP BLANK **Received Date:** 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Allyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroprene	ND	0.500		µg/L	1	11/13/2014	R22819
Cyclohexane	ND	0.500		µg/L	1	11/13/2014	R22819
Diethyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Diisopropyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Epichlorohydrin	ND	5.00		µg/L	1	11/13/2014	R22819
Ethyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl tert-butyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Freon-113	ND	0.500		µg/L	1	11/13/2014	R22819
Isobutanol	ND	50.0		µg/L	1	11/13/2014	R22819
Isopropyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methacrylonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl ethyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl isobutyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Methylcyclohexane	ND	1.00		µg/L	1	11/13/2014	R22819
n-Amyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
n-Hexane	ND	0.500		µg/L	1	11/13/2014	R22819
Nitrobenzene	ND	5.00		µg/L	1	11/13/2014	R22819
Pentachloroethane	ND	5.00		µg/L	1	11/13/2014	R22819
p-isopropyltoluene	ND	0.500		µg/L	1	11/13/2014	R22819
Propionitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrahydrofuran	ND	0.500		µg/L	1	11/13/2014	R22819
Benzene	ND	0.500		µg/L	1	11/13/2014	R22819
Toluene	ND	0.500		µg/L	1	11/13/2014	R22819
Ethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl tert-butyl ether (MTBE)	ND	10.0		µg/L	1	11/13/2014	R22819
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3,5-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloroethane (EDC)	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromoethane (EDB)	ND	0.500		µg/L	1	11/13/2014	R22819
Naphthalene	ND	0.500		µg/L	1	11/13/2014	R22819
Acetone	5.30	2.50		µg/L	1	11/13/2014	R22819
Bromobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Bromodichloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Bromoform	ND	0.500		µg/L	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002
Matrix: TRIP BLANK
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Bromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon disulfide	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon Tetrachloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroform	ND	0.500		µg/L	1	11/13/2014	R22819
Chloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
4-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromo-3-chloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Dichlorodifluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
2,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
Hexachlorobutadiene	ND	0.500		µg/L	1	11/13/2014	R22819
2-Hexanone	ND	0.500		µg/L	1	11/13/2014	R22819
Isopropylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methylene Chloride	ND	2.50		µg/L	1	11/13/2014	R22819
n-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
n-Propylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
sec-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Styrene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrachloroethene (PCE)	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002
Matrix: TRIP BLANK
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Trichloroethene (TCE)	ND	0.500		µg/L	1	11/13/2014	R22819
Trichlorofluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Xylenes, Total	ND	1.00		µg/L	1	11/13/2014	R22819
mp-Xylenes	ND	1.00		µg/L	1	11/13/2014	R22819
o-Xylene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Amyl methyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butyl alcohol	ND	0.500		µg/L	1	11/13/2014	R22819
Acrolein	ND	0.500		µg/L	1	11/13/2014	R22819
Acrylonitrile	ND	10.0		µg/L	1	11/13/2014	R22819
Bromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chloroethyl vinyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Iodomethane	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,4-Dichloro-2-butene	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dioxane	ND	20.0		µg/L	1	11/13/2014	R22819
Surr: 1,2-Dichlorobenzene-d4	102	70-130		%REC	1	11/13/2014	R22819
Surr: 4-Bromofluorobenzene	94.4	70-130		%REC	1	11/13/2014	R22819
Surr: Toluene-d8	96.4	70-130		%REC	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661019** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661020** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	93.8	66.6	112			
Nitrogen, Nitrite (As N)	0.90	0.10	1.000	0	90.2	67.5	109			
Bromide	2.3	0.10	2.500	0	92.8	82.8	103			
Nitrogen, Nitrate (As N)	2.3	0.10	2.500	0	93.3	84	109			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	91.7	68.8	109			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661041** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661042** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	96.6	66.6	112			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.0	67.5	109			
Bromide	2.4	0.10	2.500	0	96.4	82.8	103			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.1	84	109			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.8	68.8	109			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R22629**	RunNo: **22629**							
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **667493**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R22629**	RunNo: **22629**							
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **667494**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.7	90	110			
Sulfate	9.5	0.50	10.00	0	95.2	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.500								
Allyl chloride	ND	0.500								
Chloroprene	ND	0.500								
Cyclohexane	ND	0.500								
Diethyl ether	ND	0.500								
Diisopropyl ether	ND	0.500								
Epichlorohydrin	ND	0.500								
Ethyl acetate	ND	0.500								
Ethyl methacrylate	ND	0.500								
Ethyl tert-butyl ether	ND	0.500								
Freon-113	ND	0.500								
Isobutanol	ND	0.500								
Isopropyl acetate	ND	0.500								
Methacrylonitrile	ND	0.500								
Methyl acetate	ND	0.500								
Methyl ethyl ketone	ND	2.50								
Methyl isobutyl ketone	ND	2.50								
Methyl methacrylate	ND	0.500								
Methylcyclohexane	ND	0.500								
n-Amyl acetate	ND	0.500								
n-Hexane	ND	0.500								
Nitrobenzene	ND	0.500								
Pentachloroethane	ND	0.500								
p-isopropyltoluene	ND	0.500								
Propionitrile	ND	0.500								
Tetrahydrofuran	ND	0.500								
Benzene	ND	0.500								
Toluene	ND	0.500								
Ethylbenzene	ND	0.500								
Methyl tert-butyl ether (MTBE)	ND	0.500								
1,2,4-Trimethylbenzene	ND	0.500								
1,3,5-Trimethylbenzene	ND	0.500								
1,2-Dichloroethane (EDC)	ND	0.500								
1,2-Dibromoethane (EDB)	ND	0.500								
Naphthalene	ND	0.500								
Acetone	ND	2.50								
Bromobenzene	ND	0.500								
Bromodichloromethane	ND	0.500								
Bromoform	ND	0.500								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.500								
Carbon disulfide	ND	0.500								
Carbon Tetrachloride	ND	0.500								
Chlorobenzene	ND	0.500								
Chloroethane	ND	0.500								
Chloroform	ND	0.500								
Chloromethane	ND	0.500								
2-Chlorotoluene	ND	0.500								
4-Chlorotoluene	ND	0.500								
cis-1,2-DCE	ND	0.500								
cis-1,3-Dichloropropene	ND	0.500								
1,2-Dibromo-3-chloropropane	ND	0.500								
Dibromochloromethane	ND	0.500								
Dibromomethane	ND	0.500								
1,2-Dichlorobenzene	ND	0.500								
1,3-Dichlorobenzene	ND	0.500								
1,4-Dichlorobenzene	ND	0.500								
Dichlorodifluoromethane	ND	0.500								
1,1-Dichloroethane	ND	0.500								
1,1-Dichloroethene	ND	0.500								
1,2-Dichloropropane	ND	0.500								
1,3-Dichloropropane	ND	0.500								
2,2-Dichloropropane	ND	0.500								
1,1-Dichloropropene	ND	0.500								
Hexachlorobutadiene	ND	0.500								
2-Hexanone	ND	0.500								
Isopropylbenzene	ND	0.500								
Methylene Chloride	ND	2.50								
n-Butylbenzene	ND	0.500								
n-Propylbenzene	ND	0.500								
sec-Butylbenzene	ND	0.500								
Styrene	ND	0.500								
tert-Butylbenzene	ND	0.500								
1,1,1,2-Tetrachloroethane	ND	0.500								
1,1,2,2-Tetrachloroethane	ND	0.500								
Tetrachloroethene (PCE)	ND	0.500								
trans-1,2-DCE	ND	0.500								
trans-1,3-Dichloropropene	ND	0.500								
1,2,3-Trichlorobenzene	ND	0.500								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.500								
1,1,1-Trichloroethane	ND	0.500								
1,1,2-Trichloroethane	ND	0.500								
Trichloroethene (TCE)	ND	0.500								
Trichlorofluoromethane	ND	0.500								
1,2,3-Trichloropropane	ND	0.500								
Vinyl chloride	ND	0.500								
Xylenes, Total	ND	1.00								
mp-Xylenes	ND	1.00								
o-Xylene	ND	0.500								
tert-Amyl methyl ether	ND	0.500								
tert-Butyl alcohol	ND	0.500								
Acrolein	ND	0.500								
Acrylonitrile	ND	0.500								
Bromochloromethane	ND	0.500								
2-Chloroethyl vinyl ether	ND	0.500								
Iodomethane	ND	0.500								
trans-1,4-Dichloro-2-butene	ND	0.500								
Vinyl acetate	ND	0.500								
1,4-Dioxane	ND	0.500								
Surr: 1,2-Dichloroethane-d4	0		10.00		0	70	130			S
Surr: 4-Bromofluorobenzene	0		10.00		0	70	130			S
Surr: Toluene-d8	0		10.00		0	70	130			S

Sample ID **LCS-R22819**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673563** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.77		10.00	0	97.7	80	120			
Toluene	10.0		10.00	0	100	80	120			
Ethylbenzene	10.0		10.00	0	100	80	120			
Chlorobenzene	9.99		10.00	0	99.9	80	120			
1,1-Dichloroethene	9.57		10.00	0	95.7	80	120			
Trichloroethene (TCE)	9.91		10.00	0	99.1	80	120			
o-Xylene	10.6		10.00	0	106	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-R22918	SampType:	MBLK	TestCode:	EPA 8270C: Semivolatiles/Mod
Client ID:	PBW	Batch ID:	R22918	RunNo:	22918
Prep Date:		Analysis Date:	11/14/2014	SeqNo:	676667
Units:	µg/L				

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetophenone	ND	10								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/14/2014**	SeqNo: **676667** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	10								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	10								
1,2,4,5-Tetrachlorobenzene	ND	10								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/14/2014**	SeqNo: **676668** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.4		5.000	0	108	49	134			
2-Chlorophenol	4.8		5.000	0	96.4	50	131			
4-Chloro-3-methylphenol	5.8		5.000	0	115	42	139			
4-Nitrophenol	3.9		5.000	0	78.4	19	137			
Acenaphthene	5.3		5.000	0	105	36	122			
Bis(2-ethylhexyl)phthalate	6.0		5.000	0	120	43	142			
N-Nitrosodi-n-propylamine	5.1		5.000	0	102	46	135			
Pentachlorophenol	4.8		5.000	0	95.2	22	138			
Phenol	4.4		5.000	0	88.0	45	134			
Pyrene	5.9		5.000	0	117	45	138			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**MB-16357**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**16357**	RunNo:	**22512**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664165**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-16357**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**16357**	RunNo:	**22512**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664166**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.5	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16358**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **16358**	RunNo: **22521**
Prep Date: **11/12/2014**	Analysis Date: **11/13/2014**	SeqNo: **664178** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-16358**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **16358**	RunNo: **22521**
Prep Date: **11/12/2014**	Analysis Date: **11/13/2014**	SeqNo: **664179** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16345**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663247** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-16345**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663248** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	103	80	120			
Barium	ND	100	0.5000	0	98.9	80	120			
Cadmium	ND	1.0	0.5000	0	99.2	80	120			
Chromium	ND	5.0	0.5000	0	98.1	80	120			
Lead	ND	5.0	0.5000	0	95.2	80	120			
Selenium	ND	1.0	0.5000	0	97.9	80	120			
Silver	ND	5.0	0.1000	0	99.9	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-16345	SampType:	MBLK	TestCode:	EPA 6010B: Total Metals		
Client ID:	PBW	Batch ID:	16345	RunNo:	22489		
Prep Date:	11/11/2014	Analysis Date:	11/12/2014	SeqNo:	663203	Units:	mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID	LCS-16345	SampType:	LCS	TestCode:	EPA 6010B: Total Metals		
Client ID:	LCSW	Batch ID:	16345	RunNo:	22489		
Prep Date:	11/11/2014	Analysis Date:	11/12/2014	SeqNo:	663204	Units:	mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	103	80	120			
Antimony	0.50	0.050	0.5000	0	99.3	80	120			
Arsenic	0.52	0.020	0.5000	0	103	80	120			
Barium	0.49	0.020	0.5000	0	98.9	80	120			
Beryllium	0.52	0.0030	0.5000	0	104	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.2	80	120			
Calcium	51	1.0	50.00	0	102	80	120			
Chromium	0.49	0.0060	0.5000	0	98.1	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.9	80	120			
Copper	0.50	0.0060	0.5000	0	100	80	120			
Iron	0.49	0.050	0.5000	0	98.8	80	120			
Lead	0.48	0.0050	0.5000	0	95.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-16345**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663204** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	50	1.0	50.00	0	100	80	120			
Manganese	0.49	0.0020	0.5000	0	97.2	80	120			
Nickel	0.48	0.010	0.5000	0	95.5	80	120			
Potassium	47	1.0	50.00	0	94.6	80	120			
Selenium	0.49	0.050	0.5000	0	97.9	80	120			
Silver	0.10	0.0050	0.1000	0	99.9	80	120			
Thallium	0.48	0.050	0.5000	0	96.1	80	120			
Vanadium	0.52	0.050	0.5000	0	104	80	120			
Zinc	0.49	0.020	0.5000	0	98.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **677093** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **677094** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.532		0.5000	0	106	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/21/2014**	SeqNo: **677096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/21/2014**	SeqNo: **677097** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663098**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663099**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	99.3	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663121**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663122**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	99.5	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **1411288-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R22669** RunNo: **22669**

Prep Date: Analysis Date: **11/20/2014** SeqNo: **668670** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.0500	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16340**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **16340**	RunNo: **22490**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663255** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-16340**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **16340**	RunNo: **22490**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663256** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1411288 RcptNo: 1

Received by/date: 11/07/14
Logged By: Ashley Gallegos 11/7/2014 9:20:00 AM
Completed By: Ashley Gallegos 11/7/2014 11:25:06 AM
Reviewed By: CS 11/07/14

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☑ No ☑ No VOA Vials ☐ (my 11/07/14)
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 3 2 (<2 or >12 unless noted)
Adjusted? No
Checked by: my

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks: All VOA's including trip blank have bubbles. my 11/07/14

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

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Received by OCD: 5/16/2022 2:12:41 PM

Chain of Custody Record

Client: Navajo Refining Co.	☐ Standar ☐ Rush
	Project Name: Quarterly WDW-1, 2, & 3 Inj Well
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Dan Crawford
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler:
	On Ice: X Yes ☐ No
	Sample Temperature: 1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1411283	Analysis Request: Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
11/6/14	~~9:00~~ 10:30am	Liquid	Trip Blank	2	Neat	-002		X					
11/6/14	~~9:00~~ 10:30am	Liquid	Temperature Blank	1	Neat								

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/6/14	10:30am	Elizabeth Salsberry		11/07/14	0920
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.
pH: 7.30
temp of sample: 44.4°C
Temp: 54°F windspeed 8.1mp
humidity: 43% conditi
wind direction: NNE Cl

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Sampler's Name	Aaron Strange
Sampler's Affiliation	Navajo Refining Co. LLC
Start Date and Time	11/6/2014 @ 10:30
End Date and Time	11/6/2014 @ 10:30

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sample:	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☐ P-854 sample point (second from east)
☑ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

Container	Size	Material	# of Containers	Preservatives: None	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp: 54 humidity:43% wind direction:NNE Wind speed: 8.1 mph condition: clear

Date and Time:

Field Temp. 44.4 C Field pH 7.30

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☐ Standar ☐ **Rush**

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Dan Crawford

Sampler:

On Ice: ☐ Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4		X						X
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
11/6/14	~~9:00~~ 10:30am	Liquid	Trip Blank	2	Neat			X					
11/6/14	~~9:00~~ 10:30am	Liquid	Temperature Blank	1	Neat								

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/6/14	10:30am	Elizabeth Salsberry			
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.

pH: 7.30

temp of sample: 44.4°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HOLLYFRONTIER

October 27, 2014

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7007 3020 0000 3028 9359

RE: 2014 3rd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1260 psig and the average flows were 105 gpm for WDW-1, 98 gpm for WDW-2 and 106 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2014 to September 30, 2014. We have disposed a total of 976,643 barrels of fluid into the three wells during the third quarter of 2014. The volume per well is:

- 423,882 barrels into WDW-1
- 143,954 barrels into WDW-2
- 408,807 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/3rd quarter/2014-10-27 3rd QTR Inj Rpt for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2014 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	35,238,254
Jul-14	1,241	1,275	970	153	393	140	722	819	179	5,246	13,474	4,800	163,199	35,401,453
Aug-14	1,235	1,275	996	138	144	112	550	769	79	4,731	4,937	3,840	146,646	35,548,099
Sep-14	1,305	1,350	1,273	111	143	76	110	361	0	3,806	4,903	2,606	114,037	35,662,136
WDW-2													**Previous Quarter**	22,198,479
Jul-14	1,241	1,275	983	35	37	11	573	943	265	1,200	1,269	377	37,182	22,235,661
Aug-14	1,235	1,275	1,011	33	37	10	320	402	271	1,131	1,269	343	34,872	22,270,533
Sep-14	1,303	1,350	1,265	70	129	33	285	304	268	2,400	4,423	1,131	71,900	22,342,432
WDW-3													**Previous Quarter**	12,357,942
Jul-14	1,238	1,275	987	128	140	15	914	1,023	260	4,389	4,800	514	136,278	12,494,220
Aug-14	1,239	1,275	1,012	123	137	13	811	935	308	4,217	4,697	446	130,920	12,625,140
Sep-14	1,301	1,350	1,143	138	150	80	782	976	560	4,731	5,143	2,743	141,609	12,766,749
													Total Injected fluids:	70,771,318

T:\Injection Wells\Reports C-115 and Quarterly\2014\3rd quarter\
3rd 2014 qtrly rpt data
Injection fluids

10/24/20142:11 PM

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Navajo Refining Company, L.L.C.

2014 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/1/14	7/7/14	7/14/14	7/22/14	7/28/14	8/4/14	8/11/14	8/18/14	8/26/14	9/3/14	9/8/14	9/15/14	9/22/14	9/29/14
WDW -1[1]	150	145	145	145	145	145	145	145	145	145	145	145	145	145
WDW-2[1]	130	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	145	145	145	145	145	145	145	145	145	145	145	145	145	145
Comments: WDW-2 Minor surface tubing leak identified and repaired week of 7/7.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 09, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1409594

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/12/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1409594**
Date: **10/9/2014**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Fluoride	7.0	2.0	*	mg/L	20	9/13/2014 4:23:10 AM	R21201
Chloride	350	10		mg/L	20	9/13/2014 4:23:10 AM	R21201
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Bromide	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	9/13/2014 4:23:10 AM	R21201
Sulfate	2500	50		mg/L	100	9/19/2014 12:23:58 AM	R21321
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	9/18/2014 1:55:03 PM	15362
MERCURY, TCLP						Analyst: **JLF**	
Mercury	ND	0.020		mg/L	1	9/23/2014 11:17:20 AM	15428
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Barium	ND	100		mg/L	1	9/20/2014 10:20:57 AM	15405
Cadmium	ND	1.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Chromium	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Lead	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Selenium	ND	1.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Silver	ND	5.0		mg/L	1	9/25/2014 12:34:33 PM	15405
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	0.18	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Antimony	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Arsenic	0.061	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Barium	0.022	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Beryllium	ND	0.0030		mg/L	1	9/20/2014 9:40:32 AM	15405
Cadmium	ND	0.0020		mg/L	1	9/20/2014 9:40:32 AM	15405
Calcium	80	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Chromium	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Cobalt	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Copper	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Iron	0.50	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Lead	ND	0.0050		mg/L	1	9/20/2014 9:40:32 AM	15405
Magnesium	28	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Manganese	0.21	0.0020		mg/L	1	9/20/2014 9:40:32 AM	15405
Nickel	0.012	0.010		mg/L	1	9/20/2014 9:40:32 AM	15405
Potassium	58	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Selenium	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	9/23/2014 1:35:48 PM	15405
Thallium	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Titanium	ND	0.0050		mg/L	1	9/20/2014 9:40:32 AM	15405
Silica	9.8	1.1		mg/L	1	9/20/2014 9:40:32 AM	15405
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	73	0.50		µg/L	1	9/24/2014	R21755
Allyl chloride	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroprene	ND	0.50		µg/L	1	9/24/2014	R21755
Cyclohexane	ND	0.50		µg/L	1	9/24/2014	R21755
Diethyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Diisopropyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Epichlorohydrin	ND	5.0		µg/L	1	9/24/2014	R21755
Ethyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Ethyl methacrylate	ND	0.50		µg/L	1	9/24/2014	R21755
Ethyl tert-butyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Freon-113	ND	0.50		µg/L	1	9/24/2014	R21755
Isobutanol	ND	50		µg/L	1	9/24/2014	R21755
Isopropyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Methacrylonitrile	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl ethyl ketone	ND	2.5		µg/L	1	9/24/2014	R21755
Methyl isobutyl ketone	ND	2.5		µg/L	1	9/24/2014	R21755
Methyl methacrylate	ND	0.50		µg/L	1	9/24/2014	R21755
Methylcyclohexane	ND	1.0		µg/L	1	9/24/2014	R21755
n-Amyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
n-Hexane	ND	0.50		µg/L	1	9/24/2014	R21755
Nitrobenzene	ND	5.0		µg/L	1	9/24/2014	R21755
Pentachloroethane	ND	5.0		µg/L	1	9/24/2014	R21755
p-isopropyltoluene	ND	0.50		µg/L	1	9/24/2014	R21755
Propionitrile	0.97	0.50		µg/L	1	9/24/2014	R21755
Tetrahydrofuran	ND	0.50		µg/L	1	9/24/2014	R21755
Benzene	ND	0.50		µg/L	1	9/24/2014	R21755
Toluene	ND	0.50		µg/L	1	9/24/2014	R21755
Ethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	9/24/2014	R21755
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	9/24/2014	R21755

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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Naphthalene	ND	0.50		µg/L	1	9/24/2014	R21755
Acetone	18	2.5		µg/L	1	9/24/2014	R21755
Bromobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Bromodichloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
Bromoform	ND	0.50		µg/L	1	9/24/2014	R21755
Bromomethane	ND	0.50		µg/L	1	9/24/2014	R21755
Carbon disulfide	0.56	0.50		µg/L	1	9/24/2014	R21755
Carbon Tetrachloride	ND	0.50		µg/L	1	9/24/2014	R21755
Chlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroform	ND	0.50		µg/L	1	9/24/2014	R21755
Chloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
2-Chlorotoluene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Chlorotoluene	ND	0.50		µg/L	1	9/24/2014	R21755
cis-1,2-DCE	ND	0.50		µg/L	1	9/24/2014	R21755
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
Dibromochloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
Dibromomethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,3-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,4-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Dichlorodifluoromethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloroethene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
1,3-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
2,2-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
Hexachlorobutadiene	ND	0.50		µg/L	1	9/24/2014	R21755
2-Hexanone	ND	0.50		µg/L	1	9/24/2014	R21755
Isopropylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Isopropyltoluene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Methyl-2-pentanone	ND	0.50		µg/L	1	9/24/2014	R21755
Methylene Chloride	ND	2.5		µg/L	1	9/24/2014	R21755
n-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
n-Propylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
sec-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Styrene	ND	0.50		µg/L	1	9/24/2014	R21755

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Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
tert-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,2-DCE	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,1-Trichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,2-Trichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Trichloroethene (TCE)	ND	0.50		µg/L	1	9/24/2014	R21755
Trichlorofluoromethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,3-Trichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
Vinyl chloride	ND	0.50		µg/L	1	9/24/2014	R21755
Xylenes, Total	ND	1.0		µg/L	1	9/24/2014	R21755
mp-Xylenes	ND	1.0		µg/L	1	9/24/2014	R21755
o-Xylene	ND	0.50		µg/L	1	9/24/2014	R21755
tert-Amyl methyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
tert-Butyl alcohol	23	0.50		µg/L	1	9/24/2014	R21755
Acrolein	ND	0.50		µg/L	1	9/24/2014	R21755
Acrylonitrile	ND	10		µg/L	1	9/24/2014	R21755
Bromochloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Iodomethane	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	9/24/2014	R21755
Vinyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
1,4-Dioxane	ND	20		µg/L	1	9/24/2014	R21755
Surr: 1,2-Dichloroethane-d4	110	70-130		%REC	1	9/24/2014	R21755
Surr: 4-Bromofluorobenzene	99.6	70-130		%REC	1	9/24/2014	R21755
Surr: Toluene-d8	104	70-130		%REC	1	9/24/2014	R21755
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	9/23/2014	R21755
Atrazine	ND	5.0		µg/L	1	9/23/2014	R21755
Benzaldehyde	ND	5.0		µg/L	1	9/23/2014	R21755
Caprolactam	ND	5.0		µg/L	1	9/23/2014	R21755
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	9/23/2014	R21755
Acetophenone	ND	10		µg/L	1	9/23/2014	R21755
1-Methylnaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	9/23/2014	R21755

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Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
2,4,5-Trichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4,6-Trichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dimethylphenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dinitrophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dinitrotoluene	ND	10		µg/L	1	9/23/2014	R21755
2,6-Dinitrotoluene	ND	10		µg/L	1	9/23/2014	R21755
2-Chloronaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2-Chlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2-Methylnaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2-Methylphenol	ND	10		µg/L	1	9/23/2014	R21755
2-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
2-Nitrophenol	ND	10		µg/L	1	9/23/2014	R21755
3,3'-Dichlorobenzidine	ND	10		µg/L	1	9/23/2014	R21755
3-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	9/23/2014	R21755
4-Bromophenyl phenyl ether	ND	10		µg/L	1	9/23/2014	R21755
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/23/2014	R21755
4-Chloroaniline	ND	10		µg/L	1	9/23/2014	R21755
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	9/23/2014	R21755
4-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
4-Nitrophenol	ND	10		µg/L	1	9/23/2014	R21755
Acenaphthene	ND	10		µg/L	1	9/23/2014	R21755
Acenaphthylene	ND	10		µg/L	1	9/23/2014	R21755
Anthracene	ND	10		µg/L	1	9/23/2014	R21755
Benzo(g,h,i)perylene	ND	10		µg/L	1	9/23/2014	R21755
Benz(a)anthracene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(a)pyrene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(b)fluoranthene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(k)fluoranthene	ND	0.10		µg/L	1	9/23/2014	R21755
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-chloroethyl)ether	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/23/2014	R21755
Butyl benzyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Carbazole	ND	10		µg/L	1	9/23/2014	R21755
Chrysene	ND	0.10		µg/L	1	9/23/2014	R21755
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	9/23/2014	R21755
Dibenzofuran	ND	10		µg/L	1	9/23/2014	R21755

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Qualifiers:

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Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Diethyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Dimethyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Di-n-butyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Di-n-octyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Fluoranthene	ND	10		µg/L	1	9/23/2014	R21755
Fluorene	ND	10		µg/L	1	9/23/2014	R21755
Hexachlorobenzene	ND	1.0		µg/L	1	9/23/2014	R21755
Hexachlorobutadiene	ND	10		µg/L	1	9/23/2014	R21755
Hexachlorocyclopentadiene	ND	10		µg/L	1	9/23/2014	R21755
Hexachloroethane	ND	10		µg/L	1	9/23/2014	R21755
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	9/23/2014	R21755
Isophorone	ND	10		µg/L	1	9/23/2014	R21755
Naphthalene	ND	10		µg/L	1	9/23/2014	R21755
Nitrobenzene	ND	10		µg/L	1	9/23/2014	R21755
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	9/23/2014	R21755
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	9/23/2014	R21755
Pentachlorophenol	ND	10		µg/L	1	9/23/2014	R21755
Phenanthrene	ND	10		µg/L	1	9/23/2014	R21755
Phenol	ND	5.0		µg/L	1	9/23/2014	R21755
Pyrene	ND	10		µg/L	1	9/23/2014	R21755
o-Toluidine	ND	5.0		µg/L	1	9/23/2014	R21755
Pyridine	ND	5.0		µg/L	1	9/23/2014	R21755
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	9/23/2014	R21755
Surr: 2,4,6-Tribromophenol	80.2	10-123		%REC	1	9/23/2014	R21755
Surr: 2-Fluorobiphenyl	100	19-130		%REC	1	9/23/2014	R21755
Surr: 2-Fluorophenol	77.0	21-110		%REC	1	9/23/2014	R21755
Surr: Nitrobenzene-d5	91.2	25-130		%REC	1	9/23/2014	R21755
Surr: Phenol-d5	94.4	10-125		%REC	1	9/23/2014	R21755
Surr: Terphenyl-d14	39.9	33-141		%REC	1	9/23/2014	R21755
CORROSIVITY							Analyst: **SUB**
pH	6.61			pH Units	1	9/18/2014	R21755
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	9/24/2014	R21755
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	9/25/2014	R21755
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	9/30/2014	R21755

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5400	0.010		µmhos/cm	1	9/19/2014 8:48:13 PM	R21338
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	120	20		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
Total Alkalinity (as CaCO3)	120	20		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
SPECIFIC GRAVITY						Analyst: **SRM**	
Specific Gravity	1.001	0			1	9/23/2014 4:39:00 PM	R21384
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4700	20.0	*	mg/L	1	9/17/2014 10:23:00 AM	15289

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
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S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617354** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.9	0.50	5.000	0	97.9	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	97.0	90	110			
Bromide	2.4	0.10	2.500	0	96.4	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	103	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617410** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617411** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	103	90	110			
Chloride	4.7	0.50	5.000	0	94.7	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.9	90	110			
Bromide	2.4	0.10	2.500	0	96.7	90	110			

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617411** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.1	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.5	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21321**	RunNo: **21321**
Prep Date:	Analysis Date: **9/18/2014**	SeqNo: **622134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21321**	RunNo: **21321**
Prep Date:	Analysis Date: **9/18/2014**	SeqNo: **622135** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.6	0.50	10.00	0	96.2	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	0.50								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	50								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Methylcyclohexane	ND	1.0								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	5.0								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	0.50								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	10								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
4-Isopropyltoluene	ND	0.50								
4-Methyl-2-pentanone	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								

Qualifiers:

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O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
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S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
Xylenes, Total	ND	1.0								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	10								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	20								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638769** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.9		10.00	0	99.2	80	120			
Toluene	10		10.00	0	102	80	120			
Ethylbenzene	10		10.00	0	99.6	80	120			
Chlorobenzene	9.9		10.00	0	99.3	80	120			
1,1-Dichloroethene	9.2		10.00	0	91.9	80	120			
Tetrachloroethene (PCE)	9.8		10.00	0	98.4	80	120			
Trichloroethene (TCE)	9.5		10.00	0	95.2	80	120			
o-Xylene	10		10.00	0	102	80	120			

Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**	
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**	
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638842**	Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	10								
Atrazine	ND	10								
Caprolactam	ND	10								
N-Nitroso-di-n-butylamine	ND	10								
Acetophenone	ND	10								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
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S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638842** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	10								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	10								
o-Toluidine	ND	10								
Pyridine	ND	10								
1,2,4,5-Tetrachlorobenzene	ND	10								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638843** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	3.1		5.000	0	61.2	49	134			
2-Chlorophenol	3.4		5.000	0	67.6	50	131			
4-Chloro-3-methylphenol	3.3		5.000	0	66.4	42	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638843** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Nitrophenol	2.6		5.000	0	53.0	19	137			
Acenaphthene	4.0		5.000	0	79.6	36	122			
Bis(2-ethylhexyl)phthalate	3.9		5.000	0	78.2	43	142			
N-Nitrosodi-n-propylamine	4.1		5.000	0	82.0	46	135			
Pentachlorophenol	2.5		5.000	0	49.6	22	138			
Phenol	3.7		5.000	0	73.4	45	134			
Pyrene	3.6		5.000	0	73.0	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-15362	SampType:	MBLK		TestCode:	EPA Method 7470: Mercury				
Client ID:	PBW	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621116	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-15362	SampType:	LCS		TestCode:	EPA Method 7470: Mercury				
Client ID:	LCSW	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621117	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	105	80	120			

Sample ID	1409594-001BMS	SampType:	MS		TestCode:	EPA Method 7470: Mercury				
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621119	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	100	75	125			

Sample ID	1409594-001BMSD	SampType:	MSD		TestCode:	EPA Method 7470: Mercury				
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621120	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	101	75	125	0.392	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15428**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **15428**	RunNo: **21367**							
Prep Date: **9/22/2014**	Analysis Date: **9/23/2014**	SeqNo: **623963**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-15428**	SampType: **LCS**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSW**	Batch ID: **15428**	RunNo: **21367**							
Prep Date: **9/22/2014**	Analysis Date: **9/23/2014**	SeqNo: **623964**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.4	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **626611** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **626612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	106	80	120			
Barium	ND	100	0.5000	0	101	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	100	80	120			
Lead	ND	5.0	0.5000	0	98.6	80	120			
Selenium	ND	1.0	0.5000	0	104	80	120			

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **626633** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	5.0								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **626634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	5.0	0.1000	0	104	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409594

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622303** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Thallium	ND	0.050								
Titanium	ND	0.0050								
Silica	ND	1.1								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.57	0.020	0.5000	0	114	80	120			
Antimony	0.50	0.050	0.5000	0	100	80	120			
Arsenic	0.53	0.020	0.5000	0	106	80	120			
Barium	0.50	0.020	0.5000	0	101	80	120			
Beryllium	0.53	0.0030	0.5000	0	106	80	120			
Cadmium	0.51	0.0020	0.5000	0	102	80	120			
Calcium	52	1.0	50.00	0	105	80	120			
Chromium	0.50	0.0060	0.5000	0	100	80	120			
Cobalt	0.49	0.0060	0.5000	0	97.9	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.51	0.050	0.5000	0	101	80	120			
Lead	0.49	0.0050	0.5000	0	98.6	80	120			
Magnesium	52	1.0	50.00	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.50	0.0020	0.5000	0	100	80	120			
Nickel	0.49	0.010	0.5000	0	98.7	80	120			
Potassium	49	1.0	50.00	0	98.1	80	120			
Selenium	0.52	0.050	0.5000	0	104	80	120			
Thallium	0.49	0.050	0.5000	0	97.7	80	120			
Titanium	0.52	0.0050	0.5000	0	104	80	120			
Silica	5.6	1.1	5.350	0	104	80	120			

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **624518** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.0050								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **624519** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.10	0.0050	0.1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/25/2014**	SeqNo: **639462** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/25/2014**	SeqNo: **639463** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.487		0.5000	0	97.4	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**MB-R21755**	SampType:	**MBLK**	TestCode:	**SULFIDE, Reactive**				
Client ID:	**PBW**	Batch ID:	**R21755**	RunNo:	**21755**				
Prep Date:		Analysis Date:	**9/30/2014**	SeqNo:	**639465**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID	**LCS-R21755**	SampType:	**LCS**	TestCode:	**SULFIDE, Reactive**				
Client ID:	**LCSW**	Batch ID:	**R21755**	RunNo:	**21755**				
Prep Date:		Analysis Date:	**9/30/2014**	SeqNo:	**639466**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.16		0.2000	0	80.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622910**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622911**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	99.6	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622914**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622915**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	81	20	80.00	0	102	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**1409594-001ADUP**	SampType:	**DUP**	TestCode:	**Specific Gravity**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**R21384**	RunNo:	**21384**					
Prep Date:		Analysis Date:	**9/23/2014**	SeqNo:	**624495**	Units:				

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.000	0						0.110	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15289**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **15289**	RunNo: **21253**
Prep Date: **9/15/2014**	Analysis Date: **9/17/2014**	SeqNo: **619558** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-15289**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **15289**	RunNo: **21253**
Prep Date: **9/15/2014**	Analysis Date: **9/17/2014**	SeqNo: **619559** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1409594 RcptNo: 1

Received by/date: 09/12/14

Logged By: Lindsay Mangin 9/12/2014 9:45:00 AM

Completed By: Lindsay Mangin 9/12/2014 10:09:46 AM

Reviewed By: 09/12/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 2 (2) (<2 or >12 unless noted)

Adjusted? no

Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain of Custody Record

Client: Navajo Refining Co.	☐ Standar ☐ Rush
	Project Name:
Mailing Address: P.O. Box 159 Artesia,	Quarterly WDW-1, 2, & 3 Inj Well
NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager:
QA/QC Package:	Dan Crawford
☐ Standard ☐ Level 4 (Full Validation)	Sampler: Steven URBAN
☐ Other _____	On Ice: ☑ Yes ☐ No
☐ EDD (Type) _____	Sample Temperature: 2.5 + 2.2 = 4.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1409592	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
~~9/11/14~~	~~9:30~~	Liquid	Trip Blank	~~2~~	~~Neat~~	-002	CS 09/12/14	X					
9/11/14	9:30	Liquid	Temperature Blank	1	Neat	-							

Date: 9-11-14	Time: 10:08	Relinquished by: Steven URBAN	Received by:	Date: 09/12/14	Time: 0945
Date:	Time:	Relinquished by:	Received by:	Date:	Time:

Remarks: Report these results separately from all other Chain of Custody kits provided.

The trip blank sample was not recieved.
—CS 09/12/14

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Page 837 of 5828

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Steven Urban
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	9/11/2014 @ 9:58
End Date and Time	9/11/2014 @ 10:08

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east) ☐ P-856 sample point (third from east)
☐ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): 6/11/2014 08:51 Tmp. 72.0, Humidity 68%, Wind Dir. SE, Wind Speed 8.1 mph, Conditions Overcast
Date and Time:

Field Temp. 113 °F Field pH 6.48

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

Received by OCD: 5/16/2022 2:12:41 PM
Released to Imaging: 7/12/2024 10:49:45 AM

HOLLYFRONTIER.

RECEIVED OCD
2014 JUL 30 P 3:15

July 30, 2014

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7007 3020 0000 3028 8413

RE: 2014 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1180 psig and the average flows were 134 gpm for WDW-1, 132 gpm for WDW-2 and 111 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS) although minor above ground tubing leaks at two of the wells were identified and repaired. The quarterly effluent analyses indicated parameters are within limits.

This report covers the period from April 1, 2014 to June 30, 2014. We have disposed a total of 1,179,825 barrels of fluid into the three wells during the second quarter of 2014. The volume per well is:

- 421,136 barrels into WDW-1
- 412,743 barrels into WDW-2
- 345,946 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): D Crawford, R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/2nd quarter/2014-07-31 2nd QTR Inj Rpt for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2014 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	34,814,372
Apr-14	1,198	1,226	1,138	136	140	129	335	483	202	4,663	4,800	4,423	140,351	34,954,723
May-14	1,173	1,250	947	133	147	115	508	874	189	4,560	5,040	3,943	141,827	35,096,550
Jun-14	1,194	1,261	972	135	144	121	746	993	232	4,629	4,937	4,149	138,958	35,235,507
WDW-2													**Previous Quarter**	22,054,526
Apr-14	1,192	1,226	1,109	211	347	109	477	630	241	7,234	11,897	3,737	216,878	22,271,404
May-14	1,163	1,248	958	98	121	34	662	1,251	198	3,360	4,149	1,166	103,840	22,375,244
Jun-14	1,206	1,265	1,155	89	116	32	537	1,018	146	3,051	3,977	1,097	92,025	22,467,269
WDW-3													**Previous Quarter**	11,949,135
Apr-14	1,176	1,225	1,100	119	133	96	462	698	268	4,080	4,560	3,291	122,621	12,071,756
May-14	1,139	1,250	961	100	140	11	519	999	226	3,429	4,800	377	106,412	12,178,167
Jun-14	1,184	1,248	989	114	133	27	572	876	267	3,909	4,560	926	116,913	12,295,081
													Total Injected fluids:	69,997,857

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Navajo Refining Company, L.L.C.

2014 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/7/14	4/14/14	4/22/14	4/28/14	5/5/14	5/16/14	5/23/14	5/29/14	6/2/14	6/9/14	6/17/14	6/25/14		
WDW -1[1]	145	145	145	145	145	140	140	135	130	125	100	100		
WDW-2[1]	150	150	150	150	150	145	145	145	145	145	145	130		
WDW-3[1]	145	145	145	145	145	145	145	145	145	145	145	145		
Comments: 6/9/14 small tubing leak at WDW-1 reported and repaired. 6/17/14 a second tubing leak at WDW-1 was reported and repaired. 6/25/14 small tubing leak at WDW-2 reported and repaired.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

N:\Injection Wells\Reports C-115 and Quarterly\2014\2nd quarter\
2nd 2014 qtrly rpt data
WAMS Tanks

7/30/20148:43 AM

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Aaron Strange
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	6/19/2014 @ 09:25
End Date and Time	6/19/2014 @ 09:35

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Parts / Sample Intervals	One

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): 6/19/2014 09:35 Tmp. 77.0, Humidity 61%, Wind Dir. N, Wind Speed 10.4 mph, Conditions Clear
Date and Time:

Field Temp. 116.6°F Field pH 7.37

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 17, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: WDW-1, 2, & 3 Qtrly Inj Well OrderNo.: 1406935

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/19/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1406935**
Date: **7/17/2014**

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	28	2.0	*	mg/L	20	6/19/2014 5:43:17 PM	R19410
Chloride	290	10		mg/L	20	6/19/2014 5:43:17 PM	R19410
Nitrogen, Nitrite (As N)	1.5	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Bromide	0.72	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	6/19/2014 5:30:53 PM	R19410
Sulfate	2600	50		mg/L	100	7/7/2014 4:18:15 PM	R19725
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	6/26/2014 9:07:50 AM	13883
MERCURY, TCLP						Analyst: **MMD**	
Mercury	ND	0.020		mg/L	1	7/8/2014 12:50:03 PM	14082
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Barium	ND	100		mg/L	1	7/8/2014 12:02:28 PM	14080
Cadmium	ND	1.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Chromium	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Lead	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Selenium	ND	1.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Silver	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	1.2	0.020		mg/L	1	7/11/2014 10:29:51 AM	14172
Antimony	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Arsenic	0.027	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
Barium	ND	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
Beryllium	ND	0.0030		mg/L	1	7/7/2014 12:25:17 PM	14075
Cadmium	ND	0.0020		mg/L	1	7/7/2014 12:25:17 PM	14075
Calcium	27	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Chromium	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Cobalt	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Copper	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Iron	0.21	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Lead	ND	0.0050		mg/L	1	7/7/2014 12:25:17 PM	14075
Magnesium	9.2	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Manganese	0.032	0.0020		mg/L	1	7/7/2014 12:25:17 PM	14075
Nickel	ND	0.010		mg/L	1	7/7/2014 12:25:17 PM	14075
Potassium	69	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Selenium	0.069	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	7/7/2014 12:25:17 PM	14075
Sodium	1200	20		mg/L	20	7/7/2014 12:31:46 PM	14075
Thallium	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Vanadium	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Zinc	ND	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Ethyl tert-butyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Acetonitrile	ND	0.50		µg/L	1	6/26/2014	R19890
Allyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroprene	ND	0.50		µg/L	1	6/26/2014	R19890
Cyclohexane	ND	2.5		µg/L	1	6/26/2014	R19890
Diethyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Diisopropyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Epichlorohydrin	ND	5.0		µg/L	1	6/26/2014	R19890
Ethyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Ethyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Freon-113	ND	0.50		µg/L	1	6/26/2014	R19890
Isobutanol	ND	50		µg/L	1	6/26/2014	R19890
Isopropyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methacrylonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl ethyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl isobutyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Methylcyclohexane	ND	1.0		µg/L	1	6/26/2014	R19890
n-Amyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
n-Hexane	ND	0.50		µg/L	1	6/26/2014	R19890
Nitrobenzene	ND	5.0		µg/L	1	6/26/2014	R19890
Pentachloroethane	ND	5.0		µg/L	1	6/26/2014	R19890
p-isopropyltoluene	ND	0.50		µg/L	1	6/26/2014	R19890
Propionitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Tetrahydrofuran	ND	0.50		µg/L	1	6/26/2014	R19890
Benzene	0.64	0.50		µg/L	1	6/26/2014	R19890
Toluene	ND	0.50		µg/L	1	6/26/2014	R19890
Ethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	6/26/2014	R19890
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	6/26/2014	R19890
Naphthalene	ND	0.50		µg/L	1	6/26/2014	R19890
Acetone	15	2.5		µg/L	1	6/26/2014	R19890
Bromobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Bromodichloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Bromoform	ND	0.50		µg/L	1	6/26/2014	R19890
Bromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon disulfide	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon Tetrachloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroform	ND	0.50		µg/L	1	6/26/2014	R19890
Chloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
4-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Dichlorodifluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
2,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
Hexachlorobutadiene	ND	0.50		µg/L	1	6/26/2014	R19890
2-Hexanone	ND	0.50		µg/L	1	6/26/2014	R19890
Isopropylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methylene Chloride	ND	2.5		µg/L	1	6/26/2014	R19890
n-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
n-Propylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
sec-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Styrene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/26/2014	R19890
Trichlorofluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
mp-Xylenes	ND	1.0		µg/L	1	6/26/2014	R19890
o-Xylene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Amyl methyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butyl alcohol	ND	10		µg/L	1	6/26/2014	R19890
Acrolein	ND	2.5		µg/L	1	6/26/2014	R19890
Acrylonitrile	ND	10		µg/L	1	6/26/2014	R19890
Bromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	6/26/2014	R19890
Iodomethane	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dioxane	ND	20		µg/L	1	6/26/2014	R19890
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	6/26/2014	R19890
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	6/26/2014	R19890
Surr: Toluene-d8	101	70-130		%REC	1	6/26/2014	R19890
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	0.10		µg/L	1	6/26/2014	R19935
Atrazine	ND	0.10		µg/L	1	6/26/2014	R19935
Benzaldehyde	ND	0.10		µg/L	1	6/26/2014	R19935
Caprolactam	ND	0.10		µg/L	1	6/26/2014	R19935
N-Nitroso-di-n-butylamine	ND	0.10		µg/L	1	6/26/2014	R19935
Acetophenone	ND	10		µg/L	1	6/26/2014	R19935
1-Methylnaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4,5-Trichlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4,6-Trichlorophenol	ND	10		µg/L	1	6/26/2014	R19935

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
2,4-Dichlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dimethylphenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dinitrophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dinitrotoluene	ND	10		µg/L	1	6/26/2014	R19935
2,6-Dinitrotoluene	ND	10		µg/L	1	6/26/2014	R19935
2-Chloronaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2-Chlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2-Methylnaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2-Methylphenol	ND	10		µg/L	1	6/26/2014	R19935
2-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
2-Nitrophenol	ND	10		µg/L	1	6/26/2014	R19935
3,3'-Dichlorobenzidine	ND	10		µg/L	1	6/26/2014	R19935
3-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	6/26/2014	R19935
4-Bromophenyl phenyl ether	ND	10		µg/L	1	6/26/2014	R19935
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/26/2014	R19935
4-Chloroaniline	ND	10		µg/L	1	6/26/2014	R19935
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	6/26/2014	R19935
4-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
4-Nitrophenol	ND	10		µg/L	1	6/26/2014	R19935
Acenaphthene	ND	10		µg/L	1	6/26/2014	R19935
Acenaphthylene	ND	10		µg/L	1	6/26/2014	R19935
Anthracene	ND	10		µg/L	1	6/26/2014	R19935
Benzo(g,h,i)perylene	ND	10		µg/L	1	6/26/2014	R19935
Benz(a)anthracene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(a)pyrene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(b)fluoranthene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(k)fluoranthene	ND	0.10		µg/L	1	6/26/2014	R19935
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-chloroethyl)ether	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/26/2014	R19935
Butyl benzyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Carbazole	ND	10		µg/L	1	6/26/2014	R19935
Chrysene	ND	0.10		µg/L	1	6/26/2014	R19935
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	6/26/2014	R19935
Dibenzofuran	ND	10		µg/L	1	6/26/2014	R19935
Diethyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Dimethyl phthalate	ND	10		µg/L	1	6/26/2014	R19935

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Di-n-butyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Di-n-octyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Fluoranthene	ND	10		µg/L	1	6/26/2014	R19935
Fluorene	ND	10		µg/L	1	6/26/2014	R19935
Hexachlorobenzene	ND	1.0		µg/L	1	6/26/2014	R19935
Hexachlorobutadiene	ND	10		µg/L	1	6/26/2014	R19935
Hexachlorocyclopentadiene	ND	10		µg/L	1	6/26/2014	R19935
Hexachloroethane	ND	10		µg/L	1	6/26/2014	R19935
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	6/26/2014	R19935
Isophorone	ND	10		µg/L	1	6/26/2014	R19935
Naphthalene	ND	10		µg/L	1	6/26/2014	R19935
Nitrobenzene	ND	10		µg/L	1	6/26/2014	R19935
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	6/26/2014	R19935
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	6/26/2014	R19935
Pentachlorophenol	ND	10		µg/L	1	6/26/2014	R19935
Phenanthrene	ND	10		µg/L	1	6/26/2014	R19935
Phenol	ND	5.0		µg/L	1	6/26/2014	R19935
Pyrene	ND	10		µg/L	1	6/26/2014	R19935
o-Toluidine	ND	0.10		µg/L	1	6/26/2014	R19935
Pyridine	ND	0.10		µg/L	1	6/26/2014	R19935
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	6/26/2014	R19935
Surr: 2,4,6-Tribromophenol	101	10-123		%REC	1	6/26/2014	R19935
Surr: 2-Fluorobiphenyl	102	19-130		%REC	1	6/26/2014	R19935
Surr: 2-Fluorophenol	76.2	21-110		%REC	1	6/26/2014	R19935
Surr: Nitrobenzene-d5	91.1	25-130		%REC	1	6/26/2014	R19935
Surr: Phenol-d5	79.3	10-125		%REC	1	6/26/2014	R19935
Surr: Terphenyl-d14	92.2	33-141		%REC	1	6/26/2014	R19935
CORROSIVITY							Analyst: **SUB**
pH	7.90		H	pH Units	1	7/2/2014	R19940
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	7/7/2014	R19940
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	7/2/2014	R19940
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	6/26/2014	R19940
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**
Conductivity	6000	0.010		µmhos/cm	1	6/23/2014 3:26:39 PM	R19484

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.91	1.68	H	pH units	1	6/23/2014 3:26:39 PM	R19484
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	290	20		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
Total Alkalinity (as CaCO3)	290	20		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
SPECIFIC GRAVITY						Analyst: **SRM**	
Specific Gravity	1.003	0			1	6/30/2014 10:37:00 AM	R19574
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4440	40.0	*	mg/L	1	6/23/2014 11:26:00 AM	13798

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2.
RL	Reporting Detection Limit

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: WDW-1, 2, & 3 Qtrly Inj Well
Collection Date:
Lab ID: 1406935-002 **Matrix:** TRIP BLANK **Received Date:** 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl tert-butyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Acetonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Allyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroprene	ND	0.50		µg/L	1	6/26/2014	R19890
Cyclohexane	ND	0.50		µg/L	1	6/26/2014	R19890
Diethyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Diisopropyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Epichlorohydrin	ND	5.0		µg/L	1	6/26/2014	R19890
Ethyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Ethyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Freon-113	ND	0.50		µg/L	1	6/26/2014	R19890
Isobutanol	ND	50		µg/L	1	6/26/2014	R19890
Isopropyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methacrylonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl ethyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl isobutyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Methylcyclohexane	ND	1.0		µg/L	1	6/26/2014	R19890
n-Amyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
n-Hexane	ND	0.50		µg/L	1	6/26/2014	R19890
Nitrobenzene	ND	5.0		µg/L	1	6/26/2014	R19890
Pentachloroethane	ND	5.0		µg/L	1	6/26/2014	R19890
p-isopropyltoluene	ND	0.50		µg/L	1	6/26/2014	R19890
Propionitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Tetrahydrofuran	ND	0.50		µg/L	1	6/26/2014	R19890
Benzene	ND	0.50		µg/L	1	6/26/2014	R19890
Toluene	ND	0.50		µg/L	1	6/26/2014	R19890
Ethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	6/26/2014	R19890
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	6/26/2014	R19890
Naphthalene	ND	0.50		µg/L	1	6/26/2014	R19890
Acetone	ND	2.5		µg/L	1	6/26/2014	R19890
Bromobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Bromodichloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Bromoform	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-002 **Matrix:** TRIP BLANK

Client Sample ID: Trip Blank
Collection Date:
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Bromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon disulfide	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon Tetrachloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroform	ND	0.50		µg/L	1	6/26/2014	R19890
Chloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
4-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Dichlorodifluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
2,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
Hexachlorobutadiene	ND	0.50		µg/L	1	6/26/2014	R19890
2-Hexanone	ND	0.50		µg/L	1	6/26/2014	R19890
Isopropylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methylene Chloride	ND	2.5		µg/L	1	6/26/2014	R19890
n-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
n-Propylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
sec-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Styrene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: WDW-1, 2, & 3 Qtrly Inj Well
Collection Date:
Lab ID: 1406935-002 **Matrix:** TRIP BLANK **Received Date:** 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/26/2014	R19890
Trichlorofluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
mp-Xylenes	ND	1.0		µg/L	1	6/26/2014	R19890
o-Xylene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Amyl methyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butyl alcohol	ND	0.50		µg/L	1	6/26/2014	R19890
Acrolein	ND	0.50		µg/L	1	6/26/2014	R19890
Acrylonitrile	ND	10		µg/L	1	6/26/2014	R19890
Bromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Iodomethane	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dioxane	ND	20		µg/L	1	6/26/2014	R19890
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	6/26/2014	R19890
Surr: 4-Bromofluorobenzene	102	70-130		%REC	1	6/26/2014	R19890
Surr: Toluene-d8	99.6	70-130		%REC	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561477** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.4	0.10	1.600	0	90.3	90	110			
Chloride	7.8	0.50	8.000	0	96.9	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	99.5	90	110			
Bromide	7.9	0.10	8.000	0	98.4	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	97.4	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561479** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561480** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	94.3	90	110			
Chloride	4.7	0.50	5.000	0	94.8	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.7	90	110			
Bromide	2.4	0.10	2.500	0	96.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.8	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.6	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561489** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	95.4	90	110			
Chloride	12	0.50	12.00	0	102	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	90	110			
Bromide	12	0.10	12.00	0	100	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561489**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561501**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.94	0.10	1.000	0	93.7	90	110			
Chloride	4.6	0.50	5.000	0	92.9	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	97.9	90	110			
Bromide	4.8	0.10	5.000	0	96.0	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.7	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.8	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561513**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.10	1.600	0	96.1	90	110			
Chloride	7.8	0.50	8.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)	3.1	0.10	3.200	0	98.3	90	110			
Bromide	7.6	0.10	8.000	0	95.3	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.7	0.50	8.000	0	96.6	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561525**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	97.8	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.8	0.10	4.800	0	101	90	110			
Bromide	12	0.10	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	107	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561529** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561530** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	101	90	110			
Chloride	4.8	0.50	5.000	0	96.1	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	97.0	90	110			
Bromide	2.5	0.10	2.500	0	99.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.0	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561537** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.96	0.10	1.000	0	95.6	90	110			
Chloride	4.7	0.50	5.000	0	93.1	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	98.8	90	110			
Bromide	4.8	0.10	5.000	0	96.5	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.9	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.0	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561549** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.10	1.600	0	96.4	90	110			
Chloride	7.8	0.50	8.000	0	97.5	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	100	90	110			
Bromide	7.8	0.10	8.000	0	98.0	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561549**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			
Phosphorus, Orthophosphate (As P	7.9	0.50	8.000	0	98.2	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561555**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	97.5	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	90	110			
Bromide	12	0.10	12.00	0	99.7	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	107	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572917**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	30	0.50	30.00	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572919**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572920**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.3	0.50	10.00	0	93.5	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572929** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	94.3	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572941** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.2	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572953** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	31	0.50	30.00	0	102	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572968** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	95.2	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572970** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572971** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.5	0.50	10.00	0	95.0	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572980**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.6	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **572992**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	30	0.50	30.00	0	102	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **573004**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	94.7	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **573016**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.9	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19890**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578052** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Ethyl methacrylate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Propionitrile	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
2-Hexanone	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19890**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578052** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methylene Chloride	ND	0.50								
Styrene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	0.50								
o-Xylene	ND	0.50								
Acrolein	ND	10								
Bromochloromethane	ND	0.50								
Iodomethane	ND	0.50								
Vinyl acetate	ND	0.50								

Sample ID **LCS-R19890**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578053** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.6	0.50	10.00	0	95.5	80	120			
Toluene	9.8	0.50	10.00	0	98.2	80	120			
Ethylbenzene	10	0.50	10.00	0	99.9	80	120			
Chlorobenzene	9.8	0.50	10.00	0	97.5	80	120			
1,1-Dichloroethene	9.5	0.50	10.00	0	94.9	80	120			
Tetrachloroethene (PCE)	9.9	0.50	10.00	0	98.9	80	120			
Trichloroethene (TCE)	9.9	0.50	10.00	0	98.8	80	120			
o-Xylene	10	0.50	10.00	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19935**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579511** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	1.0								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	1.0								
Benz(a)anthracene	ND	1.0								
Benzo(a)pyrene	ND	1.0								
Benzo(b)fluoranthene	ND	1.0								
Benzo(k)fluoranthene	ND	1.0								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19935**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579511** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	1.0								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	5.0								
Pyrene	ND	10								

Sample ID **LCS-R19935**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579512** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.3		5.000	0	106	49	134			
2-Chlorophenol	4.4		5.000	0	87.0	50	131			
4-Chloro-3-methylphenol	5.4		5.000	0	108	42	139			
4-Nitrophenol	4.6		5.000	0	92.8	19	137			
Acenaphthene	4.6		5.000	0	93.0	36	122			
Bis(2-ethylhexyl)phthalate	4.9		5.000	0	97.8	43	142			
N-Nitrosodi-n-propylamine	4.5		5.000	0	89.6	46	135			
Pentachlorophenol	4.1		5.000	0	82.6	22	138			
Phenol	6.3		5.000	0	126	45	134			
Pyrene	4.7		5.000	0	93.6	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-13883**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564933** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-13883**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564934** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	92.4	80	120			

Sample ID **1406935-001BMS**	SampType: **MS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564941** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.9	75	125			

Sample ID **1406935-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564944** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.6	75	125	0.263	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14082**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **14082**	RunNo: **19737**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573374** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-14082**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **14082**	RunNo: **19737**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573375** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	100	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14080**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573325** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-14080**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573326** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.9	80	120			
Barium	ND	100	0.5000	0	96.7	80	120			
Cadmium	ND	1.0	0.5000	0	97.9	80	120			
Chromium	ND	5.0	0.5000	0	96.1	80	120			
Lead	ND	5.0	0.5000	0	94.4	80	120			
Selenium	ND	1.0	0.5000	0	97.1	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Sample ID **1406935-001CMS**	SampType: **MS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02968	108	75	125			
Barium	ND	100	0.5000	0.04484	98.2	75	125			
Cadmium	ND	1.0	0.5000	0	103	75	125			
Chromium	ND	5.0	0.5000	0.001840	98.1	75	125			
Lead	ND	5.0	0.5000	0	95.5	75	125			
Selenium	ND	1.0	0.5000	0.09485	103	75	125			
Silver	ND	5.0	0.1000	0	107	75	125			

Sample ID **1406935-001CMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02968	109	75	125	0	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **1406935-001CMSD** SampType: **MSD** TestCode: **EPA Method 6010B: TCLP Metals**

Client ID: **WDW-1, 2, & 3 Efflu** Batch ID: **14080** RunNo: **19736**

Prep Date: **7/7/2014** Analysis Date: **7/8/2014** SeqNo: **573330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.04484	98.1	75	125	0	20	
Cadmium	ND	1.0	0.5000	0	102	75	125	0	20	
Chromium	ND	5.0	0.5000	0.001840	97.8	75	125	0	20	
Lead	ND	5.0	0.5000	0	95.1	75	125	0	20	
Selenium	ND	1.0	0.5000	0.09485	108	75	125	0	20	
Silver	ND	5.0	0.1000	0	107	75	125	0	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14075**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572184** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-14075**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.55	0.050	0.5000	0	110	80	120			
Arsenic	0.55	0.020	0.5000	0	110	80	120			
Barium	0.54	0.020	0.5000	0	109	80	120			
Beryllium	0.57	0.0030	0.5000	0	115	80	120			
Cadmium	0.54	0.0020	0.5000	0	109	80	120			
Calcium	57	1.0	50.00	0	114	80	120			
Chromium	0.54	0.0060	0.5000	0	108	80	120			
Cobalt	0.52	0.0060	0.5000	0	104	80	120			
Copper	0.56	0.0060	0.5000	0	112	80	120			
Iron	0.55	0.050	0.5000	0	110	80	120			
Lead	0.53	0.0050	0.5000	0	107	80	120			
Magnesium	57	1.0	50.00	0	113	80	120			
Manganese	0.54	0.0020	0.5000	0	108	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **LCS-14075**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	0.52	0.010	0.5000	0	105	80	120			
Potassium	54	1.0	50.00	0	109	80	120			
Selenium	0.53	0.050	0.5000	0	106	80	120			
Silver	0.11	0.0050	0.1000	0	112	80	120			
Thallium	0.53	0.050	0.5000	0	106	80	120			
Vanadium	0.57	0.050	0.5000	0	113	80	120			
Zinc	0.53	0.020	0.5000	0	106	80	120			

Sample ID **MB-14172**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **14172**	RunNo: **19829**
Prep Date: **7/10/2014**	Analysis Date: **7/11/2014**	SeqNo: **576105** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								

Sample ID **LCS-14172**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14172**	RunNo: **19829**
Prep Date: **7/10/2014**	Analysis Date: **7/11/2014**	SeqNo: **576106** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.48	0.020	0.5000	0	96.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19940**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **7/2/2014**	SeqNo: **579570** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R19940**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **7/2/2014**	SeqNo: **579571** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.512		0.5000	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19940**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R19940**	RunNo: **19940**							
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579573**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R19940**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R19940**	RunNo: **19940**							
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579574**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.20		0.2000	0	100	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563920**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563921**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	98.7	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563943**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563944**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	100	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-13798**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **561986** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-13798**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **561987** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Sample ID **1406935-001AMS**	SampType: **MS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **562008** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	6460	40.0	2000	4442	101	80	120			

Sample ID **1406935-001AMSD**	SampType: **MSD**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **562009** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	6460	40.0	2000	4442	101	80	120	0.124	5	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1406935 RcptNo: 1

Received by/date: AT 06/19/14

Logged By: Anne Thorne 6/19/2014 2:35:00 PM Anne Thorne

Completed By: Anne Thorne 6/19/2014 Anne Thorne

Reviewed By: AT 06/19/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.6	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.	Turn-Around Time: ☐ Standar ☐ **Rush**
	Project Name: WDW-1, 2, & 3 Qtrly Inj Well
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Dan Crawford
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler: Jerry Sosa
	On Ice: X Yes ☐ No
	Sample Temperature: 4/6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No 1406935	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
6/19/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
6/19/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
6/19/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
6/19/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
6/19/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
6/19/14	9:30	Liquid	Trip Blank	2	Neat	-002		X					
6/19/14	9:30	Liquid	Temperature Blank	1	Neat								

Date: 6/19/14	Time: 10:00	Relinquished by: Jerry Sosa	Received by:	Date 06/19/14	Time 14:35
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Classification	Analyte name	Method	Units	RL
Volatile organics	Acetone	SW-846 Method 8260C	µg/L	10
Volatile organics	Acetonitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Acrolein	SW-846 Method 8260C	µg/L	
Volatile organics	Allyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Allyl chloride	SW-846 Method 8260C	µg/L	
Volatile organics	t-Amyl ethyl ether (TAEE)	SW-846 Method 8260C	µg/L	
Volatile organics	t-Amyl methyl ether (TAME)	SW-846 Method 8260C	µg/L	
Volatile organics	Benzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Benzyl chloride	SW-846 Method 8260C	µg/L	
Volatile organics	Bis(2-chloroethyl)sulfide	SW-846 Method 8260C	µg/L	
Volatile organics	Bromoacetone	SW-846 Method 8260C	µg/L	
Volatile organics	Bromobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Bromochloromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	Bromodichloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	4-Bromofluorobenzene (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	Bromoform	SW-846 Method 8260C	µg/L	4
Volatile organics	Bromomethane	SW-846 Method 8260C	µg/L	2
Volatile organics	n-Butanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Butanone (MEK)	SW-846 Method 8260C	µg/L	10
Volatile organics	n-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	sec-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	tert-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	t-Butyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Carbon disulfide	SW-846 Method 8260C	µg/L	2
Volatile organics	Carbon tetrachloride	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloral hydrate	SW-846 Method 8260C	µg/L	
Volatile organics	Chlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Chlorobenzene-d5 (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	1-Chlorobutane	SW-846 Method 8260C	µg/L	
Volatile organics	Chlorodibromomethane	SW-846 Method 8260C	µg/L	
Volatile organics	1-Chlorohexane	SW-846 Method 8260C	µg/L	
Volatile organics	Chloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	2-Chloroethanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Chloroethyl vinyl ether	SW-846 Method 8260C	µg/L	
Volatile organics	Chloroform	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloroprene	SW-846 Method 8260C	µg/L	
Volatile organics	4-Chlorotoluene	SW-846 Method 8260C	µg/L	
Volatile organics	Crotonaldehyde	SW-846 Method 8260C	µg/L	
Volatile organics	Cyclohexane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2-Dibromo-3-chloropropane	SW-846 Method 8260C	µg/L	10
Volatile organics	1,2-Dibromoethane	SW-846 Method 8260C	µg/L	2
Volatile organics	Dibromochloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Dibromomethane	SW-846 Method 8260C	µg/L	
Volatile organics	1,2-Dichlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,3-Dichlorobenzene	SW-846 Method 8260C	µg/L	1

Volatile organics	1,4-Dichlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,4-Dichlorobenzene-d4 (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	cis-1,4-Dichloro-2-butene	SW-846 Method 8260C	µg/L	
Volatile organics	trans-1,4-Dichloro-2-butene	SW-846 Method 8260C	µg/L	
Volatile organics	Dichlorodifluoromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1-Dichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloroethane-d4 (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	1,1-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	cis-1,2-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	trans-1,2-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloropropane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,3-Dichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	2,2-Dichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	1,1-Dichloropropene	SW-846 Method 8260C	µg/L	
Volatile organics	1,3-Dichloro-2-propanol	SW-846 Method 8260C	µg/L	
Volatile organics	cis-1,3-Dichloropropene	SW-846 Method 8260C	µg/L	1
Volatile organics	trans-1,3-Dichloropropene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2,3,4-Depoxybutane	SW-846 Method 8260C	µg/L	
Volatile organics	Diethyl ether	SW-846 Method 8260C	µg/L	
Volatile organics	Diisopropyl either (DIPE)	SW-846 Method 8260C	µg/L	
Volatile organics	1,4-Difluorobenzene (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	1,4-Dioxane	SW-846 Method 8260C	µg/L	130
Volatile organics	Epichlorohydrin	SW-846 Method 8260C	µg/L	
Volatile organics	Ethanol	SW-846 Method 8260C	µg/L	
Volatile organics	Ethyl acetate	SW-846 Method 8260C	µg/L	
Volatile organics	Ethylbenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Ethylene oxide	SW-846 Method 8260C	µg/L	
Volatile organics	Ethyl methacrylate	SW-846 Method 8260C	µg/L	
Volatile organics	Fluorobenzene (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	Freon 113	SW-846 Method 8260C	µg/L	5
Volatile organics	Ethyl tert-butyl ether (ETBE)	SW-846 Method 8260C	µg/L	
Volatile organics	Hexachlorobutadiene	SW-846 Method 8260C	µg/L	
Volatile organics	Hexachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	2-Hexanone	SW-846 Method 8260C	µg/L	5
Volatile organics	Iodomethane	SW-846 Method 8260C	µg/L	
Volatile organics	Isobutyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Isopropylbenzene	SW-846 Method 8260C	µg/L	2
Volatile organics	p-Isopropyltoluene	SW-846 Method 8260C	µg/L	
Volatile organics	Malononitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Methacrylonitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Methanol	SW-846 Method 8260C	µg/L	
Volatile organics	Methyl acetate	SW-846 Method 8260C	µg/L	5
Volatile organics	Methylcyclohexane	SW-846 Method 8260C	µg/L	5
Volatile organics	Methyl acrylate	SW-846 Method 8260C	µg/L	
Volatile organics	Methylene chloride	SW-846 Method 8260C	µg/L	2
Volatile organics	Methyl methacrylate	SW-846 Method 8260C	µg/L	

Volatile organics	4-Methyl-2-pentanone (MIBK)	SW-846 Method 8260C	µg/L	5
Volatile organics	Methyl tert-butyl ether (MTBE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Naphthalene	SW-846 Method 8260C	µg/L	
Volatile organics	Nitrobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	2-Nitropropane	SW-846 Method 8260C	µg/L	
Volatile organics	N-Nitroso-di-n-butylamine	SW-846 Method 8260C	µg/L	
Volatile organics	Paraldehyde	SW-846 Method 8260C	µg/L	
Volatile organics	Pentachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	Pentafluorobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	2-Pentanone	SW-846 Method 8260C	µg/L	
Volatile organics	2-Picoline	SW-846 Method 8260C	µg/L	
Volatile organics	1-Propanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Propanol	SW-846 Method 8260C	µg/L	
Volatile organics	Propargyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	beta-Propiolactone	SW-846 Method 8260C	µg/L	
Volatile organics	Propionitrile	SW-846 Method 8260C	µg/L	
Volatile organics	n-Propylamine	SW-846 Method 8260C	µg/L	
Volatile organics	n-Propylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Pyridine	SW-846 Method 8260C	µg/L	
Volatile organics	Styrene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1,1,2-Tetrachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	1,1,2,2-Tetrachloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Tetrachloroethene (PCE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Toluene	SW-846 Method 8260C	µg/L	1
Volatile organics	Toluene-d8 (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	o-Toluidine	SW-846 Method 8260C	µg/L	
Volatile organics	1,2,3-Trichlorobenzene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2,4-Trichlorobenzene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1,1-Trichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,1,2-Trichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Trichloroethene (TCE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Trichlorofluoromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2,3-Trichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	1,2,4-Trimethylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	1,3,5-Trimethylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Vinyl acetate	SW-846 Method 8260C	µg/L	
Volatile organics	Vinyl chloride	SW-846 Method 8260C	µg/L	1
Volatile organics	o-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	m-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	p-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	Xylene, total	SW-846 Method 8260C	µg/L	1

(surr) - Surrogate
(IS) - Internal Standard
Method 8260C Volatile Organic Compounds by Gas Chromatograhy/Mass Spectrometry (GC/MS) (EPA, Revision 3, August 2006)
Constituents with RLs are on the VOC Target Compound List (TCL) (SOMO 1.1)

Classification	Analyte name	Method	Units	RL
Semivolatile organics	1,1'-Biphenyl	SW-864 Method 8270B	µg/L	1
Semivolatile organics	1,2,4,5-Tetrachlorobenzene	SW-864 Method 8270B	µg/L	2
Semivolatile organics	2-Chloronaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Chlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Methylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2-Nitrophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,3,4,6-Tetrachlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dichlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dimethylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dinitrophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2,4-Dinitrotoluene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4,5-Trichlorophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2,4,6-Trichlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,6-Dinitrotoluene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	3-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	3,3'-Dichlrobenzidine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Bromophenyl-phenylether	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chloro-3-methylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chloroaniline	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chlorophenyl-phenyl ether	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	4-Nitrophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	4,6-Dinitro-2-methylphenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Acetophenone	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Acenaphthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Acenaphthylene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Atrazine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzaldehyde	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(a)anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(a)pyrene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(b)fluoranthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(g,h,i)perylene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(k)fluoranthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	bis(2-Chloroethoxy)-methane	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Chloroethyl) ether	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Chloroisopropyl) ether	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Ethylhexyl)phthalate	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Butylbenzylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Carbazole	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Caprolactam	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Chrysene	SW-864 Method 8270B	µg/L	0.1
Semivolatile organics	Di-n-butylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Di-n-octylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Dibenz(a,h)anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Dibenzofuran	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Diethylphthalate	SW-864 Method 8270B	µg/L	5

Semivolatile organics	Dimethylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Fluroanthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Fluorene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Hexachlorobenzene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Hexachlorobutadiene	SW-864 Method 8270B	µg/L	1
Semivolatile organics	Hexachlorocyclopentadiene	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Hexachloroethane	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Indeno(1,2,3-cd)peryline	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Isophorone	SW-864 Method 8270B	µg/L	5
Semivolatile organics	1-Methylnaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Methylnaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	N-Nitroso-di-n-propylamine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	N-Nitrosodiphenylamine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Napthtalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Nitrobenzene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Pentachlorophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Phenanthrene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Phenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Pyrene	SW-864 Method 8270B	µg/L	5

Target Compound List 1.5 for SVOCs by SW-846 Method 8270

Classification	Analyte name[1]	Method	Units	RL
Inorganics	Mercury	SW-846 Method 7470		
Inorganics	Arsenic	SW-846 Method 6010		
Inorganics	Silver	SW-846 Method 6010		
Inorganics	Aluminum	SW-846 Method 6010		
Inorganics	Barium	SW-846 Method 6010		
Inorganics	Beryllium	SW-846 Method 6010		
Inorganics	Calcium	SW-846 Method 6010		
Inorganics	Cadmium	SW-846 Method 6010		
Inorganics	Cobalt	SW-846 Method 6010		
Inorganics	Chromium	SW-846 Method 6010		
Inorganics	Copper	SW-846 Method 6010		
Inorganics	Iron	SW-846 Method 6010		
Inorganics	Mercury	SW-846 Method 6010		
Inorganics	Potassium	SW-846 Method 6010		
Inorganics	Magnesium	SW-846 Method 6010		
Inorganics	Manganese	SW-846 Method 6010		
Inorganics	Sodium	SW-846 Method 6010		
Inorganics	Nickel	SW-846 Method 6010		
Inorganics	Lead	SW-846 Method 6010		
Inorganics	Antimony	SW-846 Method 6010		
Inorganics	Selenium	SW-846 Method 6010		
Inorganics	Thallium	SW-846 Method 6010		
Inorganics	Vanadium	SW-846 Method 6010		
Inorganics	Zinc	SW-846 Method 6010		

** dilute elements only if necessary

[1] 23 TAL Metals

REFINING COMPANY, LLC

FAX
(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

FAX
(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

July 30, 2008

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2008 Second Quarterly Injection Report for Navajo Refining WDW-1, WDW-2 and WDW-3

Dear Mr. Chavez,

Enclosed, please find the sampling results for the second quarter of 2008 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on wells WDW-1 and WDW-2 continue to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level have found WDW-3 to have varied more than 5%. WDW-3 has an electronic gauging system that continually reports the fluid levels in a percentage of capacity. We are closely monitoring WDW-3, and a Mechanical Integrity Test (MIT) is scheduled for August 5, 2008. The volumes for these three tanks are reported in the attached table.

This report covers the period from April 1, 2008 to June 30, 2008. We have disposed a total of 38,972,716 barrels of fluid into the three wells as of June 30, 2008. This is broken down as follows: 25,550,339 barrels into WDW-1, 12,357,611 barrels into WDW-2 and 1,064,766 barrels into WDW-3.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Aaron Strange

Aaron Strange
Sr. Environmental Technician

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

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2008 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	25,013,505
Apr-08	234	303	115	165	192	135	117	168	75	5,656	6,580	4,619	169,694	25,183,198
May-08	264	322	194	171	186	151	142	222	55	5,872	6,394	5,170	182,018	25,365,217
Jun-08	297	338	231	180	192	158	203	416	29	6,171	6,592	5,403	185,122	25,550,339
WDW-2													**Previous Quarter**	12,126,440
Apr-08	293	400	239	81	123	55	467	500	330	2,774	4,221	1,883	83,219	12,209,659
May-08	314	376	245	70	99	33	411	500	165	2,409	3,400	1,142	74,669	12,284,329
Jun-08	348	394	285	71	92	19	500	500	498	2,443	3,143	660	73,282	12,357,611
WDW-3													**Previous Quarter**	1,049,409
Apr-08	473	588	326	148	228	79	676	915	530	5,086	7,818	2,707	152,578	727,836
May-08	502	622	388	150	179	112	678	901	540	5,131	6,133	3,852	159,072	886,908
Jun-08	559	642	415	173	189	132	761	998	564	5,929	6,497	4,539	177,858	1,064,766
													Total Injected fluids:	38,972,716

Page 883 of 5828

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2008 SECOND QUARTER WEEKLY WHAMS LEVEL TABLE

	4/2/200	4/11/08	4/17/08	4/25/08	4/30/08	5/8/08	5/14/08	5/21/08	5/30/08	6/5/08	6/11/08	6/17/08	6/27/08
WDW -1[1]	190	190	190	190	190	200	200	200	200	200	200	200	200
WDW-2[1]	160	160	160	160	160	160	160	160	160	160	160	200	200
WDW-3[2]	67%	66%	66%	65%	65%	64%	63%	60%	59%	58%	58%	58%	55%

[1] Graduated tank gauged weekly in the field.

[2] Reading measured directly, and reported as percentage capacity.

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

04-Jun-08

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5468
Fax: (505) 746-5421

Re: Injection Well Qrtly.

Work Order : **0805558**

Dear Jeff,

ALS Laboratory Group received 2 samples on 5/23/2008 08:40 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 36.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Glenda H. Ramos

Jeffrey L Croston
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac

Certificate No: T104704231-08-TX

ALS Laboratory Group

Date: 04-Jun-08

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Work Order: **0805558**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0805558-01	Injection Well	Water		5/22/2008 14:10	5/23/2008 08:40	☐
0805558-02	Trip Blank	Water		5/22/2008 14:10	5/23/2008 08:40	☑

ALS Laboratory Group *Date: 04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Work Order: 0805558

Case Narrative

Batch pH (sample Injection Well) was analyzed outside of the recommended holding time, but was analyzed immediately upon receipt of the laboratory.

Batch 30049 Metals MS/MSD was an unrelated sample.

Batch 29950 Semivolatiles LCS/LCSD RPD recovery was above the control limits for Benzidine (37.1%). Recoveries met method criteria in both LCS/LCSD.

Batch R63837 Volatiles MS/MSD was an unrelated sample.

Batch R64025 Anions MS was an unrelated sample.

ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL - SW 7470A			**SW7470**		Prep Date: **6/3/2008**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	6/4/2008 12:11 PM
ICP METALS, TOTAL - SW6020A			**SW6020**		Prep Date: **6/2/2008**	Analyst: **ALR**
Aluminum	**0.0846**		**0.0100**	**mg/L**	1	6/2/2008 11:43 PM
Arsenic	**0.0474**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Barium	**0.0229**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Beryllium	ND		0.00200	mg/L	1	6/2/2008 11:43 PM
Boron	**0.0839**		**0.0200**	**mg/L**	1	6/2/2008 11:43 PM
Cadmium	ND		0.00200	mg/L	1	6/2/2008 11:43 PM
Calcium	**121**		**0.500**	**mg/L**	1	6/2/2008 11:43 PM
Chromium	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Cobalt	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Copper	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Iron	ND		0.200	mg/L	1	6/2/2008 11:43 PM
Lead	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Magnesium	**41.0**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Manganese	**0.100**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Molybdenum	**0.0505**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Nickel	**0.00601**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Potassium	**3.78**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Selenium	**0.0152**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Silver	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Sodium	**136**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Vanadium	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Zinc	**0.0384**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **5/28/2008**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Methylphenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Nitrophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
3-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
4-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
4-Nitrophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Acenaphthene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Acenaphthylene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Anthracene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Benzidine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Hexachloroethane	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Isophorone	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Naphthalene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Nitrobenzene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Pentachlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Phenanthrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Phenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Pyrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Surr: 2,4,6-Tribromophenol	*69.4*		*42-124*	*%REC*	1	5/31/2008 03:57 PM
Surr: 2-Fluorobiphenyl	*71.2*		*48-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: 2-Fluorophenol	*64.5*		*20-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: 4-Terphenyl-d14	*75.7*		*51-135*	*%REC*	1	5/31/2008 03:57 PM
Surr: Nitrobenzene-d5	*66.4*		*41-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: Phenol-d6	*70.6*		*20-120*	*%REC*	1	5/31/2008 03:57 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
2-Butanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	5/28/2008 04:38 PM
2-Hexanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Acetone	**0.13**		**0.010**	**mg/L**	1	5/28/2008 04:38 PM
Benzene	**0.034**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
Bromodichloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Bromoform	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Bromomethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Carbon disulfide	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	5/28/2008 04:38 PM

Qualifiers:

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloroform	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Dibromochloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Ethylbenzene	**0.011**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
m,p-Xylene	**0.052**		**0.010**	**mg/L**	1	5/28/2008 04:38 PM
Methylene chloride	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Styrene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Tetrachloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Toluene	**0.039**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Trichloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Vinyl acetate	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Vinyl chloride	ND		0.0020	mg/L	1	5/28/2008 04:38 PM
Xylenes, Total	**0.081**		**0.015**	**mg/L**	1	5/28/2008 04:38 PM
Surr: 1,2-Dichloroethane-d4	*87.7*		*70-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: 4-Bromofluorobenzene	*86.3*		*72-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: Dibromofluoromethane	*87.6*		*71-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: Toluene-d8	*85.8*		*75-125*	*%REC*	1	5/28/2008 04:38 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	5/29/2008
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	5/29/2008
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **PV**
Chloride	**150**		**10.0**	**mg/L**	20	6/2/2008 04:59 PM
Sulfate	**497**		**10.0**	**mg/L**	20	6/2/2008 04:59 PM
Surr: Selenate (surr)	*94.7*		*85-115*	*%REC*	20	6/2/2008 04:59 PM
ALKALINITY			**E310.1**			Analyst: **MAM**
Alkalinity, Bicarbonate (As CaCO3)	**135**		**5.00**	**mg/L**	1	5/28/2008 02:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	5/28/2008 02:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	5/28/2008 02:00 PM
Alkalinity, Total (As CaCO3)	**135**		**5.00**	**mg/L**	1	5/28/2008 02:00 PM
CONDUCTIVITY			**E120.1**			Analyst: **MAM**
Specific Conductance	**1,590**		**1.00**	**µmhos/cm**	1	5/27/2008 03:00 PM
FLASHPOINT-SW1010A			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	5/28/2008 03:00 PM

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ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	7.15	H	0.100	pH units	1	5/23/2008 10:00 AM
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **KKP**
Total Dissolved Solids (Residue, Filterable)	1,240		10.0	mg/L	1	5/27/2008 03:00 PM

Qualifiers:

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ALS Laboratory Group

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

Date: *04-Jun-08*

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 11:11 PM**

Client ID: Run ID: **ICPMS02_080602A** SeqNo: **1410011** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.050								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 11:17 PM**
Client ID: Run ID: **ICPMS02_080602A** SeqNo: **1410012** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05531	0.010	0.05	0	111	80-120	0			
Arsenic	0.05086	0.0050	0.05	0	102	80-120	0			
Barium	0.0515	0.0050	0.05	0	103	80-120	0			
Beryllium	0.04961	0.0020	0.05	0	99.2	80-120	0			
Boron	0.51	0.050	0.5	0	102	80-120	0			
Cadmium	0.05043	0.0020	0.05	0	101	80-120	0			
Calcium	5.085	0.50	5	0	102	80-120	0			
Chromium	0.04787	0.0050	0.05	0	95.7	80-120	0			
Cobalt	0.0505	0.0050	0.05	0	101	80-120	0			
Copper	0.04711	0.0050	0.05	0	94.2	80-120	0			
Iron	5.108	0.20	5	0	102	80-120	0			
Lead	0.05004	0.0050	0.05	0	100	80-120	0			
Magnesium	4.979	0.20	5	0	99.6	80-120	0			
Manganese	0.0499	0.0050	0.05	0	99.8	80-120	0			
Molybdenum	0.04938	0.0050	0.05	0	98.8	80-120	0			
Nickel	0.04953	0.0050	0.05	0	99.1	80-120	0			
Potassium	5.014	0.20	5	0	100	80-120	0			
Selenium	0.04986	0.0050	0.05	0	99.7	80-120	0			
Silver	0.04002	0.0050	0.05	0	80	80-120	0			
Sodium	4.943	0.20	5	0	98.9	80-120	0			
Vanadium	0.05043	0.0050	0.05	0	101	80-120	0			
Zinc	0.04926	0.0050	0.05	0	98.5	80-120	0			

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0805606-08CMS** Units: **mg/L** Analysis Date: **6/3/2008 02:20 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410745** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06189	0.010	0.05	0.01497	93.8	80-120	0			
Arsenic	0.06337	0.0050	0.05	0.01058	106	80-120	0			
Barium	0.09153	0.0050	0.05	0.03819	107	80-120	0			
Beryllium	0.04985	0.0020	0.05	-0.0001438	100	80-120	0			
Boron	1.165	0.050	0.5	0.6122	111	80-120	0			
Cadmium	0.05037	0.0020	0.05	-0.0004353	102	80-120	0			
Calcium	149.2	0.50	5	143.9	106	80-120	0			O
Chromium	0.04788	0.0050	0.05	0.0002614	95.2	80-120	0			
Cobalt	0.05154	0.0050	0.05	0.002614	97.9	80-120	0			
Copper	0.04456	0.0050	0.05	0.0004179	88.3	80-120	0			
Iron	5.507	0.20	5	0.5342	99.5	80-120	0			
Lead	0.05257	0.0050	0.05	-0.00002332	105	80-120	0			
Magnesium	85.42	0.20	5	80.06	107	80-120	0			O
Manganese	0.2299	0.0050	0.05	0.179	102	80-120	0			
Molybdenum	0.05753	0.0050	0.05	0.005355	104	80-120	0			
Nickel	0.05094	0.0050	0.05	0.002892	96.1	80-120	0			
Potassium	9.248	0.20	5	4.425	96.5	80-120	0			
Selenium	0.05288	0.0050	0.05	0.0005107	105	80-120	0			
Silver	0.04033	0.0050	0.05	-0.0003408	81.3	80-120	0			
Sodium	215.6	0.20	5	209.9	114	80-120	0			EO
Vanadium	0.05326	0.0050	0.05	0.001695	103	80-120	0			
Zinc	0.05312	0.0050	0.05	0.00839	89.5	80-120	0			

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0805606-08CMSD** Units: **mg/L** Analysis Date: **6/3/2008 02:26 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410746** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06039	0.010	0.05	0.01497	90.8	80-120	0.06189	2.45	15	
Arsenic	0.06377	0.0050	0.05	0.01058	106	80-120	0.06337	0.629	15	
Barium	0.09108	0.0050	0.05	0.03819	106	80-120	0.09153	0.493	15	
Beryllium	0.04878	0.0020	0.05	-0.0001438	97.8	80-120	0.04985	2.17	15	
Boron	1.186	0.050	0.5	0.6122	115	80-120	1.165	1.79	15	
Cadmium	0.04962	0.0020	0.05	-0.0004353	100	80-120	0.05037	1.5	15	
Calcium	150.7	0.50	5	143.9	136	80-120	149.2	1	15	SO
Chromium	0.04772	0.0050	0.05	0.0002614	94.9	80-120	0.04788	0.335	15	
Cobalt	0.05164	0.0050	0.05	0.002614	98.1	80-120	0.05154	0.194	15	
Copper	0.04497	0.0050	0.05	0.0004179	89.1	80-120	0.04456	0.916	15	
Iron	5.431	0.20	5	0.5342	97.9	80-120	5.507	1.39	15	
Lead	0.05227	0.0050	0.05	-0.00002332	105	80-120	0.05257	0.572	15	
Magnesium	84.25	0.20	5	80.06	83.8	80-120	85.42	1.38	15	O
Manganese	0.2326	0.0050	0.05	0.179	107	80-120	0.2299	1.17	15	
Molybdenum	0.0565	0.0050	0.05	0.005355	102	80-120	0.05753	1.81	15	
Nickel	0.04908	0.0050	0.05	0.002892	92.4	80-120	0.05094	3.72	15	
Potassium	9.267	0.20	5	4.425	96.8	80-120	9.248	0.205	15	
Selenium	0.05261	0.0050	0.05	0.0005107	104	80-120	0.05288	0.512	15	
Silver	0.04025	0.0050	0.05	-0.0003408	81.2	80-120	0.04033	0.199	15	
Sodium	212.4	0.20	5	209.9	50	80-120	215.6	1.5	15	SEO
Vanadium	0.05363	0.0050	0.05	0.001695	104	80-120	0.05326	0.692	15	
Zinc	0.05195	0.0050	0.05	0.00839	87.1	80-120	0.05312	2.23	15	

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0805606-08CDUP** Units: **mg/L** Analysis Date: **6/3/2008 01:48 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410741** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01681	0.010	0	0	0	0-0	0.01497	11.6	25	
Arsenic	0.01089	0.0050	0	0	0	0-0	0.01058	2.89	25	
Barium	0.0393	0.0050	0	0	0	0-0	0.03819	2.86	25	
Beryllium	ND	0.0020	0	0	0	0-0	-0.0001438	0	25	
Boron	0.6411	0.050	0	0	0	0-0	0.6122	4.61	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.0004353	0	25	
Calcium	147	0.50	0	0	0	0-0	143.9	2.13	25	
Chromium	ND	0.0050	0	0	0	0-0	0.0002614	0	25	
Cobalt	0.002661	0.0050	0	0	0	0-0	0.002614	0	25	J
Copper	ND	0.0050	0	0	0	0-0	0.0004179	0	25	
Iron	0.545	0.20	0	0	0	0-0	0.5342	2	25	
Lead	ND	0.0050	0	0	0	0-0	-0.00002332	0	25	
Magnesium	82.64	0.20	0	0	0	0-0	80.06	3.17	25	
Manganese	0.1849	0.0050	0	0	0	0-0	0.179	3.24	25	
Molybdenum	0.005564	0.0050	0	0	0	0-0	0.005355	3.83	25	
Nickel	0.002742	0.0050	0	0	0	0-0	0.002892	0	25	J
Potassium	4.499	0.20	0	0	0	0-0	4.425	1.66	25	
Selenium	ND	0.0050	0	0	0	0-0	0.0005107	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003408	0	25	
Vanadium	0.001621	0.0050	0	0	0	0-0	0.001695	0	25	J
Zinc	0.004506	0.0050	0	0	0	0-0	0.00839	0	25	J

DUP Sample ID: **0805606-08CDUP** Units: **mg/L** Analysis Date: **6/3/2008 03:07 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410816** Prep Date: **6/2/2008** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	198.8	10	0	0	0	0-0	216.8	8.66	25	

The following samples were analyzed in this batch: 0805558-01B

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E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30093** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:55 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411704** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000044	0.00020								J

LCS Sample ID: **GLCSW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:57 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411705** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00452	0.00020	0.005	0	90.4	85-115	0			

LCSD Sample ID: **GLCSDW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:59 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411706** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00438	0.00020	0.005	0	87.6	85-115	0.00452	3.15	20	

MS Sample ID: **0806044-01CMS** Units: **mg/L** Analysis Date: **6/4/2008 12:05 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411709** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00461	0.00020	0.005	-0.000049	93.2	85-115	0			

MSD Sample ID: **0806044-01CMSD** Units: **mg/L** Analysis Date: **6/4/2008 12:07 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411710** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00464	0.00020	0.005	-0.000049	93.8	85-115	0.00461	0.649	20	

DUP Sample ID: **0806044-01CDUP** Units: **mg/L** Analysis Date: **6/4/2008 12:03 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411708** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000049	0	20	

The following samples were analyzed in this batch: 0805558-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

MBLK Sample ID: **SBLKW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 04:45 PM**

Client ID: Run ID: **SV-5_080529C** SeqNo: **1408204** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*66.46*	5.0	*100*	0	*66.5*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*75.49*	5.0	*100*	0	*75.5*	*48-120*	0			
Surr: 2-Fluorophenol	*63.48*	5.0	*100*	0	*63.5*	*20-120*	0			
Surr: 4-Terphenyl-d14	*75.31*	5.0	*100*	0	*75.3*	*51-135*	0			
Surr: Nitrobenzene-d5	*78.24*	5.0	*100*	0	*78.2*	*41-120*	0			
Surr: Phenol-d6	*71.08*	5.0	*100*	0	*71.1*	*20-120*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

LCS Sample ID: **SLCSW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 11:50 AM**

Client ID: Run ID: **SV-5_080529C** SeqNo: **1408202** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.48	5.0	50	0	77	50-120	0			
2,4,5-Trichlorophenol	70.59	5.0	100	0	70.6	50-120	0			
2,4,6-Trichlorophenol	77.31	5.0	100	0	77.3	50-120	0			
2-Methylnaphthalene	39.73	5.0	50	0	79.5	55-120	0			
2-Methylphenol	72.4	5.0	100	0	72.4	50-120	0			
2-Nitroaniline	41.9	5.0	50	0	83.8	55-120	0			
2-Nitrophenol	77.95	5.0	100	0	78	55-120	0			
3&4-Methylphenol	112.7	5.0	150	0	75.1	55-120	0			
3-Nitroaniline	31.41	5.0	50	0	62.8	40-120	0			
4-Nitroaniline	37.07	5.0	50	0	74.1	50-120	0			
4-Nitrophenol	97.1	5.0	100	0	97.1	45-120	0			
Acenaphthene	40.42	5.0	50	0	80.8	55-120	0			
Acenaphthylene	41.2	5.0	50	0	82.4	55-120	0			
Aniline	30.83	5.0	50	0	61.7	30-120	0			
Anthracene	40.67	5.0	50	0	81.3	55-120	0			
Benz(a)anthracene	37.11	5.0	50	0	74.2	55-120	0			
Benzidine	15.02	5.0	50	0	30	10-120	0			
Hexachloroethane	38.38	5.0	50	0	76.8	55-120	0			
Indeno(1,2,3-cd)pyrene	36.31	5.0	50	0	72.6	55-120	0			
Isophorone	41.97	5.0	50	0	83.9	55-120	0			
N-Nitrosodi-n-propylamine	40.43	5.0	50	0	80.9	50-120	0			
N-Nitrosodimethylamine	37.79	5.0	50	0	75.6	45-120	0			
N-Nitrosodiphenylamine	40.24	5.0	50	0	80.5	55-120	0			
Naphthalene	40.25	5.0	50	0	80.5	55-120	0			
Nitrobenzene	39.48	5.0	50	0	79	55-120	0			
Pentachlorophenol	71.77	5.0	100	0	71.8	55-120	0			
Phenanthrene	39.92	5.0	50	0	79.8	55-120	0			
Phenol	77.57	5.0	100	0	77.6	50-120	0			
Pyrene	40.45	5.0	50	0	80.9	55-120	0			
Surr: 2,4,6-Tribromophenol	*72.66*	5.0	*100*	0	*72.7*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*77.75*	5.0	*100*	0	*77.7*	*48-120*	0			
Surr: 2-Fluorophenol	*68.18*	5.0	*100*	0	*68.2*	*20-120*	0			
Surr: 4-Terphenyl-d14	*76.16*	5.0	*100*	0	*76.2*	*51-135*	0			
Surr: Nitrobenzene-d5	*79.91*	5.0	*100*	0	*79.9*	*41-120*	0			
Surr: Phenol-d6	*72.59*	5.0	*100*	0	*72.6*	*20-120*	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 12:16 PM**
Client ID: Run ID: **SV-5_080529C** SeqNo: **1408203** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.38	5.0	50	0	76.8	50-120	38.48	0.238	20	
2,4,5-Trichlorophenol	84.21	5.0	100	0	84.2	50-120	70.59	17.6	20	
2,4,6-Trichlorophenol	79.22	5.0	100	0	79.2	50-120	77.31	2.45	20	
2-Methylnaphthalene	40.87	5.0	50	0	81.7	55-120	39.73	2.83	20	
2-Methylphenol	75.67	5.0	100	0	75.7	50-120	72.4	4.42	20	
2-Nitroaniline	42.15	5.0	50	0	84.3	55-120	41.9	0.588	20	
2-Nitrophenol	79.6	5.0	100	0	79.6	55-120	77.95	2.1	20	
3&4-Methylphenol	117.5	5.0	150	0	78.3	55-120	112.7	4.17	20	
3-Nitroaniline	26.62	5.0	50	0	53.2	40-120	31.41	16.5	20	
4-Nitroaniline	36.41	5.0	50	0	72.8	50-120	37.07	1.79	20	
4-Nitrophenol	82.95	5.0	100	0	82.9	45-120	97.1	15.7	20	
Acenaphthene	41.82	5.0	50	0	83.6	55-120	40.42	3.42	20	
Acenaphthylene	41.46	5.0	50	0	82.9	55-120	41.2	0.614	20	
Aniline	31.37	5.0	50	0	62.7	30-120	30.83	1.74	20	
Anthracene	39.59	5.0	50	0	79.2	55-120	40.67	2.7	20	
Benz(a)anthracene	37.02	5.0	50	0	74	55-120	37.11	0.242	20	
Benzidine	10.32	5.0	50	0	20.6	10-120	15.02	37.1	20	R
Hexachloroethane	41.36	5.0	50	0	82.7	55-120	38.38	7.47	20	
Indeno(1,2,3-cd)pyrene	36.71	5.0	50	0	73.4	55-120	36.31	1.08	20	
Isophorone	43.01	5.0	50	0	86	55-120	41.97	2.46	20	
N-Nitrosodi-n-propylamine	41.81	5.0	50	0	83.6	50-120	40.43	3.36	20	
N-Nitrosodimethylamine	39.68	5.0	50	0	79.4	45-120	37.79	4.88	20	
N-Nitrosodiphenylamine	41.17	5.0	50	0	82.3	55-120	40.24	2.29	20	
Naphthalene	40.53	5.0	50	0	81.1	55-120	40.25	0.683	20	
Nitrobenzene	40.12	5.0	50	0	80.2	55-120	39.48	1.61	20	
Pentachlorophenol	75.95	5.0	100	0	76	55-120	71.77	5.66	20	
Phenanthrene	41.64	5.0	50	0	83.3	55-120	39.92	4.21	20	
Phenol	81.2	5.0	100	0	81.2	50-120	77.57	4.58	20	
Pyrene	42.21	5.0	50	0	84.4	55-120	40.45	4.27	20	
Surr: 2,4,6-Tribromophenol	*73.12*	5.0	*100*	0	*73.1*	*42-124*	72.66	*0.63*	*20*	
Surr: 2-Fluorobiphenyl	*77.94*	5.0	*100*	0	*77.9*	*48-120*	77.75	*0.241*	*20*	
Surr: 2-Fluorophenol	*70.82*	5.0	*100*	0	*70.8*	*20-120*	68.18	*3.8*	*20*	
Surr: 4-Terphenyl-d14	*74.56*	5.0	*100*	0	*74.6*	*51-135*	76.16	*2.12*	*20*	
Surr: Nitrobenzene-d5	*77.03*	5.0	*100*	0	*77*	*41-120*	79.91	*3.68*	*20*	
Surr: Phenol-d6	*77.02*	5.0	*100*	0	*77*	*20-120*	72.59	*5.92*	*20*	

The following samples were analyzed in this batch: 0805558-01E

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63837** Instrument ID **VOA2** Method: **SW8260**

MBLK Sample ID: **VBLKW-052808** Units: **µg/L** Analysis Date: **5/28/2008 12:10 PM**
Client ID: Run ID: **VOA2_080528B** SeqNo: **1406315** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*43.9*	5.0	*50*	0	*87.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*39.58*	5.0	*50*	0	*79.2*	*72-125*	0			
Surr: Dibromofluoromethane	*44.48*	5.0	*50*	0	*89*	*71-125*	0			
Surr: Toluene-d8	*42.61*	5.0	*50*	0	*85.2*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63837** Instrument ID **VOA2** Method: **SW8260**

LCS Sample ID: **VLCSW-052808** Units: **µg/L** Analysis Date: **5/28/2008 10:32 AM**
Client ID: Run ID: **VOA2_080528B** SeqNo: **1406314** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.59	5.0	50	0	107	80-120	0			
1,1,2,2-Tetrachloroethane	43.21	5.0	50	0	86.4	72-120	0			
1,1,2-Trichloroethane	45.61	5.0	50	0	91.2	80-120	0			
1,1-Dichloroethane	57.72	5.0	50	0	115	76-120	0			
1,1-Dichloroethene	59.25	5.0	50	0	118	73-124	0			
1,2-Dichloroethane	50.06	5.0	50	0	100	78-120	0			
2-Butanone	105.4	10	100	0	105	58-132	0			
2-Chloroethyl vinyl ether	113.7	10	100	0	114	74-120	0			
2-Hexanone	90.16	10	100	0	90.2	61-130	0			
4-Methyl-2-pentanone	92.78	10	100	0	92.8	65-127	0			
Acetone	112.7	10	100	0	113	59-137	0			
Benzene	49.49	5.0	50	0	99	73-121	0			
Bromodichloromethane	56.85	5.0	50	0	114	80-120	0			
Bromoform	43.63	5.0	50	0	87.3	79-120	0			
Bromomethane	55.41	5.0	50	0	111	66-137	0			
Carbon disulfide	120.7	10	100	0	121	68-141	0			
Carbon tetrachloride	46.35	5.0	50	0	92.7	75-124	0			
Chlorobenzene	45.69	5.0	50	0	91.4	80-120	0			
Chloroethane	56.2	5.0	50	0	112	76-121	0			
Chloroform	51.36	5.0	50	0	103	80-120	0			
Chloromethane	52.26	5.0	50	0	105	67-123	0			
cis-1,3-Dichloropropene	51.11	5.0	50	0	102	80-120	0			
Dibromochloromethane	43.19	5.0	50	0	86.4	80-120	0			
Ethylbenzene	48.15	5.0	50	0	96.3	80-120	0			
m,p-Xylene	95.83	10	100	0	95.8	78-121	0			
Methylene chloride	54.74	10	50	0	109	65-133	0			
Styrene	47.23	5.0	50	0	94.5	80-120	0			
Tetrachloroethene	48.06	5.0	50	0	96.1	79-120	0			
Toluene	46.84	5.0	50	0	93.7	80-120	0			
trans-1,3-Dichloropropene	41.8	5.0	50	0	83.6	80-120	0			
Trichloroethene	54.59	5.0	50	0	109	80-120	0			
Vinyl acetate	116.5	10	100	0	117	67-139	0			
Vinyl chloride	55.86	2.0	50	0	112	70-127	0			
Xylenes, Total	144.1	15	150	0	96.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	*43.38*	5.0	*50*	0	*86.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*42.1*	5.0	*50*	0	*84.2*	*72-125*	0			
Surr: Dibromofluoromethane	*46.28*	5.0	*50*	0	*92.6*	*71-125*	0			
Surr: Toluene-d8	*41.88*	5.0	*50*	0	*83.8*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63837** Instrument ID **VOA2** Method: **SW8260**

MS Sample ID: **0805601-04AMS** Units: **µg/L** Analysis Date: **5/28/2008 03:25 PM**

Client ID: Run ID: **VOA2_080528B** SeqNo: **1406317** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.89	5.0	50	0	91.8	80-120	0			
1,1,2,2-Tetrachloroethane	47.3	5.0	50	0	94.6	72-120	0			
1,1,2-Trichloroethane	47.41	5.0	50	0	94.8	80-120	0			
1,1-Dichloroethane	44.83	5.0	50	0	89.7	76-120	0			
1,1-Dichloroethene	44.54	5.0	50	0	89.1	73-124	0			
1,2-Dichloroethane	47.57	5.0	50	0	95.1	78-120	0			
2-Butanone	102.3	10	100	0	102	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	108.8	10	100	0	109	61-130	0			
4-Methyl-2-pentanone	111.4	10	100	0	111	65-127	0			
Acetone	106.9	10	100	0	107	59-137	0			
Benzene	47.77	5.0	50	0	95.5	73-121	0			
Bromodichloromethane	49.32	5.0	50	0	98.6	80-120	0			
Bromoform	44.57	5.0	50	0	89.1	79-120	0			
Bromomethane	46.98	5.0	50	0	94	66-137	0			
Carbon disulfide	86.27	10	100	0	86.3	68-141	0			
Carbon tetrachloride	38.35	5.0	50	0	76.7	75-124	0			
Chlorobenzene	43.93	5.0	50	0	87.9	80-120	0			
Chloroethane	43.52	5.0	50	0	87	76-121	0			
Chloroform	47.36	5.0	50	0	94.7	80-120	0			
Chloromethane	44.75	5.0	50	0	89.5	67-123	0			
cis-1,3-Dichloropropene	44.26	5.0	50	0	88.5	80-120	0			
Dibromochloromethane	42.95	5.0	50	0	85.9	80-120	0			
Ethylbenzene	58.52	5.0	50	15.72	85.6	80-120	0			
m,p-Xylene	88.48	10	100	0	88.5	78-121	0			
Methylene chloride	46.9	10	50	0	93.8	65-133	0			
Styrene	45.6	5.0	50	0	91.2	80-120	0			
Tetrachloroethene	41.8	5.0	50	0	83.6	79-120	0			
Toluene	44.02	5.0	50	0	88	80-120	0			
trans-1,3-Dichloropropene	40.8	5.0	50	0	81.6	80-120	0			
Trichloroethene	47.16	5.0	50	0	94.3	80-120	0			
Vinyl acetate	109.4	10	100	0	109	67-139	0			
Vinyl chloride	42.03	2.0	50	0	84.1	70-127	0			
Xylenes, Total	133.6	15	150	0	89	80-120	0			
Surr: 1,2-Dichloroethane-d4	*41.93*	5.0	*50*	0	*83.9*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*42.08*	5.0	*50*	0	*84.2*	*72-125*	0			
Surr: Dibromofluoromethane	*44.57*	5.0	*50*	0	*89.1*	*71-125*	0			
Surr: Toluene-d8	*41*	5.0	*50*	0	*82*	*75-125*	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: R63837 Instrument ID VOA2 Method: SW8260

MSD Sample ID: 0805601-04AMSD Units: µg/L Analysis Date: 5/28/2008 03:49 PM

Client ID: Run ID: VOA2_080528B SeqNo: 1406318 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.03	5.0	50	0	98.1	80-120	45.89	6.62	20	
1,1,2,2-Tetrachloroethane	50.56	5.0	50	0	101	72-120	47.3	6.65	20	
1,1,2-Trichloroethane	49.8	5.0	50	0	99.6	80-120	47.41	4.93	20	
1,1-Dichloroethane	47.18	5.0	50	0	94.4	76-120	44.83	5.1	20	
1,1-Dichloroethene	47.98	5.0	50	0	96	73-124	44.54	7.43	20	
1,2-Dichloroethane	49.81	5.0	50	0	99.6	78-120	47.57	4.62	20	
2-Butanone	106.7	10	100	0	107	58-132	102.3	4.28	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	115.9	10	100	0	116	61-130	108.8	6.33	20	
4-Methyl-2-pentanone	116.8	10	100	0	117	65-127	111.4	4.73	20	
Acetone	109.6	10	100	0	110	59-137	106.9	2.52	20	
Benzene	50.81	5.0	50	0	102	73-121	47.77	6.17	20	
Bromodichloromethane	52.54	5.0	50	0	105	80-120	49.32	6.33	20	
Bromoform	47.3	5.0	50	0	94.6	79-120	44.57	5.96	20	
Bromomethane	50.64	5.0	50	0	101	66-137	46.98	7.51	20	
Carbon disulfide	93.63	10	100	0	93.6	68-141	86.27	8.18	20	
Carbon tetrachloride	41.62	5.0	50	0	83.2	75-124	38.35	8.18	20	
Chlorobenzene	46.42	5.0	50	0	92.8	80-120	43.93	5.51	20	
Chloroethane	46.89	5.0	50	0	93.8	76-121	43.52	7.44	20	
Chloroform	48.94	5.0	50	0	97.9	80-120	47.36	3.27	20	
Chloromethane	48.35	5.0	50	0	96.7	67-123	44.75	7.73	20	
cis-1,3-Dichloropropene	47.47	5.0	50	0	94.9	80-120	44.26	6.99	20	
Dibromochloromethane	45.31	5.0	50	0	90.6	80-120	42.95	5.36	20	
Ethylbenzene	62.77	5.0	50	15.72	94.1	80-120	58.52	7.01	20	
m,p-Xylene	94.53	10	100	0	94.5	78-121	88.48	6.61	20	
Methylene chloride	49.02	10	50	0	98	65-133	46.9	4.41	20	
Styrene	48.13	5.0	50	0	96.3	80-120	45.6	5.4	20	
Tetrachloroethene	44.75	5.0	50	0	89.5	79-120	41.8	6.82	20	
Toluene	46.63	5.0	50	0	93.3	80-120	44.02	5.77	20	
trans-1,3-Dichloropropene	43.88	5.0	50	0	87.8	80-120	40.8	7.28	20	
Trichloroethene	50.02	5.0	50	0	100	80-120	47.16	5.89	20	
Vinyl acetate	115.9	10	100	0	116	67-139	109.4	5.83	20	
Vinyl chloride	45.4	2.0	50	0	90.8	70-127	42.03	7.71	20	
Xylenes, Total	142	15	150	0	94.6	80-120	133.6	6.11	20	
Surr: 1,2-Dichloroethane-d4	*42.81*	5.0	*50*	0	*85.6*	*70-125*	41.93	*2.06*	*20*	
Surr: 4-Bromofluorobenzene	*44.6*	5.0	*50*	0	*89.2*	*72-125*	42.08	*5.81*	*20*	
Surr: Dibromofluoromethane	*46.59*	5.0	*50*	0	*93.2*	*71-125*	44.57	*4.43*	*20*	
Surr: Toluene-d8	*43.46*	5.0	*50*	0	*86.9*	*75-125*	41	*5.83*	*20*	

The following samples were analyzed in this batch: 0805558-01A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63600** Instrument ID **SWetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-052308** Units: **pH units** Analysis Date: **5/23/2008 10:00 AM**
Client ID: Run ID: **SWETCHEM_080523D** SeqNo: **1401952** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.08	0.10	6	0	101	90-110	0			

DUP Sample ID: **0805529-01ADUP** Units: **pH units** Analysis Date: **5/23/2008 10:00 AM**
Client ID: Run ID: **SWETCHEM_080523D** SeqNo: **1401961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	13.17	0.10	0	0	0	0-0	13.14	0.228	20	H

The following samples were analyzed in this batch: 0805558-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63719** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-052708** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403637** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-052708** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403638** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1420	1.0	1413	0	100	80-120	0			

DUP Sample ID: **0805363-01FDUP** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403641** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	3550	1.0	0	0	0	0-0	3570	0.562	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63797** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-052808** Units: **°F** Analysis Date: **5/28/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080528C** SeqNo: **1405214** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID: **0805558-01DDUP** Units: **°F** Analysis Date: **5/28/2008 03:00 PM**
Client ID: **Injection Well** Run ID: **WETCHEM_080528C** SeqNo: **1405217** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch: 0805558-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63808** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-052808** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405421** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-052808** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405422** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1003	5.0	1000	0	100	80-120	0			
Alkalinity, Total (As CaCO3)	1003	5.0	1000	0	100	80-120	0			

DUP Sample ID: **0805543-01FDUP** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405442** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	538	5.0	0	0	0	0-0	530	1.5	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	538	5.0	0	0	0	0-0	530	1.5	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: R63822 Instrument ID Balance1 Method: E160.1 (Dissolve)

MBLK Sample ID: BLANK Units: mg/L Analysis Date: 5/27/2008 03:00 PM
Client ID: Run ID: BALANCE1_080527K SeqNo: 1405748 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	ND	10								

LCS Sample ID: LCS Units: mg/L Analysis Date: 5/27/2008 03:00 PM
Client ID: Run ID: BALANCE1_080527K SeqNo: 1405750 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1004	10	1000	0	100	85-115	0			

DUP Sample ID: 0805531-21BDUP Units: mg/L Analysis Date: 5/27/2008 03:00 PM
Client ID: Run ID: BALANCE1_080527K SeqNo: 1405729 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	5874	10	0	0	0	0-0	5882	0.136	20	

DUP Sample ID: 0805558-01CDUP Units: mg/L Analysis Date: 5/27/2008 03:00 PM
Client ID: Injection Well Run ID: BALANCE1_080527K SeqNo: 1405743 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1232	10	0	0	0	0-0	1238	0.486	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R64025** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 12:00 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410755** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*4.751*	0.10	*5*	0	*95*	*85-115*	0			

LCS Sample ID: **WLCSW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 12:25 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410757** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.8	0.50	20	0	99	90-110	0			
Sulfate	20.2	0.50	20	0	101	90-110	0			
Surr: Selenate (surr)	*4.969*	0.10	*5*	0	*99.4*	*85-115*	0			

MS Sample ID: **0805556-01BMS** Units: **mg/L** Analysis Date: **6/2/2008 03:39 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410766** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	284.1	0.50	10	280.2	38.6	80-120	0			SEO
Sulfate	1394	0.50	10	1422	-279	80-120	0			SEO
Surr: Selenate (surr)	*4.656*	0.10	*5*	0	*93.1*	*85-115*	0			

DUP Sample ID: **0805556-01BDUP** Units: **mg/L** Analysis Date: **6/2/2008 03:14 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410765** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	272.4	0.50	0	0	0	0-0	280.2	2.84	20	E
Sulfate	1384	0.50	0	0	0	0-0	1422	2.7	20	E
Surr: Selenate (surr)	*4.517*	0.10	*5*	0	*90.3*	*85-115*	4.649	*2.88*	*20*	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page ___ of ___

e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Project Manager: | Work Order #: 680555

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Qrtly.	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Injection Well	5/22/08	1410	L	Y	9	X	X	X	X	X	X	X	X	X		
2	Trip Blank																
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Aaron Strange

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☐ Std 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ Other ☐ 24 Hour

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
Aaron Strange	5/22/08	1615		10 Day TAT.
Relinquished by:	Date:	Time:	Received by (Laboratory): 5/22/08 0840	
Logged by (Laboratory)	Date:	Time:	Checked by (Laboratory):	

Cooler ID | Cooler Temp:

QC Packages: (Check One Box Below)
☑ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 5/23/2008 08:40

Work Order Number 0805558 Received by: RNG

Checklist completed by [signature] 5/23/08 (Signature / Date) Reviewed by [initials] 5/27/08 (Initials / Date)

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ✓	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✓	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✓
Chain of custody present?	Yes ✓	No	
Chain of custody signed when relinquished and received?	Yes ✓	No	
Chain of custody agrees with sample labels?	Yes ✓	No	
Samples in proper container/bottle?	Yes ✓	No	
Sample containers intact?	Yes ✓	No	
Sufficient sample volume for indicated test?	Yes ✓	No	
All samples received within holding time?	Yes ✓	No	
Container/Temp Blank temperature in compliance?	Yes ✓	No	
Temperature(s)/Thermometer(s):	2.9c	002	
Cooler(s)/Kit(s):	2369		
Water - VOA vials have zero headspace?	Yes ✓	No	No VOA vials submitted
Water - pH acceptable upon receipt?	Yes ✓	No	N/A

Adjusted? Checked by

Login Notes:

Client contacted: Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action

D800250

ALS e-Lab Analytical
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

CUSTODY

Date: 5/27/08 Time

Name:

Company: Nava

SEAL

1615

Seal Broken By:

Date:

ALS Laboratory Group

Date: 29-May-08

Client: ALS Laboratory Group
Project: 0805558
Work Order: **0805504**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0805504-01	0805558-01F	Water		5/22/2008 14:10	5/28/2008 09:40	☐

Released to Imaging: 7/12/2024 10:49:45 AM

ALS Laboratory Group

Date: *29-May-08*

Client: ALS Laboratory Group
Project: 0805558
Sample ID: 0805558-01F
Collection Date: 5/22/2008 02:10 PM
Work Order: 0805504
Lab ID: 0805504-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **DB**
Cyanide, Reactive	ND		40.0	mg/Kg	1	5/29/2008
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **DB**
Sulfide, Reactive	ND		40.0	mg/Kg	1	5/29/2008

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Client: ALS Laboratory Group
Work Order: 0805504
Project: 0805558

Date: *29-May-08*

QC BATCH REPORT

Batch ID: **R59003** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID: **WBLKS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977280** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: **WLCSS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977281** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	220.2	40	250	0	88.1	75-125	0			

LCSD Sample ID: **WLCSDS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977290** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	220.2	40	250	0	88.1	75-125	220.2	0	35	

MS Sample ID: **0805504-01A MS** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: **0805558-01F** Run ID: **WETCHEM_080529E** SeqNo: **977283** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	264.2	40	250	0	106	50-150	0			

MSD Sample ID: **0805504-01A MSD** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: **0805558-01F** Run ID: **WETCHEM_080529E** SeqNo: **977284** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	264.2	40	250	0	106	50-150	264.2	0	35	

The following samples were analyzed in this batch: 0805504-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: ALS Laboratory Group
Work Order: 0805504
Project: 0805558

QC BATCH REPORT

Batch ID: **R59004** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID: **WBLKS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529F** SeqNo: **977295** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0805504-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

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Received by OCD: 5/16/2022 2:12:41 PM

0805504

Subcontractor:
e-Lab Analytical, Inc.
3352 128th Ave.
Holland, MI 49424
TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 23-May-08
COC ID: 6398
Due Date 04-Jun-08

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	0805558	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jeff.croston@alsenviro.com	eMail CC	glenda.ramos@alsenviro.com	J

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
0805558-01F (Injection Well)	Water	5/22/2008 14:10	(1) 1LPNEAT	X	X								

Comments:

Please analyze for Reactive Cyanide & Reactive Sulfide.

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
					Std
Relinquished by:	Date/Time	Received by:	Date/Time		
	5.27.08		5/28/08 0940		

ALS Laboratory Group

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 5/28/2008 09:40

Work Order Number 0805504 Received by: AJK

Checklist completed by _____ 5/28/08 Reviewed by AJK 5/28/08
Signature Date Initials Date

Matrix: Water Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.0°C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

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1P

Saver

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SHIPMENT FROM

UPS ACCOUNT NO. 698174

REFERENCE NUMBER
SUB CONTRACT

RICHARD SANCHEZ TELEPHONE 281-530-5656

ALS LABORATORY GROUP

1450 STANCLIFF RD STE # 210

HOUSTON TX 77099

DELIVERY TO

RECEIVING TELEPHONE 616-399-6070

ALS LABORATORY GROUP

3352 128TH AVE

HOLLAND MI 49424

(URC 1.72 5/30/2007)
0201952502609 1/07

United Parcel Service, Louisville, KY

MI 495 9-04

UPS Next Day Air Saver 1P

1Z 698 174 23 1005 3901

TRACKING NUMBER

SHIPMENT ID NUMBER 6981 747B BCW

3352 128TH AVE

HOLLAND MI 49424

P: S: I:

M220-RDL

1500

1Z 698 174 23 1005 3901

1256391 SS3004 US 04959 May 28 08:06:53 2008 HIP 7.0.1 INT4420

e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

QUALITY • INTEGRITY • SERVICE

CUSTODY SEAL

Date: 5-27-08 Time: 1640
Name: RICHARD SANCHEZ
Company: ALS

Seal Broken By:

Date: 5/28/08

08055504

REFINING COMPANY, LLC

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 ENV/PURCH/MKTG
(505) 746-5421 ENGINEERING

January 18, 2008

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 Fourth Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

While generating this report an error was found and corrected on the 2007 third quarter monthly injection pressures, rates and volumes spread sheet. Please see the enclosed corrected spread sheet.

Also enclosed, please find the sampling results for the fourth quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2007 to December 31, 2007. We have disposed a total of 36,349,675 barrels of fluid into the two wells as of December 31, 2007. This is broken down as follows: 24,507,561 barrels into WDW-1 and 11,842,114 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Aaron Strange

Aaron Strange
Sr. Environmental Technician

Encl.

cc: DGM
File: REF:ART: 4 A 02 D

RECEIVED
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Received by OCD: 5/16/2022 2:12:41 PM

2007 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													Previous Quarter	23,700,982
Oct-07	273	316	1	281	304	162	96	194	18	9,624	10,435	5,543	298,355	23,999,337
Nov-07	293	386	87	242	280	64	206	333	29	8,297	9,597	2,184	257,219	24,256,556
Dec-07	395	468	368	236	264	146	193	272	113	8,097	9,036	5,000	251,005	24,507,561
WDW-2													Previous Quarter	11,362,072
Oct-07	339	406	30	133	160	0	477	500	168	4,546	5,469	0	140,915	11,502,987
Nov-07	347	401	121	144	176	36	486	500	303	4,925	6,038	1,237	152,676	11,655,663
Dec-07	410	443	367	175	187	153	455	500	310	6,015	6,428	5,242	186,452	11,842,114
													Total Injected fluids:	36,349,675

Page 922 of 5828

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Received by OCD: 5/16/2022 2:12:41 PM

2007 THIRD QUARTER WEEKLY WHAMS LEVEL TABLE

	10/2/07	10/9/07	10/15/07	10/23/07	10/30/07	11/6/07	11/12/07	11/20/07	11/27/07	12/3/07	12/11/07	12/18/07	12/25/07
WDW -1[1]	200	200	200	200	200	200	200	200	190	190	190	190	190
WDW-2[1]	160	160	160	160	160	160	160	160	160	160	160	160	160
WDW-3[2]	*	*	*	*	*	*	*	*	*	*	240	240	240

[1] Graduated 200 gallon tank.

[2] 300 gallon tank, filled the week of 12/10/07, no fluids were injected as of 12/31/07.

November 30, 2007

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Well Quarterly

Work Order : **0711312**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 1 sample on 11/14/2007 09:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 35.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Rebecca L. Hunt

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: November 30, 2007

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312

LELAP Certificate #03087

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Dat	Date Received	Hold
0711312-01	Inj. Well	Water		11/13/2007 09:15	11/14/2007 09:20	☐

e-Lab Analytical, Inc. *Date: November 30, 2007*

Client:	Navajo Refining Company	LELAP Certificate #03087
Project:	Injection Well Quarterly	**Case Narrative**
Work Order:	0711312	

Metals (sample Inj. Well) could not be reported at a lower dilution for all elements due the nature of the sample.

Batch 26751 Metals MS/MSD was an unrelated sample.

Batch 26771 Semivolatiles LCS/LCSD RPD recovery was above the control limits for Benzidine (23.7%). Recoveries met method criteria in both LCS/LCSD.

Batch R57123 Volatiles MS/MSD was an unrelated sample.

Batch R57038 Anions MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Inj. Well
Collection Date: 11/13/2007 9:15:00 AM

Work Order: 0711312
Lab ID: 0711312-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **11/24/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	11/25/2007 6:38:10 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **11/15/2007**	Analyst: **ALR**
Aluminum	**1.85**		**0.100**	**mg/L**	10	11/19/2007 8:55:00 PM
Arsenic	**0.147**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Barium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Beryllium	ND		0.00200	mg/L	1	11/19/2007 9:01:00 PM
Boron	**0.241**		**0.0200**	**mg/L**	1	11/19/2007 9:01:00 PM
Cadmium	ND		0.0200	mg/L	10	11/17/2007 12:10:00 AM
Calcium	**119**		**5.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Chromium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Cobalt	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Copper	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Iron	**4.17**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Lead	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Magnesium	**43.3**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Manganese	**0.117**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Molybdenum	**0.144**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Nickel	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Potassium	**27.4**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Selenium	**0.452**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Silver	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Sodium	**1,200**		**2.00**	**mg/L**	10	11/19/2007 8:55:00 PM
Vanadium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Zinc	**0.190**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **11/16/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Methylphenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Nitrophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
3-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
4-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
4-Nitrophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Acenaphthene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Acenaphthylene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Anthracene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Benzidine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Hexachloroethane	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Isophorone	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Naphthalene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Nitrobenzene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Pentachlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Phenanthrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Phenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Pyrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Surr: 2,4,6-Tribromophenol	*86.1*		*42-124*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 2-Fluorobiphenyl	*63.6*		*48-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 2-Fluorophenol	*64.9*		*20-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 4-Terphenyl-d14	*71.0*		*51-135*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: Nitrobenzene-d5	*65.9*		*41-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: Phenol-d6	*69.3*		*20-120*	*%REC*	1	11/19/2007 5:17:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
2-Butanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
2-Hexanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Acetone	**0.042**		**0.010**	**mg/L**	1	11/21/2007 5:00:00 PM
Benzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromodichloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromoform	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromomethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Carbon disulfide	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloroform	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Dibromochloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Ethylbenzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
m,p-Xylene	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Methylene chloride	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Styrene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Tetrachloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Toluene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Trichloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Vinyl acetate	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Vinyl chloride	ND		0.0020	mg/L	1	11/21/2007 5:00:00 PM
Xylenes, Total	ND		0.015	mg/L	1	11/21/2007 5:00:00 PM
Surr: 1,2-Dichloroethane-d4	*87.0*		*70-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: 4-Bromofluorobenzene	*92.8*		*72-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: Dibromofluoromethane	*102*		*71-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: Toluene-d8	*102*		*75-125*	*%REC*	1	11/21/2007 5:00:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	11/16/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	11/16/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **RPM**
Chloride	**889**		**50.0**	**mg/L**	100	11/20/2007 7:10:00 PM
Sulfate	**1,650**		**50.0**	**mg/L**	100	11/20/2007 7:10:00 PM
Surr: Selenate (surr)	*113*		*85-115*	*%REC*	100	11/20/2007 7:10:00 PM
ALKALINITY			**E310.1**			Analyst: **DM**
Alkalinity, Bicarbonate (As CaCO3)	**334**		**5.00**	**mg/L**	1	11/19/2007 4:00:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	11/19/2007 4:00:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	11/19/2007 4:00:00 PM
Alkalinity, Total (As CaCO3)	**334**		**5.00**	**mg/L**	1	11/19/2007 4:00:00 PM
CONDUCTIVITY			**E120.1**			Analyst: **DM**
Specific Conductance	**5,980**		**1.00**	**µmhos/cm**	1	11/16/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	11/15/2007

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	**7.37**	H	**0.100**	**pH units**	1	11/14/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	**4,300**		**10.0**	***mg/L***	1	11/15/2007 3:00:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

Date: *Nov 30 2007*

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID **MBLKW2-111507** Units: **mg/L** Analysis Date: **11/16/07 23:57**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264730** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	0.0003037	0.0020								J
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	0.0002719	0.0050								J
Copper	ND	0.0050								
Iron	0.05465	0.20								J
Lead	0.000386	0.0050								J
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	0.0004153	0.0050								J
Potassium	0.04252	0.20								J
Selenium	ND	0.0050								
Silver	ND	0.0050								
Vanadium	0.0006997	0.0050								J
Zinc	ND	0.0050								

MBLK Sample ID **MBLKW2-111507** Units: **mg/L** Analysis Date: **11/19/07 17:19**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265810** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.0003468	0.0020								J
Boron	ND	0.020								
Sodium	ND	0.20								

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID **MLCSW2-111507** Units: **mg/L** Analysis Date: **11/17/07 0:04**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264732** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04957	0.0050	0.05	0	99.1	80-120	0			
Barium	0.05136	0.0050	0.05	0	103	80-120	0			
Cadmium	0.05239	0.0020	0.05	0	105	80-120	0			
Calcium	5.456	0.50	5	0	109	80-120	0			
Chromium	0.05098	0.0050	0.05	0	102	80-120	0			
Cobalt	0.0535	0.0050	0.05	0	107	80-120	0			
Copper	0.05107	0.0050	0.05	0	102	80-120	0			
Iron	5.187	0.20	5	0	104	80-120	0			
Lead	0.05153	0.0050	0.05	0	103	80-120	0			
Magnesium	5.225	0.20	5	0	104	80-120	0			
Manganese	0.05052	0.0050	0.05	0	101	80-120	0			
Molybdenum	0.05028	0.0050	0.05	0	101	80-120	0			
Nickel	0.05157	0.0050	0.05	0	103	80-120	0			
Potassium	5.175	0.20	5	0	104	80-120	0			
Selenium	0.05426	0.0050	0.05	0	109	80-120	0			
Silver	0.04955	0.0050	0.05	0	99.1	80-120	0			
Vanadium	0.05257	0.0050	0.05	0	105	80-120	0			
Zinc	0.05273	0.0050	0.05	0	105	80-120	0			

LCS Sample ID **MLCSW2-111507** Units: **mg/L** Analysis Date: **11/19/07 17:26**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265811** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.05013	0.0020	0.05	0	100	80-120	0			
Boron	0.5145	0.020	0.5	0	103	80-120	0			
Sodium	4.668	0.20	5	0	93.4	80-120	0			

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID **0711313-06EMS** Units: **mg/L** Analysis Date: **11/17/07 3:00**
Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264759** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06728	0.0050	0.05	0.01503	104	80-120	0			
Barium	0.1102	0.0050	0.05	0.06018	100	80-120	0			
Beryllium	0.05128	0.0020	0.05	0.0006468	101	80-120	0			
Boron	0.8142	0.020	0.5	0.2942	104	80-120	0			
Cadmium	0.04984	0.0020	0.05	0.0003068	99.1	80-120	0			
Calcium	149.3	0.50	5	148.6	14	80-120	0			SO
Chromium	0.045	0.0050	0.05	0.0002828	89.4	80-120	0			
Cobalt	0.05518	0.0050	0.05	0.007226	95.9	80-120	0			
Copper	0.04599	0.0050	0.05	0.0007485	90.5	80-120	0			
Iron	5.172	0.20	5	0.6444	90.6	80-120	0			
Lead	0.04957	0.0050	0.05	0.0003491	98.4	80-120	0			
Magnesium	31.26	0.20	5	28.38	57.6	80-120	0			SO
Manganese	2.072	0.0050	0.05	2.124	-104	80-120	0			SEO
Molybdenum	0.05029	0.0050	0.05	0.002178	96.2	80-120	0			
Nickel	0.0611	0.0050	0.05	0.01618	89.8	80-120	0			
Potassium	21.17	0.20	5	17.18	79.8	80-120	0			S
Selenium	0.05263	0.0050	0.05	0.001845	102	80-120	0			
Silver	0.04467	0.0050	0.05	0.0003217	88.7	80-120	0			
Sodium	139	0.20	5	141.8	-56	80-120	0			SO
Vanadium	0.06015	0.0050	0.05	0.01373	92.8	80-120	0			
Zinc	0.05148	0.0050	0.05	0.002264	98.4	80-120	0			

MS Sample ID **0711313-06EMS** Units: **mg/L** Analysis Date: **11/19/07 18:55**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265940** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05348	0.010	0.05	0.007074	92.8	80-120	0			

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R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID **0711313-06EMSD** Units: **mg/L** Analysis Date: **11/17/07 3:06**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264760** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.07399	0.0050	0.05	0.01503	118	80-120	0.06728	9.5	15	
Barium	0.1087	0.0050	0.05	0.06018	97	80-120	0.1102	1.37	15	
Beryllium	0.04895	0.0020	0.05	0.0006468	96.6	80-120	0.05128	4.65	15	
Boron	0.7898	0.020	0.5	0.2942	99.1	80-120	0.8142	3.04	15	
Cadmium	0.04852	0.0020	0.05	0.0003068	96.4	80-120	0.04984	2.68	15	
Calcium	146	0.50	5	148.6	-52	80-120	149.3	2.24	15	SO
Chromium	0.04641	0.0050	0.05	0.0002828	92.3	80-120	0.045	3.09	15	
Cobalt	0.05651	0.0050	0.05	0.007226	98.6	80-120	0.05518	2.38	15	
Copper	0.04666	0.0050	0.05	0.0007485	91.8	80-120	0.04599	1.45	15	
Iron	5.181	0.20	5	0.6444	90.7	80-120	5.172	0.174	15	
Lead	0.0476	0.0050	0.05	0.0003491	94.5	80-120	0.04957	4.05	15	
Magnesium	30.78	0.20	5	28.38	48	80-120	31.26	1.55	15	SO
Manganese	2.107	0.0050	0.05	2.124	-34	80-120	2.072	1.68	15	SEO
Molybdenum	0.04949	0.0050	0.05	0.002178	94.6	80-120	0.05029	1.6	15	
Nickel	0.05928	0.0050	0.05	0.01618	86.2	80-120	0.0611	3.02	15	
Potassium	20.87	0.20	5	17.18	73.8	80-120	21.17	1.43	15	S
Selenium	0.05122	0.0050	0.05	0.001845	98.8	80-120	0.05263	2.72	15	
Silver	0.04655	0.0050	0.05	0.0003217	92.5	80-120	0.04467	4.12	15	
Sodium	137.8	0.20	5	141.8	-80	80-120	139	0.867	15	SO
Vanadium	0.06479	0.0050	0.05	0.01373	102	80-120	0.06015	7.43	15	
Zinc	0.05098	0.0050	0.05	0.002264	97.4	80-120	0.05148	0.976	15	

MSD Sample ID **0711313-06EMSD** Units: **mg/L** Analysis Date: **11/19/07 19:01**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265941** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05155	0.010	0.05	0.007074	89	80-120	0.05348	3.68	15	

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/17/07 2:47**
Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264757** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.01783	0.0050	0	0	0	0-0	0.01503	17	25	
Barium	0.06495	0.0050	0	0	0	0-0	0.06018	7.62	25	
Beryllium	0.0004054	0.0020	0	0	0	0-0	0.0006468	0	25	J
Boron	0.3056	0.020	0	0	0	0-0	0.2942	3.8	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.0003068	0	25	
Calcium	151.1	0.50	0	0	0	0-0	148.6	1.67	25	
Chromium	ND	0.0050	0	0	0	0-0	0.0002828	0	25	
Cobalt	0.007171	0.0050	0	0	0	0-0	0.007226	0.764	25	
Copper	0.0005842	0.0050	0	0	0	0-0	0.0007485	0	25	J
Iron	0.6462	0.20	0	0	0	0-0	0.6444	0.279	25	
Lead	ND	0.0050	0	0	0	0-0	0.0003491	0	25	
Magnesium	28.36	0.20	0	0	0	0-0	28.38	0.0705	25	
Molybdenum	0.002077	0.0050	0	0	0	0-0	0.002178	0	25	J
Nickel	0.0161	0.0050	0	0	0	0-0	0.01618	0.496	25	
Potassium	17.34	0.20	0	0	0	0-0	17.18	0.927	25	
Selenium	ND	0.0050	0	0	0	0-0	0.001845	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0003217	0	25	
Sodium	141.8	0.20	0	0	0	0-0	141.8	0	25	
Vanadium	0.01359	0.0050	0	0	0	0-0	0.01373	1.02	25	
Zinc	0.002235	0.0050	0	0	0	0-0	0.002264	0	25	J

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/19/07 17:38**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265813** Prep Date: **11/15/2007** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	2.195	0.25	0	0	0	0-0	2.163	1.47	25	

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/19/07 18:23**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265819** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.007846	0.010	0	0	0	0-0	0.007074	0	25	J

The following samples were analyzed in this batch: 0711312-01B

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26874** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID **GBLKW3-112407** Units: **mg/L** Analysis Date: **11/25/07 17:44**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269056** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID **GLCSW3-112407** Units: **mg/L** Analysis Date: **11/25/07 17:48**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269057** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00475	0.00020	0.005	0	95	85-115	0			

LCSD Sample ID **GLCSDW3-11240** Units: **mg/L** Analysis Date: **11/25/07 17:50**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269058** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00498	0.00020	0.005	0	99.6	85-115	0.00475	4.73	20	

MS Sample ID **0711456-01DMS** Units: **mg/L** Analysis Date: **11/25/07 18:02**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269061** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00478	0.00020	0.005	0.000033	94.9	85-115	0			

MSD Sample ID **0711456-01DMSD** Units: **mg/L** Analysis Date: **11/25/07 18:04**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269062** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00519	0.00020	0.005	0.000033	103	85-115	0.00478	8.22	20	

DUP Sample ID **0711456-01DDUP** Units: **mg/L** Analysis Date: **11/25/07 17:57**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269060** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0.000033	0	20	

The following samples were analyzed in this batch: 0711312-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID **SBLKW1-071116** Units: **µg/L** Analysis Date: **11/19/07 14:34**

Client ID: Run ID: **SV-3_071119B** SeqNo: **1266313** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*92.41*	5.0	*100*	0	*92.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*69.89*	5.0	*100*	0	*69.9*	*48-120*	0			
Surr: 2-Fluorophenol	*68.99*	5.0	*100*	0	*69*	*20-120*	0			
Surr: 4-Terphenyl-d14	*74.64*	5.0	*100*	0	*74.6*	*51-135*	0			
Surr: Nitrobenzene-d5	*71.66*	5.0	*100*	0	*71.7*	*41-120*	0			
Surr: Phenol-d6	*75.26*	5.0	*100*	0	*75.3*	*20-120*	0			

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID **SLCSW1-071116** Units: **µg/L** Analysis Date: **11/19/07 15:01**
Client ID: Run ID: **SV-3_071119B** SeqNo: **1266314** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	39.4	5.0	50	0	78.8	54-118	0			
2,4,5-Trichlorophenol	89.6	5.0	100	0	89.6	52-115	0			
2,4,6-Trichlorophenol	81.96	5.0	100	0	82	56-115	0			
2-Methylnaphthalene	42.93	5.0	50	0	85.9	46-117	0			
2-Methylphenol	83.45	5.0	100	0	83.4	53-115	0			
2-Nitroaniline	54.19	5.0	50	0	108	53-123	0			
2-Nitrophenol	78.88	5.0	100	0	78.9	53-115	0			
3&4-Methylphenol	125.9	5.0	150	0	83.9	48-115	0			
3-Nitroaniline	43.56	5.0	50	0	87.1	26-115	0			
4-Nitroaniline	52.68	5.0	50	0	105	47-115	0			
4-Nitrophenol	116	5.0	100	0	116	26-133	0			
Acenaphthene	45.42	5.0	50	0	90.8	57-115	0			
Acenaphthylene	45.59	5.0	50	0	91.2	57-118	0			
Aniline	30.91	5.0	50	0	61.8	36-115	0			
Anthracene	45.48	5.0	50	0	91	65-115	0			
Benz(a)anthracene	47.55	5.0	50	0	95.1	53-115	0			
Benzidine	30.52	5.0	50	0	61	10-115	0			
Hexachloroethane	37.97	5.0	50	0	75.9	54-115	0			
Indeno(1,2,3-cd)pyrene	45.31	5.0	50	0	90.6	51-115	0			
Isophorone	40.34	5.0	50	0	80.7	55-115	0			
N-Nitrosodi-n-propylamine	40.38	5.0	50	0	80.8	55-115	0			
N-Nitrosodimethylamine	43.16	5.0	50	0	86.3	42-115	0			
N-Nitrosodiphenylamine	39.58	5.0	50	0	79.2	52-115	0			
Naphthalene	41.89	5.0	50	0	83.8	55-115	0			
Nitrobenzene	40.24	5.0	50	0	80.5	40-124	0			
Pentachlorophenol	105.5	5.0	100	0	106	45-125	0			
Phenanthrene	44.7	5.0	50	0	89.4	57-115	0			
Phenol	84.22	5.0	100	0	84.2	38-115	0			
Pyrene	47.35	5.0	50	0	94.7	51-115	0			
Surr: 2,4,6-Tribromophenol	*96.31*	5.0	*100*	0	*96.3*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*69.86*	5.0	*100*	0	*69.9*	*48-120*	0			
Surr: 2-Fluorophenol	*73.12*	5.0	*100*	0	*73.1*	*20-120*	0			
Surr: 4-Terphenyl-d14	*75.81*	5.0	*100*	0	*75.8*	*51-135*	0			
Surr: Nitrobenzene-d5	*68.53*	5.0	*100*	0	*68.5*	*41-120*	0			
Surr: Phenol-d6	*77.13*	5.0	*100*	0	*77.1*	*20-120*	0			

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID **SLCSDW1-071116** Units: **µg/L** Analysis Date: **11/19/07 15:28**
Client ID: Run ID: **SV-3_071119B** SeqNo: **1266315** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.11	5.0	50	0	82.2	54-118	39.4	4.25	20	
2,4,5-Trichlorophenol	86.98	5.0	100	0	87	52-115	89.6	2.97	20	
2,4,6-Trichlorophenol	82.98	5.0	100	0	83	56-115	81.96	1.24	20	
2-Methylnaphthalene	45.1	5.0	50	0	90.2	46-117	42.93	4.93	20	
2-Methylphenol	83.41	5.0	100	0	83.4	53-115	83.45	0.0409	20	
2-Nitroaniline	51.42	5.0	50	0	103	53-123	54.19	5.26	20	
2-Nitrophenol	78.43	5.0	100	0	78.4	53-115	78.88	0.58	20	
3&4-Methylphenol	125.5	5.0	150	0	83.7	48-115	125.9	0.277	20	
3-Nitroaniline	44.89	5.0	50	0	89.8	26-115	43.56	3	20	
4-Nitroaniline	52.11	5.0	50	0	104	47-115	52.68	1.1	20	
4-Nitrophenol	115.8	5.0	100	0	116	26-133	116	0.18	20	
Acenaphthene	45.35	5.0	50	0	90.7	57-115	45.42	0.16	20	
Acenaphthylene	44.43	5.0	50	0	88.9	57-118	45.59	2.57	20	
Aniline	33.59	5.0	50	0	67.2	36-115	30.91	8.32	20	
Anthracene	45.52	5.0	50	0	91	65-115	45.48	0.0854	20	
Benz(a)anthracene	47.71	5.0	50	0	95.4	53-115	47.55	0.352	20	
Benzidine	38.73	5.0	50	0	77.5	10-115	30.52	23.7	20	R
Hexachloroethane	38.39	5.0	50	0	76.8	54-115	37.97	1.1	20	
Indeno(1,2,3-cd)pyrene	47.31	5.0	50	0	94.6	51-115	45.31	4.32	20	
Isophorone	43.3	5.0	50	0	86.6	55-115	40.34	7.06	20	
N-Nitrosodi-n-propylamine	40.39	5.0	50	0	80.8	55-115	40.38	0.0315	20	
N-Nitrosodimethylamine	45.31	5.0	50	0	90.6	42-115	43.16	4.87	20	
N-Nitrosodiphenylamine	40.7	5.0	50	0	81.4	52-115	39.58	2.79	20	
Naphthalene	43.92	5.0	50	0	87.8	55-115	41.89	4.71	20	
Nitrobenzene	40.55	5.0	50	0	81.1	40-124	40.24	0.773	20	
Pentachlorophenol	105.6	5.0	100	0	106	45-125	105.5	0.116	20	
Phenanthrene	45.06	5.0	50	0	90.1	57-115	44.7	0.812	20	
Phenol	86.8	5.0	100	0	86.8	38-115	84.22	3.02	20	
Pyrene	46.74	5.0	50	0	93.5	51-115	47.35	1.29	20	
Surr: 2,4,6-Tribromophenol	*94.74*	5.0	*100*	0	*94.7*	*42-124*	96.31	*1.64*	*20*	
Surr: 2-Fluorobiphenyl	*74.74*	5.0	*100*	0	*74.7*	*48-120*	69.86	*6.75*	*20*	
Surr: 2-Fluorophenol	*72.8*	5.0	*100*	0	*72.8*	*20-120*	73.12	*0.433*	*20*	
Surr: 4-Terphenyl-d14	*80.54*	5.0	*100*	0	*80.5*	*51-135*	75.81	*6.05*	*20*	
Surr: Nitrobenzene-d5	*76.56*	5.0	*100*	0	*76.6*	*41-120*	68.53	*11.1*	*20*	
Surr: Phenol-d6	*83.03*	5.0	*100*	0	*83*	*20-120*	77.13	*7.37*	*20*	

The following samples were analyzed in this batch: 0711312-01E

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID **VBLKW-112107** Units: **µg/L** Analysis Date: **11/21/07 12:49**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269780** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*42.59*	5.0	*50*	0	*85.2*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*50.37*	5.0	*50*	0	*101*	*72-125*	0			
Surr: Dibromofluoromethane	*48.48*	5.0	*50*	0	*97*	*71-125*	0			
Surr: Toluene-d8	*52.5*	5.0	*50*	0	*105*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID **VLCSW-112107** Units: **µg/L** Analysis Date: **11/21/07 14:55**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269782** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	55.83	5.0	50	0	112	80-120	0			
1,1,2,2-Tetrachloroethane	47.95	5.0	50	0	95.9	72-120	0			
1,1,2-Trichloroethane	45.77	5.0	50	0	91.5	80-120	0			
1,1-Dichloroethane	51.82	5.0	50	0	104	76-120	0			
1,1-Dichloroethene	53.78	5.0	50	0	108	73-124	0			
1,2-Dichloroethane	47.67	5.0	50	0	95.3	78-120	0			
2-Butanone	96.44	10	100	0	96.4	58-132	0			
2-Chloroethyl vinyl ether	77.45	10	100	0	77.4	74-120	0			
2-Hexanone	92.5	10	100	0	92.5	61-130	0			
4-Methyl-2-pentanone	105.7	10	100	0	106	65-127	0			
Acetone	100.1	10	100	0	100	59-137	0			
Benzene	47.01	5.0	50	0	94	73-121	0			
Bromodichloromethane	49.86	5.0	50	0	99.7	80-120	0			
Bromoform	45.58	5.0	50	0	91.2	79-120	0			
Bromomethane	52.49	5.0	50	0	105	66-137	0			
Carbon disulfide	102.6	10	100	0	103	68-141	0			
Carbon tetrachloride	49.23	5.0	50	0	98.5	75-124	0			
Chlorobenzene	49.24	5.0	50	0	98.5	80-120	0			
Chloroethane	50.21	5.0	50	0	100	76-121	0			
Chloroform	52.01	5.0	50	0	104	80-120	0			
Chloromethane	47.41	5.0	50	0	94.8	67-123	0			
cis-1,3-Dichloropropene	47.12	5.0	50	0	94.2	80-120	0			
Dibromochloromethane	52.13	5.0	50	0	104	80-120	0			
Ethylbenzene	51.73	5.0	50	0	103	80-120	0			
m,p-Xylene	98.1	10	100	0	98.1	78-121	0			
Methylene chloride	51.91	10	50	0	104	65-133	0			
Styrene	47.17	5.0	50	0	94.3	80-120	0			
Tetrachloroethene	47.43	5.0	50	0	94.9	79-120	0			
Toluene	52.88	5.0	50	0	106	80-120	0			
trans-1,3-Dichloropropene	49.9	5.0	50	0	99.8	80-120	0			
Trichloroethene	48.46	5.0	50	0	96.9	80-120	0			
Vinyl acetate	103.4	10	100	0	103	67-139	0			
Vinyl chloride	45.7	2.0	50	0	91.4	70-127	0			
Xylenes, Total	151.2	15	150	0	101	80-120	0			
Surr: 1,2-Dichloroethane-d4	*47.3*	5.0	*50*	0	*94.6*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*53.8*	5.0	*50*	0	*108*	*72-125*	0			
Surr: Dibromofluoromethane	*54.15*	5.0	*50*	0	*108*	*71-125*	0			
Surr: Toluene-d8	*57.23*	5.0	*50*	0	*114*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID **0711374-01AMS** Units: **µg/L** Analysis Date: **11/21/07 15:45**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269783** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.34	5.0	50	0	90.7	80-120	0			
1,1,2,2-Tetrachloroethane	50.58	5.0	50	0	101	72-120	0			
1,1,2-Trichloroethane	48.75	5.0	50	0	97.5	80-120	0			
1,1-Dichloroethane	48.63	5.0	50	0	97.3	76-120	0			
1,1-Dichloroethene	42.15	5.0	50	0	84.3	73-124	0			
1,2-Dichloroethane	47.99	5.0	50	0	96	78-120	0			
2-Butanone	91.89	10	100	0	91.9	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	95.1	10	100	0	95.1	61-130	0			
4-Methyl-2-pentanone	88.3	10	100	0	88.3	65-127	0			
Acetone	80.5	10	100	0	80.5	59-137	0			
Benzene	45.31	5.0	50	0	90.6	73-121	0			
Bromodichloromethane	48.38	5.0	50	0	96.8	80-120	0			
Bromoform	45.61	5.0	50	0	91.2	79-120	0			
Bromomethane	46.08	5.0	50	0	92.2	66-137	0			
Carbon disulfide	86.95	10	100	0	86.9	68-141	0			
Carbon tetrachloride	44.61	5.0	50	0	89.2	75-124	0			
Chlorobenzene	48.03	5.0	50	0	96.1	80-120	0			
Chloroethane	41.13	5.0	50	0	82.3	76-121	0			
Chloroform	46.71	5.0	50	0	93.4	80-120	0			
Chloromethane	43.96	5.0	50	0	87.9	67-123	0			
cis-1,3-Dichloropropene	49.34	5.0	50	0	98.7	80-120	0			
Dibromochloromethane	49.82	5.0	50	0	99.6	80-120	0			
Ethylbenzene	45.49	5.0	50	0	91	80-120	0			
m,p-Xylene	93.74	10	100	0	93.7	78-121	0			
Methylene chloride	47.25	10	50	0	94.5	65-133	0			
Styrene	45.63	5.0	50	0	91.3	80-120	0			
Tetrachloroethene	42.09	5.0	50	0	84.2	79-120	0			
Toluene	46.81	5.0	50	0	93.6	80-120	0			
trans-1,3-Dichloropropene	48.76	5.0	50	0	97.5	80-120	0			
Trichloroethene	42.4	5.0	50	0	84.8	80-120	0			
Vinyl acetate	95.18	10	100	0	95.2	67-139	0			
Vinyl chloride	38.53	2.0	50	0	77.1	70-127	0			
Xylenes, Total	141.8	15	150	0	94.5	80-120	0			
Surr: 1,2-Dichloroethane-d4	*45.18*	5.0	*50*	0	*90.4*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.35*	5.0	*50*	0	*109*	*72-125*	0			
Surr: Dibromofluoromethane	*49.56*	5.0	*50*	0	*99.1*	*71-125*	0			
Surr: Toluene-d8	*48.8*	5.0	*50*	0	*97.6*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID **0711374-01AMSD** Units: **µg/L** Analysis Date: **11/21/07 16:10**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269784** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	36.97	5.0	50	0	73.9	80-120	45.34	20.3	20	SR
1,1,2,2-Tetrachloroethane	46.06	5.0	50	0	92.1	72-120	50.58	9.35	20	
1,1,2-Trichloroethane	48.66	5.0	50	0	97.3	80-120	48.75	0.18	20	
1,1-Dichloroethane	43.48	5.0	50	0	87	76-120	48.63	11.2	20	
1,1-Dichloroethene	37.02	5.0	50	0	74	73-124	42.15	13	20	
1,2-Dichloroethane	39.89	5.0	50	0	79.8	78-120	47.99	18.4	20	
2-Butanone	91.95	10	100	0	91.9	58-132	91.89	0.0642	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	90.33	10	100	0	90.3	61-130	95.1	5.15	20	
4-Methyl-2-pentanone	102.6	10	100	0	103	65-127	88.3	14.9	20	
Acetone	84.77	10	100	0	84.8	59-137	80.5	5.17	20	
Benzene	45.96	5.0	50	0	91.9	73-121	45.31	1.43	20	
Bromodichloromethane	45.05	5.0	50	0	90.1	80-120	48.38	7.11	20	
Bromoform	47.11	5.0	50	0	94.2	79-120	45.61	3.24	20	
Bromomethane	42.14	5.0	50	0	84.3	66-137	46.08	8.93	20	
Carbon disulfide	82.75	10	100	0	82.8	68-141	86.95	4.94	20	
Carbon tetrachloride	40.68	5.0	50	0	81.4	75-124	44.61	9.22	20	
Chlorobenzene	48.73	5.0	50	0	97.5	80-120	48.03	1.44	20	
Chloroethane	35.91	5.0	50	0	71.8	76-121	41.13	13.6	20	S
Chloroform	42.13	5.0	50	0	84.3	80-120	46.71	10.3	20	
Chloromethane	37.08	5.0	50	0	74.2	67-123	43.96	17	20	
cis-1,3-Dichloropropene	43.91	5.0	50	0	87.8	80-120	49.34	11.7	20	
Dibromochloromethane	49.4	5.0	50	0	98.8	80-120	49.82	0.863	20	
Ethylbenzene	44.2	5.0	50	0	88.4	80-120	45.49	2.88	20	
m,p-Xylene	89.45	10	100	0	89.4	78-121	93.74	4.68	20	
Methylene chloride	42.99	10	50	0	86	65-133	47.25	9.45	20	
Styrene	42.78	5.0	50	0	85.6	80-120	45.63	6.45	20	
Tetrachloroethene	40.99	5.0	50	0	82	79-120	42.09	2.64	20	
Toluene	48.43	5.0	50	0	96.9	80-120	46.81	3.41	20	
trans-1,3-Dichloropropene	47.67	5.0	50	0	95.3	80-120	48.76	2.24	20	
Trichloroethene	44.91	5.0	50	0	89.8	80-120	42.4	5.76	20	
Vinyl acetate	83.17	10	100	0	83.2	67-139	95.18	13.5	20	
Vinyl chloride	32.62	2.0	50	0	65.2	70-127	38.53	16.6	20	S
Xylenes, Total	137.4	15	150	0	91.6	80-120	141.8	3.11	20	
Surr: 1,2-Dichloroethane-d4	*45.7*	5.0	*50*	0	*91.4*	*70-125*	45.18	*1.15*	*20*	
Surr: 4-Bromofluorobenzene	*53.77*	5.0	*50*	0	*108*	*72-125*	54.35	*1.06*	*20*	
Surr: Dibromofluoromethane	*47.75*	5.0	*50*	0	*95.5*	*71-125*	49.56	*3.72*	*20*	
Surr: Toluene-d8	*52.29*	5.0	*50*	0	*105*	*75-125*	48.8	*6.9*	*20*	

The following samples were analyzed in this batch: 0711312-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56779** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID **WLCSW1-111407** Units: **pH units** Analysis Date: **11/14/07 0:00**
Client ID: Run ID: **WETCHEM_071114H** SeqNo: **1261403** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.09	0.10	6	0	102	90-110	0			

DUP Sample ID **0711312-01DDUP** Units: **pH units** Analysis Date: **11/14/07 0:00**
Client ID: **Inj. Well** Run ID: **WETCHEM_071114H** SeqNo: **1261406** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.35	0.10	0	0	0	0-0	7.35	0	20	H

The following samples were analyzed in this batch: 0711312-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56807** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID **WLCSW1-111507** Units: **°F** Analysis Date: **11/15/07 0:00**
Client ID: Run ID: **WETCHEM_071115B** SeqNo: **1262473** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID **0711154-02ADUP** Units: **°F** Analysis Date: **11/15/07 0:00**
Client ID: Run ID: **WETCHEM_071115B** SeqNo: **1262478** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	145	50	0	0	0	0-0	145	0	25	

The following samples were analyzed in this batch: 0711312-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56853** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID **WBLKW1-111607** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: Run ID: **WETCHEM_071116C** SeqNo: **1263505** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID **WLCSW1-111607** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: Run ID: **WETCHEM_071116C** SeqNo: **1263506** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1426	1.0	1413	0	101	80-120	0			

DUP Sample ID **0711312-01CDUP** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: **Inj. Well** Run ID: **WETCHEM_071116C** SeqNo: **1263508** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	6050	1.0	0	0	0	0-0	5980	1.16	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56862** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID **BLANK** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263615** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID **LCS** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263616** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	968	10	1000	0	96.8	85-115	0			

DUP Sample ID **0711341-01EDUP** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263614** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	12470	10	0	0	0	0-0	12930	3.61	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56944** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID **WBLKW1-111907** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265713** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID **WLCSW1-111907** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265714** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1019	5.0	1000	0	102	80-120	0			
Alkalinity, Total (As CaCO3)	1019	5.0	1000	0	102	80-120	0			

DUP Sample ID **0711358-01ADUP** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265732** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	740	5.0	0	0	0	0-0	740	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	740	5.0	0	0	0	0-0	740	0	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57038** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID **WBLKW1-112007** Units: **mg/L** Analysis Date: **11/20/07 13:01**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267862** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*5.461*	0.10	*5*	0	*109*	*85-115*	0			

LCS Sample ID **WLCSW1-112007** Units: **mg/L** Analysis Date: **11/20/07 13:24**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267863** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.27	0.50	20	0	96.3	90-110	0			
Sulfate	20.72	0.50	20	0	104	90-110	0			
Surr: Selenate (surr)	*5.413*	0.10	*5*	0	*108*	*85-115*	0			

MS Sample ID **0711459-01AMS** Units: **mg/L** Analysis Date: **11/20/07 14:34**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267866** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	52.76	0.50	10	43.85	89.1	80-120	0			EO
Sulfate	323.3	0.50	10	320.5	28.5	80-120	0			SEO
Surr: Selenate (surr)	*5.487*	0.10	*5*	0	*110*	*85-115*	0			

MSD Sample ID **0711459-01AMSD** Units: **mg/L** Analysis Date: **11/20/07 14:57**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267867** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	52.71	0.50	10	43.85	88.6	80-120	52.76	0.0834	20	EO
Sulfate	322.1	0.50	10	320.5	16.5	80-120	323.3	0.374	20	SEO
Surr: Selenate (surr)	*5.468*	0.10	*5*	0	*109*	*85-115*	5.487	*0.347*	*20*	

DUP Sample ID **0711459-01ADUP** Units: **mg/L** Analysis Date: **11/20/07 14:11**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267865** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	43.6	0.50	0	0	0	0-0	43.85	0.556	20	
Sulfate	318.5	0.50	0	0	0	0-0	320.5	0.629	20	E
Surr: Selenate (surr)	*5.317*	0.10	*5*	0	*106*	*85-115*	5.347	*0.563*	*20*	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Page 1 of 1

e-Lab Project Manager: | e-Lab Work Order #: 7112

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Quarterly	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Well	11/13/07	0915	L	4	9	X	X	X	X	X	X	X	X	X		
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: [signature]

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Other ☑ Std 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by: [signature]	Date: 11/13/07	Time: 1615	Received by:	Notes: 10 Day TAT.
Relinquished by:	Date:	Time:	Received by (Laboratory): 11/14/07 09:20	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

e-Lab Analytical Cooler ID | Cooler Temp.

QC Package: (Check One Box Below)
- ☑ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other _____
- ☐ TRRP CheckList
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 11/14/2007 9:20:00 AM

Work Order Number 0711312 Received by: RNG

Checklist completed by [signature] 11/14/07 (Signature / Date) Reviewed by [initials] 11/14/07 (Initials / Date)

Matrix: W Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.9c	002	
Cooler(s)/Kit(s):	1993		
Water - VOA vials have zero headspace?	Yes ☐	No ☑	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes: Voa vials have excessive headspace. Trip blanks logged in work order 0711305 (received in same kit).

Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab Analytical, Inc

Date: *November 16, 2007*

CLIENT: e-Lab Analytical, Inc
Project: 0711312
Work Order: **0711346**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0711346-01	0711312-01F	Water		11/13/2007 09:15	11/16/2007 09:30	☐

e-Lab Analytical, Inc

Date: *November 16, 2007*

CLIENT: e-Lab Analytical, Inc
Work Order: 0711346
Project: 0711312
Lab ID: 0711346-01

Client Sample ID: 0711312-01F
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **DB**
Cyanide, Reactive	ND	40.0		mg/Kg	1	11/16/2007
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **DB**
Sulfide, Reactive	ND	40.0		mg/Kg	1	11/16/2007

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

Navajo REFINING COMPANY, LLC

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 ENV/PURCH/MKTG
(505) 746-5421 ENGINEERING

October 30, 2007

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 Third Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the third quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the 200 gallon tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2007 to September 30, 2007. We have disposed a total of 45,570,021 barrels of fluid into the two wells as of September 30, 2007. This is broken down as follows: 34,648,931 barrels into WDW-1 and 10,921,089 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Environmental Scientist

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

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2007 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	33,831,096
Jul-07	517	718	307	263	281	248	157	188	122	9,022	9,636	8,495	279,688	34,110,784
Aug-07	303	348	242	252	280	222	91	137	46	8,647	9,588	7,620	268,056	34,378,840
Sep-07	329	493	62	254	285	83	166	215	19	8,713	9,787	2,832	270,092	34,648,931
WDW-2													**Previous Quarter**	10,506,967
Jul-07	532	723	313	149	170	128	500	500	500	5,093	5,824	4,375	157,870	10,664,837
Aug-07	311	373	247	117	146	80	481	500	398	4,001	5,011	2,732	124,025	10,788,861
Sep-07	321	384	72	124	156	19	479	500	204	4,265	5,359	653	132,228	10,921,089
													Total Injected fluids:	45,570,021

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 THIRD QUARTER WEEKLY WHAMS LEVEL TABLE

	7/2/07	7/10/07	7/17/07	7/23/07	7/30/07	8/7/07	8/13/07	8/20/07	8/27/07	9/4/07	9/10/07	9/17/07	9/24/07
WDW -1	200	200	200	200	200	200	200	200	200	200	200	200	200
WDW-2	160	160	160	160	160	160	160	160	160	160	160	160	160

Page 956 of 5828

October 09, 2007

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Well Quarterly

Work Order : **0709522**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 2 samples on 9/27/2007 09:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 34.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Rebecca L. Hunt

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: **0709522**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0709522-01	Effluent	Water		9/26/2007 13:15	9/27/2007 09:00	☐
0709522-02	Trip Blank	Water		9/26/2007 13:15	9/27/2007 09:00	☐

e-Lab Analytical, Inc. **Date:** *October 09, 2007*

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0709522

Case Narrative

pH samples were received outside of the recommended holding time, but the samples were analyzed immediately upon receipt of the laboratory.

Batch 25842 Metals Duplicate RPD was an unrelated sample.

Batch's R55052 and R55288 Volatiles MS/MSD were unrelated samples.

Batch R54877 Anions MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **10/5/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	10/5/2007 3:58:46 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **10/1/2007**	Analyst: **SA**
Aluminum	**2.46**		**0.100**	**mg/L**	10	10/2/2007 1:28:00 PM
Arsenic	**0.135**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Barium	**0.0535**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Beryllium	ND		0.00400	mg/L	2	10/2/2007 1:34:00 PM
Boron	**0.202**		**0.0400**	**mg/L**	2	10/2/2007 1:34:00 PM
Cadmium	ND		0.00200	mg/L	1	10/2/2007 4:06:00 AM
Calcium	**101**		**5.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Chromium	**0.00503**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Cobalt	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Copper	**0.0130**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Iron	**2.87**		**0.200**	**mg/L**	1	10/2/2007 4:06:00 AM
Lead	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Magnesium	**36.7**		**0.200**	**mg/L**	1	10/2/2007 4:06:00 AM
Manganese	**0.0869**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Molybdenum	**0.104**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Nickel	**0.0141**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Potassium	**48.2**		**2.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Selenium	**0.388**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Silver	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Sodium	**1,220**		**2.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Vanadium	**0.00709**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Zinc	**0.192**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **10/2/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2,4,5-Trichlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2,4,6-Trichlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Methylnaphthalene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Methylphenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Nitrophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
3&4-Methylphenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
3-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
4-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
4-Nitrophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Acenaphthene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Acenaphthylene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Anthracene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Benz(a)anthracene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Benzidine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Hexachloroethane	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Indeno(1,2,3-cd)pyrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Isophorone	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodi-n-propylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodimethylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodiphenylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Naphthalene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Nitrobenzene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Pentachlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Phenanthrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Phenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Pyrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Surr: 2,4,6-Tribromophenol	*69.7*		*42-124*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 2-Fluorobiphenyl	*64.0*		*48-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 2-Fluorophenol	*61.1*		*20-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 4-Terphenyl-d14	*71.6*		*51-135*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: Nitrobenzene-d5	*67.1*		*41-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: Phenol-d6	*71.0*		*20-120*	*%REC*	1	10/3/2007 2:31:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
2-Butanone	**23**		**10**	**µg/L**	1	10/8/2007 3:07:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	10/8/2007 3:07:00 PM
2-Hexanone	ND		10	µg/L	1	10/8/2007 3:07:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Acetone	**110**		**10**	**µg/L**	1	10/8/2007 3:07:00 PM
Benzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromoform	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromomethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Carbon disulfide	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloroform	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Ethylbenzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
m,p-Xylene	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Methylene chloride	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Styrene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Toluene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Trichloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Vinyl acetate	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Vinyl chloride	ND		2.0	µg/L	1	10/8/2007 3:07:00 PM
Xylenes, Total	ND		15	µg/L	1	10/8/2007 3:07:00 PM
Surr: 1,2-Dichloroethane-d4	*92.6*		*70-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: 4-Bromofluorobenzene	*96.6*		*72-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: Dibromofluoromethane	*95.9*		*71-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: Toluene-d8	*104*		*75-125*	*%REC*	1	10/8/2007 3:07:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	10/4/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	10/4/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **RPM**
Chloride	**1,010**		**50.0**	**mg/L**	100	9/27/2007 8:01:00 PM
Sulfate	**1,660**		**50.0**	**mg/L**	100	9/27/2007 8:01:00 PM
Surr: Selenate (surr)	*106*		*85-115*	*%REC*	100	9/27/2007 8:01:00 PM
ALKALINITY			**E310.1**			Analyst: **DM**
Alkalinity, Bicarbonate (As CaCO3)	**243**		**5.00**	**mg/L**	1	10/1/2007 10:00:00 AM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	10/1/2007 10:00:00 AM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	10/1/2007 10:00:00 AM
Alkalinity, Total (As CaCO3)	**243**		**5.00**	**mg/L**	1	10/1/2007 10:00:00 AM
CONDUCTIVITY			**E120.1**			Analyst: **DM**
Specific Conductance	**6,620**		**1.00**	**µmhos/cm**	1	10/4/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	10/3/2007

Qualifiers:

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	7.26	H	0.100	pH units	1	9/27/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	4,240		10.0	mg/L	1	9/28/2007 5:00:00 PM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- P - Dual Column results percent difference > 40%
- E - Value above quantitation range
- H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-02

Client Sample ID: Trip Blank
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
2-Butanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	10/2/2007 9:11:00 PM
2-Hexanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Acetone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Benzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromoform	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromomethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Carbon disulfide	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chlorobenzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloroform	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Ethylbenzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
m,p-Xylene	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Methylene chloride	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Styrene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Toluene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Trichloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Vinyl acetate	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Vinyl chloride	ND		2.0	µg/L	1	10/2/2007 9:11:00 PM
Xylenes, Total	ND		15	µg/L	1	10/2/2007 9:11:00 PM
Surr: 1,2-Dichloroethane-d4	*93.2*		*70-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: 4-Bromofluorobenzene	*103*		*72-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: Dibromofluoromethane	*101*		*71-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: Toluene-d8	*99.2*		*75-125*	*%REC*	1	10/2/2007 9:11:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

Date: *Oct 09 2007*

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MBLK Sample ID: **MBLKW1-100107** Units: **mg/L** Analysis Date: **10/02/07 13:16**

Client ID: Run ID: **ICP7500_071002A** SeqNo: **1223370** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	0.02979	0.20								J
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

LCS Sample ID: **MLCSW1-100107** Units: **mg/L** Analysis Date: **10/02/07 2:02**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222688** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04977	0.0050	0.05	0	99.5	80-120	0			
Barium	0.05117	0.0050	0.05	0	102	80-120	0			
Beryllium	0.04988	0.0020	0.05	0	99.8	80-120	0			
Boron	0.5115	0.020	0.5	0	102	80-120	0			
Cadmium	0.05125	0.0020	0.05	0	102	80-120	0			
Calcium	5.686	0.50	5	0	114	80-120	0			
Chromium	0.05016	0.0050	0.05	0	100	80-120	0			
Cobalt	0.05384	0.0050	0.05	0	108	80-120	0			
Copper	0.04738	0.0050	0.05	0	94.8	80-120	0			
Iron	5.179	0.20	5	0	104	80-120	0			
Lead	0.05113	0.0050	0.05	0	102	80-120	0			
Magnesium	5.396	0.20	5	0	108	80-120	0			
Manganese	0.05067	0.0050	0.05	0	101	80-120	0			
Molybdenum	0.04869	0.0050	0.05	0	97.4	80-120	0			
Nickel	0.0503	0.0050	0.05	0	101	80-120	0			
Potassium	5.29	0.20	5	0	106	80-120	0			
Selenium	0.05047	0.0050	0.05	0	101	80-120	0			
Silver	0.05062	0.0050	0.05	0	101	80-120	0			
Sodium	5.267	0.20	5	0	105	80-120	0			
Vanadium	0.05116	0.0050	0.05	0	102	80-120	0			
Zinc	0.0518	0.0050	0.05	0	104	80-120	0			

LCS Sample ID: **MLCSW1-100107** Units: **mg/L** Analysis Date: **10/02/07 13:22**

Client ID: Run ID: **ICP7500_071002A** SeqNo: **1223371** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05671	0.010	0.05	0	113	80-120	0			

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MS Sample ID: **0709546-01CMS** Units: **mg/L** Analysis Date: **10/02/07 4:30**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222710** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05928	0.010	0.05	0.01003	98.5	80-120	0			
Arsenic	0.05069	0.0050	0.05	0.0002553	101	80-120	0			
Barium	0.05145	0.0050	0.05	0.00009868	103	80-120	0			
Beryllium	0.05116	0.0020	0.05	-0.00001769	102	80-120	0			
Boron	0.5303	0.020	0.5	0.0007129	106	80-120	0			
Cadmium	0.05218	0.0020	0.05	-0.00004231	104	80-120	0			
Calcium	5.928	0.50	5	0.1835	115	80-120	0			
Chromium	0.05106	0.0050	0.05	0.0002195	102	80-120	0			
Cobalt	0.05426	0.0050	0.05	-0.00003043	109	80-120	0			
Copper	0.04954	0.0050	0.05	-0.00257	104	80-120	0			
Iron	5.357	0.20	5	0.06073	106	80-120	0			
Lead	0.0523	0.0050	0.05	0.00004196	105	80-120	0			
Magnesium	5.389	0.20	5	0.03021	107	80-120	0			
Manganese	0.05263	0.0050	0.05	0.0005422	104	80-120	0			
Molybdenum	0.05117	0.0050	0.05	0.001057	100	80-120	0			
Nickel	0.0525	0.0050	0.05	-0.0005035	106	80-120	0			
Potassium	5.447	0.20	5	0.03845	108	80-120	0			
Selenium	0.05162	0.0050	0.05	0.0007415	102	80-120	0			
Silver	0.0526	0.0050	0.05	-0.0003616	106	80-120	0			
Sodium	5.548	0.20	5	0.7029	96.9	80-120	0			
Vanadium	0.05219	0.0050	0.05	0.00007382	104	80-120	0			
Zinc	0.05427	0.0050	0.05	0.001848	105	80-120	0			

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not deteeted
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MSD Sample ID: **0709546-01CMSD** Units: **mg/L** Analysis Date: **10/02/07 4:42**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222712** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.061	0.010	0.05	0.01003	102	80-120	0.05928	2.86	15	
Arsenic	0.04963	0.0050	0.05	0.0002553	98.7	80-120	0.05069	2.11	15	
Barium	0.05188	0.0050	0.05	0.00009868	104	80-120	0.05145	0.832	15	
Beryllium	0.05124	0.0020	0.05	-0.00001769	103	80-120	0.05116	0.156	15	
Boron	0.5277	0.020	0.5	0.0007129	105	80-120	0.5303	0.491	15	
Cadmium	0.0522	0.0020	0.05	-0.00004231	104	80-120	0.05218	0.0383	15	
Calcium	5.917	0.50	5	0.1835	115	80-120	5.928	0.186	15	
Chromium	0.05035	0.0050	0.05	0.0002195	100	80-120	0.05106	1.4	15	
Cobalt	0.05383	0.0050	0.05	-0.00003043	108	80-120	0.05426	0.796	15	
Copper	0.04969	0.0050	0.05	-0.00257	105	80-120	0.04954	0.302	15	
Iron	5.378	0.20	5	0.06073	106	80-120	5.357	0.391	15	
Lead	0.05116	0.0050	0.05	0.00004196	102	80-120	0.0523	2.2	15	
Magnesium	5.381	0.20	5	0.03021	107	80-120	5.389	0.149	15	
Manganese	0.05201	0.0050	0.05	0.0005422	103	80-120	0.05263	1.19	15	
Molybdenum	0.05122	0.0050	0.05	0.001057	100	80-120	0.05117	0.0977	15	
Nickel	0.05136	0.0050	0.05	-0.0005035	104	80-120	0.0525	2.2	15	
Potassium	5.405	0.20	5	0.03845	107	80-120	5.447	0.774	15	
Selenium	0.05111	0.0050	0.05	0.0007415	101	80-120	0.05162	0.993	15	
Silver	0.05207	0.0050	0.05	-0.0003616	105	80-120	0.0526	1.01	15	
Sodium	5.493	0.20	5	0.7029	95.8	80-120	5.548	0.996	15	
Vanadium	0.05168	0.0050	0.05	0.00007382	103	80-120	0.05219	0.982	15	
Zinc	0.05368	0.0050	0.05	0.001848	104	80-120	0.05427	1.09	15	

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

DUP Sample ID: **0709546-01CDUP** Units: **mg/L** Analysis Date: **10/02/07 4:24**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222709** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.008914	0.010	0	0	0	0-0	0.01003	0	25	J
Arsenic	ND	0.0050	0	0	0	0-0	0.0002553	0	25	
Barium	ND	0.0050	0	0	0	0-0	0.00009868	0	25	
Beryllium	ND	0.0020	0	0	0	0-0	-0.00001769	0	25	
Boron	ND	0.020	0	0	0	0-0	0.0007129	0	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.00004231	0	25	
Calcium	0.1347	0.50	0	0	0	0-0	0.1835	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0002195	0	25	
Cobalt	ND	0.0050	0	0	0	0-0	-0.00003043	0	25	
Copper	ND	0.0050	0	0	0	0-0	-0.00257	0	25	
Iron	0.05713	0.20	0	0	0	0-0	0.06073	0	25	J
Lead	ND	0.0050	0	0	0	0-0	0.00004196	0	25	
Magnesium	ND	0.20	0	0	0	0-0	0.03021	0	25	
Manganese	ND	0.0050	0	0	0	0-0	0.0005422	0	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.001057	0	25	
Nickel	ND	0.0050	0	0	0	0-0	-0.0005035	0	25	
Potassium	ND	0.20	0	0	0	0-0	0.03845	0	25	
Selenium	ND	0.0050	0	0	0	0-0	0.0007415	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003616	0	25	
Sodium	0.3724	0.20	0	0	0	0-0	0.7029	61.5	25	R
Vanadium	ND	0.0050	0	0	0	0-0	0.00007382	0	25	
Zinc	ND	0.0050	0	0	0	0-0	0.001848	0	25	

The following samples were analyzed in this batch: 0709522-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25937** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:12**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226768** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:14**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226769** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00564	0.00020	0.005	0	113	85-115	0			

LCSD Sample ID: **GLCSDW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:16**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226770** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00558	0.00020	0.005	0	112	85-115	0.00564	1.07	20	

MS Sample ID: **0710043-01DMS** Units: **mg/L** Analysis Date: **10/05/07 15:25**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226773** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00547	0.00020	0.005	-0.000019	110	85-115	0			

MSD Sample ID: **0710043-01DMSD** Units: **mg/L** Analysis Date: **10/05/07 15:27**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226774** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0054	0.00020	0.005	-0.000019	108	85-115	0.00547	1.29	20	

DUP Sample ID: **0710043-01DDUP** Units: **mg/L** Analysis Date: **10/05/07 15:23**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226772** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000019	0	20	

The following samples were analyzed in this batch: 0709522-01B

ND - Not Detected at the Reporting Limit
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKW2-071002** Units: **µg/L** Analysis Date: **10/03/07 13:13**

Client ID: Run ID: **SV-3_071003A** SeqNo: **1224776** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*70.36*	5.0	*100*	0	*70.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*81.07*	5.0	*100*	0	*81.1*	*48-120*	0			
Surr: 2-Fluorophenol	*72.2*	5.0	*100*	0	*72.2*	*20-120*	0			
Surr: 4-Terphenyl-d14	*84.88*	5.0	*100*	0	*84.9*	*51-135*	0			
Surr: Nitrobenzene-d5	*80.2*	5.0	*100*	0	*80.2*	*41-120*	0			
Surr: Phenol-d6	*78.44*	5.0	*100*	0	*78.4*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID: **SLCSW2-071002** Units: **µg/L** Analysis Date: **10/03/07 13:39**
Client ID: Run ID: **SV-3_071003A** SeqNo: **1224777** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	40.57	5.0	50	0	81.1	54-118	0			
2,4,5-Trichlorophenol	79.26	5.0	100	0	79.3	52-115	0			
2,4,6-Trichlorophenol	82.62	5.0	100	0	82.6	56-115	0			
2-Methylnaphthalene	41.13	5.0	50	0	82.3	46-117	0			
2-Methylphenol	83.9	5.0	100	0	83.9	53-115	0			
2-Nitroaniline	51.02	5.0	50	0	102	53-123	0			
2-Nitrophenol	80.37	5.0	100	0	80.4	53-115	0			
3&4-Methylphenol	121.7	5.0	150	0	81.1	48-115	0			
3-Nitroaniline	34.34	5.0	50	0	68.7	26-115	0			
4-Nitroaniline	40.81	5.0	50	0	81.6	47-115	0			
4-Nitrophenol	84.47	5.0	100	0	84.5	26-133	0			
Acenaphthene	42.71	5.0	50	0	85.4	57-115	0			
Acenaphthylene	42.99	5.0	50	0	86	57-118	0			
Aniline	32.19	5.0	50	0	64.4	36-115	0			
Anthracene	45.41	5.0	50	0	90.8	65-115	0			
Benz(a)anthracene	43.8	5.0	50	0	87.6	53-115	0			
Benzidine	37.43	5.0	50	0	74.9	10-115	0			
Hexachloroethane	41.72	5.0	50	0	83.4	54-115	0			
Indeno(1,2,3-cd)pyrene	43.31	5.0	50	0	86.6	51-115	0			
Isophorone	42.31	5.0	50	0	84.6	55-115	0			
N-Nitrosodi-n-propylamine	43.02	5.0	50	0	86	55-115	0			
N-Nitrosodimethylamine	44.13	5.0	50	0	88.3	42-115	0			
N-Nitrosodiphenylamine	46.03	5.0	50	0	92.1	52-115	0			
Naphthalene	41.17	5.0	50	0	82.3	55-115	0			
Nitrobenzene	41.52	5.0	50	0	83	40-124	0			
Pentachlorophenol	87.37	5.0	100	0	87.4	45-125	0			
Phenanthrene	44.76	5.0	50	0	89.5	57-115	0			
Phenol	77.8	5.0	100	0	77.8	38-115	0			
Pyrene	45.47	5.0	50	0	90.9	51-115	0			
Surr: 2,4,6-Tribromophenol	*73.07*	5.0	*100*	0	*73.1*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*78.63*	5.0	*100*	0	*78.6*	*48-120*	0			
Surr: 2-Fluorophenol	*76.86*	5.0	*100*	0	*76.9*	*20-120*	0			
Surr: 4-Terphenyl-d14	*82.95*	5.0	*100*	0	*82.9*	*51-135*	0			
Surr: Nitrobenzene-d5	*77.13*	5.0	*100*	0	*77.1*	*41-120*	0			
Surr: Phenol-d6	*82.83*	5.0	*100*	0	*82.8*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-071002** Units: **µg/L** Analysis Date: **10/03/07 14:05**
Client ID: Run ID: **SV-3_071003A** SeqNo: **1224778** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.1	5.0	50	0	86.2	54-118	40.57	6.06	20	
2,4,5-Trichlorophenol	84.74	5.0	100	0	84.7	52-115	79.26	6.68	20	
2,4,6-Trichlorophenol	82.76	5.0	100	0	82.8	56-115	82.62	0.165	20	
2-Methylnaphthalene	42.64	5.0	50	0	85.3	46-117	41.13	3.62	20	
2-Methylphenol	79.87	5.0	100	0	79.9	53-115	83.9	4.92	20	
2-Nitroaniline	55.31	5.0	50	0	111	53-123	51.02	8.07	20	
2-Nitrophenol	82.51	5.0	100	0	82.5	53-115	80.37	2.63	20	
3&4-Methylphenol	116.6	5.0	150	0	77.7	48-115	121.7	4.29	20	
3-Nitroaniline	34.18	5.0	50	0	68.4	26-115	34.34	0.475	20	
4-Nitroaniline	40	5.0	50	0	80	47-115	40.81	2.01	20	
4-Nitrophenol	85.01	5.0	100	0	85	26-133	84.47	0.637	20	
Acenaphthene	43.63	5.0	50	0	87.3	57-115	42.71	2.12	20	
Acenaphthylene	43.76	5.0	50	0	87.5	57-118	42.99	1.77	20	
Aniline	31.72	5.0	50	0	63.4	36-115	32.19	1.49	20	
Anthracene	44.26	5.0	50	0	88.5	65-115	45.41	2.57	20	
Benz(a)anthracene	43.37	5.0	50	0	86.7	53-115	43.8	0.974	20	
Benzidine	39.36	5.0	50	0	78.7	10-115	37.43	5.04	20	
Hexachloroethane	39.71	5.0	50	0	79.4	54-115	41.72	4.93	20	
Indeno(1,2,3-cd)pyrene	44.07	5.0	50	0	88.1	51-115	43.31	1.75	20	
Isophorone	43.22	5.0	50	0	86.4	55-115	42.31	2.13	20	
N-Nitrosodi-n-propylamine	41.5	5.0	50	0	83	55-115	43.02	3.59	20	
N-Nitrosodimethylamine	41.57	5.0	50	0	83.1	42-115	44.13	5.98	20	
N-Nitrosodiphenylamine	44.75	5.0	50	0	89.5	52-115	46.03	2.82	20	
Naphthalene	43.41	5.0	50	0	86.8	55-115	41.17	5.29	20	
Nitrobenzene	42.24	5.0	50	0	84.5	40-124	41.52	1.71	20	
Pentachlorophenol	84.38	5.0	100	0	84.4	45-125	87.37	3.48	20	
Phenanthrene	43.93	5.0	50	0	87.9	57-115	44.76	1.88	20	
Phenol	74.76	5.0	100	0	74.8	38-115	77.8	3.98	20	
Pyrene	44.4	5.0	50	0	88.8	51-115	45.47	2.38	20	
Surr: 2,4,6-Tribromophenol	*78.09*	5.0	*100*	0	*78.1*	*42-124*	73.07	*6.64*	*20*	
Surr: 2-Fluorobiphenyl	*80.06*	5.0	*100*	0	*80.1*	*48-120*	78.63	*1.8*	*20*	
Surr: 2-Fluorophenol	*76.52*	5.0	*100*	0	*76.5*	*20-120*	76.86	*0.439*	*20*	
Surr: 4-Terphenyl-d14	*84.19*	5.0	*100*	0	*84.2*	*51-135*	82.95	*1.48*	*20*	
Surr: Nitrobenzene-d5	*82.56*	5.0	*100*	0	*82.6*	*41-120*	77.13	*6.8*	*20*	
Surr: Phenol-d6	*81.29*	5.0	*100*	0	*81.3*	*20-120*	82.83	*1.87*	*20*	

The following samples were analyzed in this batch: 0709522-01E

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-100207** Units: **µg/L** Analysis Date: **10/02/07 11:55**

Client ID: Run ID: **VOA1_071002A** SeqNo: **1224017** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*46.56*	5.0	*50*	0	*93.1*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.31*	5.0	*50*	0	*109*	*72-125*	0			
Surr: Dibromofluoromethane	*49.81*	5.0	*50*	0	*99.6*	*71-125*	0			
Surr: Toluene-d8	*47.52*	5.0	*50*	0	*95*	*75-125*	0			

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-100207** Units: **µg/L** Analysis Date: **10/02/07 12:20**
Client ID: Run ID: **VOA1_071002A** SeqNo: **1224018** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.93	5.0	50	0	97.9	80-120	0			
1,1,2,2-Tetrachloroethane	47.7	5.0	50	0	95.4	72-120	0			
1,1,2-Trichloroethane	41.01	5.0	50	0	82	80-120	0			
1,1-Dichloroethane	46.59	5.0	50	0	93.2	76-120	0			
1,1-Dichloroethene	52.67	5.0	50	0	105	73-124	0			
1,2-Dichloroethane	47.28	5.0	50	0	94.6	78-120	0			
2-Butanone	94.24	10	100	0	94.2	58-132	0			
2-Chloroethyl vinyl ether	94.01	10	100	0	94	74-120	0			
2-Hexanone	90.75	10	100	0	90.7	61-130	0			
4-Methyl-2-pentanone	89.26	10	100	0	89.3	65-127	0			
Acetone	105.9	10	100	0	106	59-137	0			
Benzene	46.59	5.0	50	0	93.2	73-121	0			
Bromodichloromethane	47.71	5.0	50	0	95.4	80-120	0			
Bromoform	46.17	5.0	50	0	92.3	79-120	0			
Bromomethane	55.86	5.0	50	0	112	66-137	0			
Carbon disulfide	99.02	10	100	0	99	68-141	0			
Carbon tetrachloride	50.87	5.0	50	0	102	75-124	0			
Chlorobenzene	45.07	5.0	50	0	90.1	80-120	0			
Chloroethane	46.57	5.0	50	0	93.1	76-121	0			
Chloroform	47.49	5.0	50	0	95	80-120	0			
Chloromethane	42.38	5.0	50	0	84.8	67-123	0			
cis-1,3-Dichloropropene	47.68	5.0	50	0	95.4	80-120	0			
Dibromochloromethane	46.42	5.0	50	0	92.8	80-120	0			
Ethylbenzene	46.41	5.0	50	0	92.8	80-120	0			
m,p-Xylene	92.21	10	100	0	92.2	78-121	0			
Methylene chloride	48.44	10	50	0	96.9	65-133	0			
Styrene	49.6	5.0	50	0	99.2	80-120	0			
Tetrachloroethene	41.98	5.0	50	0	84	79-120	0			
Toluene	40.21	5.0	50	0	80.4	80-120	0			
trans-1,3-Dichloropropene	47.77	5.0	50	0	95.5	80-120	0			
Trichloroethene	47.94	5.0	50	0	95.9	80-120	0			
Vinyl acetate	105.4	10	100	0	105	67-139	0			
Vinyl chloride	48.49	2.0	50	0	97	74-122	0			
Xylenes, Total	140.1	15	150	0	93.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	*47.68*	5.0	*50*	0	*95.4*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*47.98*	5.0	*50*	0	*96*	*72-125*	0			
Surr: Dibromofluoromethane	*49.97*	5.0	*50*	0	*99.9*	*71-125*	0			
Surr: Toluene-d8	*43.91*	5.0	*50*	0	*87.8*	*75-125*	0			

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R - RPD outside accepted recovery limits
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0710031-02AMS** Units: **µg/L** Analysis Date: **10/02/07 15:17**

Client ID: Run ID: **VOA1_071002A** SeqNo: **1224026** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.87	5.0	50	0	89.7	80-120	0			
1,1,2,2-Tetrachloroethane	45.96	5.0	50	0	91.9	72-120	0			
1,1,2-Trichloroethane	44.46	5.0	50	0	88.9	80-120	0			
1,1-Dichloroethane	42.73	5.0	50	0	85.5	76-120	0			
1,1-Dichloroethene	38.74	5.0	50	0	77.5	73-124	0			
1,2-Dichloroethane	44.47	5.0	50	0	88.9	78-120	0			
2-Butanone	89.25	10	100	0	89.3	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	92.96	10	100	0	93	61-130	0			
4-Methyl-2-pentanone	92.63	10	100	0	92.6	65-127	0			
Acetone	81.48	10	100	0	81.5	59-137	0			
Benzene	41.84	5.0	50	0	83.7	73-121	0			
Bromodichloromethane	40.9	5.0	50	0	81.8	80-120	0			
Bromoform	50.46	5.0	50	0	101	79-120	0			
Bromomethane	46.42	5.0	50	0	92.8	66-137	0			
Carbon disulfide	78.45	10	100	0	78.5	68-141	0			
Carbon tetrachloride	43.78	5.0	50	0	87.6	75-124	0			
Chlorobenzene	45.71	5.0	50	0	91.4	80-120	0			
Chloroethane	38.42	5.0	50	0	76.8	76-121	0			
Chloroform	44.35	5.0	50	0	88.7	80-120	0			
Chloromethane	33.49	5.0	50	0	67	67-123	0			S
cis-1,3-Dichloropropene	40.56	5.0	50	0	81.1	80-120	0			
Dibromochloromethane	46.35	5.0	50	0	92.7	80-120	0			
Ethylbenzene	43.12	5.0	50	0.2648	85.7	80-120	0			
m,p-Xylene	94.64	10	100	0	94.6	78-121	0			
Methylene chloride	42.23	10	50	0	84.5	65-133	0			
Styrene	51.99	5.0	50	0	104	80-120	0			
Tetrachloroethene	43.57	5.0	50	0	87.1	79-120	0			
Toluene	40.4	5.0	50	0	80.8	80-120	0			
trans-1,3-Dichloropropene	42.81	5.0	50	0	85.6	80-120	0			
Trichloroethene	41.14	5.0	50	0	82.3	80-120	0			
Vinyl acetate	95.38	10	100	0	95.4	67-139	0			
Vinyl chloride	41.2	2.0	50	0	82.4	74-122	0			
Xylenes, Total	145.3	15	150	0	96.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	*46.41*	5.0	*50*	0	*92.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*55.24*	5.0	*50*	0	*110*	*72-125*	0			
Surr: Dibromofluoromethane	*50.03*	5.0	*50*	0	*100*	*71-125*	0			
Surr: Toluene-d8	*46.33*	5.0	*50*	0	*92.7*	*75-125*	0			

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B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0710031-02AMSD** Units: **µg/L** Analysis Date: **10/02/07 15:43**

Client ID: Run ID: **VOA1_071002A** SeqNo: **1224028** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	40.38	5.0	50	0	80.8	80-120	44.87	10.5	20	
1,1,2,2-Tetrachloroethane	49.43	5.0	50	0	98.9	72-120	45.96	7.28	20	
1,1,2-Trichloroethane	42.67	5.0	50	0	85.3	80-120	44.46	4.1	20	
1,1-Dichloroethane	40.39	5.0	50	0	80.8	76-120	42.73	5.62	20	
1,1-Dichloroethene	36.01	5.0	50	0	72	73-124	38.74	7.3	20	S
1,2-Dichloroethane	46.55	5.0	50	0	93.1	78-120	44.47	4.57	20	
2-Butanone	88.95	10	100	0	88.9	58-132	89.25	0.338	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	105.3	10	100	0	105	61-130	92.96	12.5	20	
4-Methyl-2-pentanone	101.8	10	100	0	102	65-127	92.63	9.42	20	
Acetone	84.42	10	100	0	84.4	59-137	81.48	3.55	20	
Benzene	44.88	5.0	50	0	89.8	73-121	41.84	7	20	
Bromodichloromethane	41.71	5.0	50	0	83.4	80-120	40.9	1.96	20	
Bromoform	49.95	5.0	50	0	99.9	79-120	50.46	1.02	20	
Bromomethane	45.06	5.0	50	0	90.1	66-137	46.42	2.97	20	
Carbon disulfide	74.77	10	100	0	74.8	68-141	78.45	4.81	20	
Carbon tetrachloride	41.11	5.0	50	0	82.2	75-124	43.78	6.28	20	
Chlorobenzene	45.07	5.0	50	0	90.1	80-120	45.71	1.4	20	
Chloroethane	38.48	5.0	50	0	77	76-121	38.42	0.153	20	
Chloroform	40.32	5.0	50	0	80.6	80-120	44.35	9.52	20	
Chloromethane	33.29	5.0	50	0	66.6	67-123	33.49	0.601	20	S
cis-1,3-Dichloropropene	43.02	5.0	50	0	86	80-120	40.56	5.9	20	
Dibromochloromethane	46.49	5.0	50	0	93	80-120	46.35	0.299	20	
Ethylbenzene	43.09	5.0	50	0.2648	85.7	80-120	43.12	0.0729	20	
m,p-Xylene	85.85	10	100	0	85.9	78-121	94.64	9.74	20	
Methylene chloride	39.68	10	50	0	79.4	65-133	42.23	6.21	20	
Styrene	49.34	5.0	50	0	98.7	80-120	51.99	5.22	20	
Tetrachloroethene	41.09	5.0	50	0	82.2	79-120	43.57	5.86	20	
Toluene	40.47	5.0	50	0	80.9	80-120	40.4	0.192	20	
trans-1,3-Dichloropropene	44.01	5.0	50	0	88	80-120	42.81	2.78	20	
Trichloroethene	42.87	5.0	50	0	85.7	80-120	41.14	4.13	20	
Vinyl acetate	96.85	10	100	0	96.8	67-139	95.38	1.53	20	
Vinyl chloride	37.49	2.0	50	0	75	74-122	41.2	9.43	20	
Xylenes, Total	132.7	15	150	0	88.5	80-120	145.3	9.03	20	
Surr: 1,2-Dichloroethane-d4	*43.35*	5.0	*50*	0	*86.7*	*70-125*	46.41	*6.8*	*20*	
Surr: 4-Bromofluorobenzene	*53.6*	5.0	*50*	0	*107*	*72-125*	55.24	*3.02*	*20*	
Surr: Dibromofluoromethane	*46.35*	5.0	*50*	0	*92.7*	*71-125*	50.03	*7.63*	*20*	
Surr: Toluene-d8	*46.85*	5.0	*50*	0	*93.7*	*75-125*	46.33	*1.12*	*20*	

The following samples were analyzed in this batch: 0709522-02A

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-100807** Units: **µg/L** Analysis Date: **10/08/07 12:11**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229041** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*46.74*	5.0	*50*	0	*93.5*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*47.18*	5.0	*50*	0	*94.4*	*72-125*	0			
Surr: Dibromofluoromethane	*46.65*	5.0	*50*	0	*93.3*	*71-125*	0			
Surr: Toluene-d8	*50.14*	5.0	*50*	0	*100*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-100807** Units: **µg/L** Analysis Date: **10/08/07 11:21**
Client ID: Run ID: **VOA1_071008A** SeqNo: **1229040** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.58	5.0	50	0	103	80-120	0			
1,1,2,2-Tetrachloroethane	45.6	5.0	50	0	91.2	72-120	0			
1,1,2-Trichloroethane	45.17	5.0	50	0	90.3	80-120	0			
1,1-Dichloroethane	48.34	5.0	50	0	96.7	76-120	0			
1,1-Dichloroethene	45.07	5.0	50	0	90.1	73-124	0			
1,2-Dichloroethane	47.89	5.0	50	0	95.8	78-120	0			
2-Butanone	103.6	10	100	0	104	58-132	0			
2-Chloroethyl vinyl ether	95.96	10	100	0	96	74-120	0			
2-Hexanone	98.25	10	100	0	98.3	61-130	0			
4-Methyl-2-pentanone	95.73	10	100	0	95.7	65-127	0			
Acetone	97.54	10	100	0	97.5	59-137	0			
Benzene	46.98	5.0	50	0	94	73-121	0			
Bromodichloromethane	48.6	5.0	50	0	97.2	80-120	0			
Bromoform	47.79	5.0	50	0	95.6	79-120	0			
Bromomethane	41.9	5.0	50	0	83.8	66-137	0			
Carbon disulfide	90.43	10	100	0	90.4	68-141	0			
Carbon tetrachloride	46.7	5.0	50	0	93.4	75-124	0			
Chlorobenzene	48.47	5.0	50	0	96.9	80-120	0			
Chloroethane	46.05	5.0	50	0	92.1	76-121	0			
Chloroform	47.6	5.0	50	0	95.2	80-120	0			
Chloromethane	53.25	5.0	50	0	106	67-123	0			
cis-1,3-Dichloropropene	49.92	5.0	50	0	99.8	80-120	0			
Dibromochloromethane	49.38	5.0	50	0	98.8	80-120	0			
Ethylbenzene	44.73	5.0	50	0	89.5	80-120	0			
m,p-Xylene	89.94	10	100	0	89.9	78-121	0			
Methylene chloride	48.19	10	50	0	96.4	65-133	0			
Styrene	51.09	5.0	50	0	102	80-120	0			
Tetrachloroethene	50.09	5.0	50	0	100	79-120	0			
Toluene	46.47	5.0	50	0	92.9	80-120	0			
trans-1,3-Dichloropropene	47.75	5.0	50	0	95.5	80-120	0			
Trichloroethene	47.13	5.0	50	0	94.3	80-120	0			
Vinyl acetate	114.5	10	100	0	115	67-139	0			
Vinyl chloride	51.35	2.0	50	0	103	70-127	0			
Xylenes, Total	140.4	15	150	0	93.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	*48.01*	5.0	*50*	0	*96*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*46.24*	5.0	*50*	0	*92.5*	*72-125*	0			
Surr: Dibromofluoromethane	*49.62*	5.0	*50*	0	*99.2*	*71-125*	0			
Surr: Toluene-d8	*50.57*	5.0	*50*	0	*101*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0710089-05AMS** Units: **µg/L** Analysis Date: **10/08/07 15:33**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229044** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	43.71	5.0	50	0	87.4	80-120	0			
1,1,2,2-Tetrachloroethane	48.37	5.0	50	0	96.7	72-120	0			
1,1,2-Trichloroethane	51.72	5.0	50	0	103	80-120	0			
1,1-Dichloroethane	44.38	5.0	50	0	88.8	76-120	0			
1,1-Dichloroethene	39.51	5.0	50	0	79	73-124	0			
1,2-Dichloroethane	45.58	5.0	50	0	91.2	78-120	0			
2-Butanone	105.2	10	100	0	105	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	124.7	10	100	0	125	61-130	0			
4-Methyl-2-pentanone	117.9	10	100	0	118	65-127	0			
Acetone	90.25	10	100	0	90.2	59-137	0			
Benzene	43.71	5.0	50	0	87.4	73-121	0			
Bromodichloromethane	44.59	5.0	50	0	89.2	80-120	0			
Bromoform	51.49	5.0	50	0	103	79-120	0			
Bromomethane	27.69	5.0	50	0	55.4	66-137	0			S
Carbon disulfide	77.05	10	100	0	77	68-141	0			
Carbon tetrachloride	41.6	5.0	50	0	83.2	75-124	0			
Chlorobenzene	48.23	5.0	50	0	96.5	80-120	0			
Chloroethane	40.79	5.0	50	0	81.6	76-121	0			
Chloroform	46.76	5.0	50	0	93.5	80-120	0			
Chloromethane	42.22	5.0	50	0	84.4	67-123	0			
cis-1,3-Dichloropropene	47.43	5.0	50	0	94.9	80-120	0			
Dibromochloromethane	52.32	5.0	50	0	105	80-120	0			
Ethylbenzene	47.27	5.0	50	0	94.5	80-120	0			
m,p-Xylene	95.43	10	100	0	95.4	78-121	0			
Methylene chloride	44.6	10	50	0	89.2	65-133	0			
Styrene	49.37	5.0	50	0	98.7	80-120	0			
Tetrachloroethene	46.3	5.0	50	0	92.6	79-120	0			
Toluene	47.75	5.0	50	0	95.5	80-120	0			
trans-1,3-Dichloropropene	46.71	5.0	50	0	93.4	80-120	0			
Trichloroethene	44.21	5.0	50	0	88.4	80-120	0			
Vinyl acetate	109.2	10	100	0	109	67-139	0			
Vinyl chloride	43.32	2.0	50	0	86.6	70-127	0			
Xylenes, Total	140.9	15	150	0	94	80-120	0			
Surr: 1,2-Dichloroethane-d4	*44.42*	5.0	*50*	0	*88.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*51.65*	5.0	*50*	0	*103*	*72-125*	0			
Surr: Dibromofluoromethane	*47.12*	5.0	*50*	0	*94.2*	*71-125*	0			
Surr: Toluene-d8	*52.33*	5.0	*50*	0	*105*	*75-125*	0			

ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0710089-05AMSD** Units: **µg/L** Analysis Date: **10/08/07 15:58**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229045** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.14	5.0	50	0	92.3	80-120	43.71	5.4	20	
1,1,2,2-Tetrachloroethane	50.59	5.0	50	0	101	72-120	48.37	4.48	20	
1,1,2-Trichloroethane	50.33	5.0	50	0	101	80-120	51.72	2.72	20	
1,1-Dichloroethane	45.29	5.0	50	0	90.6	76-120	44.38	2.02	20	
1,1-Dichloroethene	42.57	5.0	50	0	85.1	73-124	39.51	7.46	20	
1,2-Dichloroethane	49.29	5.0	50	0	98.6	78-120	45.58	7.82	20	
2-Butanone	121.7	10	100	0	122	58-132	105.2	14.5	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	126.8	10	100	0	127	61-130	124.7	1.67	20	
4-Methyl-2-pentanone	123	10	100	0	123	65-127	117.9	4.26	20	
Acetone	99.42	10	100	0	99.4	59-137	90.25	9.67	20	
Benzene	47.35	5.0	50	0	94.7	73-121	43.71	8	20	
Bromodichloromethane	47.59	5.0	50	0	95.2	80-120	44.59	6.5	20	
Bromoform	52.33	5.0	50	0	105	79-120	51.49	1.62	20	
Bromomethane	35.73	5.0	50	0	71.5	66-137	27.69	25.4	20	R
Carbon disulfide	83.89	10	100	0	83.9	68-141	77.05	8.5	20	
Carbon tetrachloride	42.59	5.0	50	0	85.2	75-124	41.6	2.36	20	
Chlorobenzene	50.01	5.0	50	0	100	80-120	48.23	3.63	20	
Chloroethane	43.82	5.0	50	0	87.6	76-121	40.79	7.15	20	
Chloroform	47.52	5.0	50	0	95	80-120	46.76	1.6	20	
Chloromethane	47.83	5.0	50	0	95.7	67-123	42.22	12.5	20	
cis-1,3-Dichloropropene	50.18	5.0	50	0	100	80-120	47.43	5.64	20	
Dibromochloromethane	54.06	5.0	50	0	108	80-120	52.32	3.27	20	
Ethylbenzene	47.95	5.0	50	0	95.9	80-120	47.27	1.43	20	
m,p-Xylene	92	10	100	0	92	78-121	95.43	3.65	20	
Methylene chloride	47.01	10	50	0	94	65-133	44.6	5.25	20	
Styrene	47.6	5.0	50	0	95.2	80-120	49.37	3.66	20	
Tetrachloroethene	47	5.0	50	0	94	79-120	46.3	1.52	20	
Toluene	50.3	5.0	50	0	101	80-120	47.75	5.19	20	
trans-1,3-Dichloropropene	51.33	5.0	50	0	103	80-120	46.71	9.42	20	
Trichloroethene	44.95	5.0	50	0	89.9	80-120	44.21	1.64	20	
Vinyl acetate	119.1	10	100	0	119	67-139	109.2	8.74	20	
Vinyl chloride	45.65	2.0	50	0	91.3	70-127	43.32	5.22	20	
Xylenes, Total	137.9	15	150	0	91.9	80-120	140.9	2.16	20	
Surr: 1,2-Dichloroethane-d4	*49.08*	5.0	*50*	0	*98.2*	*70-125*	44.42	*9.98*	*20*	
Surr: 4-Bromofluorobenzene	*49.11*	5.0	*50*	0	*98.2*	*72-125*	51.65	*5.04*	*20*	
Surr: Dibromofluoromethane	*49.13*	5.0	*50*	0	*98.3*	*71-125*	47.12	*4.17*	*20*	
Surr: Toluene-d8	*51.14*	5.0	*50*	0	*102*	*75-125*	52.33	*2.3*	*20*	

The following samples were analyzed in this batch: 0709522-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54877** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-092707** Units: **mg/L** Analysis Date: **09/27/07 14:45**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220057** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*5.189*	0.10	*5*	0	*104*	*85-115*		0		

LCS Sample ID: **WLCSW1-092707** Units: **mg/L** Analysis Date: **09/27/07 15:09**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220058** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.38	0.50	20	0	102	90-110		0		
Sulfate	20.33	0.50	20	0	102	90-110		0		
Surr: Selenate (surr)	*5.072*	0.10	*5*	0	*101*	*85-115*		0		

MS Sample ID: **0709516-01BMS** Units: **mg/L** Analysis Date: **09/27/07 13:56**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220055** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	69.82	0.50	10	61.55	82.7	80-120		0		EO
Sulfate	342.8	0.50	10	340.2	26.4	80-120		0		SEO
Surr: Selenate (surr)	*5.168*	0.10	*5*	0	*103*	*85-115*		0		

MSD Sample ID: **0709516-01BMSD** Units: **mg/L** Analysis Date: **09/27/07 14:20**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220056** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	69.89	0.50	10	61.55	83.4	80-120	69.82	0.1	20	EO
Sulfate	343.2	0.50	10	340.2	30.8	80-120	342.8	0.126	20	SEO
Surr: Selenate (surr)	*5.176*	0.10	*5*	0	*104*	*85-115*	5.168	*0.155*	*20*	

DUP Sample ID: **0709516-01BDUP** Units: **mg/L** Analysis Date: **09/27/07 13:31**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220054** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	61.49	0.50	0	0	0	0-0	61.55	0.101	20	E
Sulfate	339.8	0.50	0	0	0	0-0	340.2	0.109	20	E
Surr: Selenate (surr)	*5.213*	0.10	*5*	0	*104*	*85-115*	5.216	*0.0575*	*20*	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54887** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW3-092707** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: Run ID: **WETCHEM_070927I** SeqNo: **1220276** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.07	0.10	6	0	101	90-110	0			

DUP Sample ID: **0709520-20EDUP** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: Run ID: **WETCHEM_070927I** SeqNo: **1220293** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.22	0.10	0	0	0	0-0	7.25	0.415	20	H

DUP Sample ID: **0709522-01DDUP** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: **Effluent** Run ID: **WETCHEM_070927I** SeqNo: **1220294** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.27	0.10	0	0	0	0-0	7.26	0.138	20	H

The following samples were analyzed in this batch: 0709522-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54965** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-100107** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222179** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-100107** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222180** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1055	5.0	1000	0	106	80-120	0			
Alkalinity, Total (As CaCO3)	1055	5.0	1000	0	106	80-120	0			

DUP Sample ID: **0709520-02FDUP** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222188** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	381.9	5.0	0	0	0	0-0	381.9	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	381.9	5.0	0	0	0	0-0	381.9	0	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54971** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222279** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222280** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	928	10	1000	0	92.8	85-115	0			

DUP Sample ID: **0709529-16CDUP** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222278** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	642	10	0	0	0	0-0	646	0.621	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55088** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-100307** Units: **°F** Analysis Date: **10/03/07 0:00**

Client ID: Run ID: **WETCHEM_071003H** SeqNo: **1224653** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120		0		

DUP Sample ID: **0709574-02EDUP** Units: **°F** Analysis Date: **10/03/07 0:00**

Client ID: Run ID: **WETCHEM_071003H** SeqNo: **1224657** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0		0	0	25	

The following samples were analyzed in this batch: 0709522-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55131** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **MBLKW1-100407** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225720** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-100407** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225721** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1425	1.0	1413	0	101	80-120	0			

DUP Sample ID: **0710048-01GDUP** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225724** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	3390	1.0	0	0	0	0-0	3400	0.295	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Chain of Custody Form

Page 1 of 1

e-Lab Project Manager: | e-Lab Work Order #: 5109522

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Quarterly	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Effluent	9/26/07	1315	L	Y	9	X	X	X	X	X	X	X	X	X		
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: [signature] B.E.D

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☑ Std 10 WK Days ☐ 6 WK Days ☐ Other 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
[signature] Jeff Byrd	9/25/07	1615	[signature] 9/27/07	10 Day TAT.
Relinquished by:	Date:	Time:	Received by (Laboratory): [signature]	

Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):

e-Lab Analytical Cooler ID: | Cooler Temp.:

QC Package: (Check One Box Below)
☑ Level II Std QC
☐ Level III Std QC/Raw Data
☐ Level IV SW846/CLP
☐ Other _____
☐ TRRP CheckList
☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

Copyright 2004 by e-Lab Analytical, Inc.

e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 9/27/2007 9:00:00 AM

Work Order Number 0709522 Received by: RNG

Checklist completed by RMGM 9/27/07 (Signature / Date) Reviewed by QL 9/28/07 (Initials / Date)

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.3c	002	
Cooler(s)/Kit(s):	1447		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

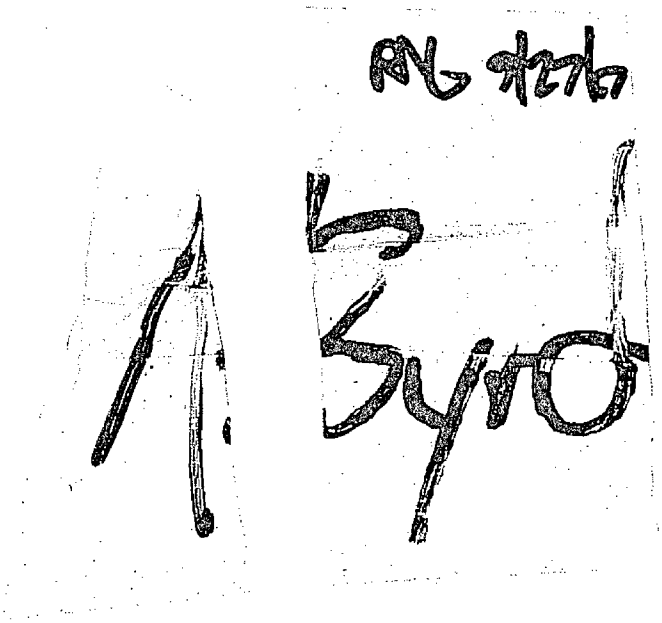
Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

P.O # 179522



NAVAJO REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P.O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
2007 SEP 20 AM 10 09

September 19, 2007

FedEx Overnight Delivery

Wayne Price
Environmental Bureau Chief
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Re: Navajo Refining Company, L.L.C., Class 1 Injection Well Discharge Permit WDW-3 UICCL-1-008-3 (I-008)

Dear Mr. Price:

Enclosed pursuant to your August 13, 2007 letter to Darrell Moore are (1) the signed copy of the above-referenced discharge permit for Navajo Refining Company, LLC ("Navajo") and (2) the permit fee in the amount of $4,500.00.

Navajo has agreed to sign the conditions listed in the permit based on your statements during our August 28, 2007 phone conversation that the conditions in the permit only apply to equipment at the site of the injection well covered by the permit (WDW-3), not the Artesia Refinery.

We strongly support your suggestion that we schedule a meeting with you and your staff to review the draft Navajo Refinery Discharge Permit that is currently in the renewal process to discuss certain conditions that may be included in the refinery permit which need further clarification and to address any concerns we may have prior to issuance of the final permit.

As we discussed, Navajo is concerned that the permit conditions, including conditions to retrofit storage tanks to include impermeable containment under all tanks and "bermed" areas, have not been thoroughly evaluated or discussed with Navajo prior to imposition. Navajo continues to believe that such evaluation and discussion prior to finalizing these conditions is necessary and appropriate.

Please contact me at 505-746-5490 if you have any questions.

Sincerely,

Johnny Lackey
Environmental Manager

Cc (w/enclosure): JER
Electronic cc (w/o enclosure): DGM, PLY
Environmental Files: REF.ART.07-4.A.02
(WDW-3 Discharge Permit)

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Check Date		09/13/2007
Check Amount	$	4,500.00
Vendor No		5102035
Payment Document		2000023164
Company Code		1020

Invoice Date	Invoice Number	Description	Invoice Amount	Discount Amount	Net Amount
08/13/2007	081307		4,500.00	0.00	4,500.00

Payment document	Check number	Date	Currency	Payment amount
2000023164	1000009940	09/13/2007	USD	*********4,500.00*

↓ PLEASE FOLD ON PERFORATION AND DETACH HERE ↓

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

ANTI-FRAUD PROTECTION - PATENTS 5,197,765

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

64-1278/611
1000009940
09/13/2007

PAY EXACTLY
*********4,500.00*USD

VOID AFTER 180 DAYS

PAY *** FOUR THOUSAND FIVE HUNDRED and 00 /100 USD***

TO THE
ORDER OF WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Stephen D Wise
AUTHORIZED SIGNATURE

⑈1000009940⑈ ⑆061112788⑆ 329905321?⑈

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

August 13, 2007

Mr. Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company
501 East Main Street, P.O. Drawer 159
Artesia, New Mexico 88211-0159

Re: **Approval of Class I Injection Well Discharge Permit WDW-3 UICCL1-008-3 (I-008)**
Class I Non-Hazardous Oil Field Waste Disposal Well
WDW-3, API No. 30-015-26575
790 FSL and 2250 FWL UL: N Section 1, T 18 S, R 27 E
Eddy County, New Mexico

Dear Mr. Moore:

Pursuant to all applicable parts of the Water Quality Control Commission (WQCC) Regulations 20.6.2 NMAC and more specifically 20.6.2.3104 - 20.6.2.3999 discharge permit, and 20.6.2.5000-.5299 Underground Injection Control, the Oil Conservation Division (OCD), the applicant is hereby authorized to utilize its Navajo Refining Company Class I WDW-3 Waste Disposal Well (API No. 30-015-26575) located 790 feet from the South line and 2250 feet from the West line in the SE/4, SW/4 of Section 1, Township 18 South, and Range27 East, NMPM, Eddy County, New Mexico, under the conditions specified in the enclosed **Attachment To The Class I Injection Well Discharge Permit**.

Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the New Mexico Oil Conservation Division (OCD) Santa Fe Office within 30 working days of receipt of this letter-including permit fees.**

Please be advised that approval of this permit does not relieve the Navajo Refining Company of responsibility should operations result in pollution of surface water, ground water or the environment. Nor does approval of the permit relieve the Navajo Refining Company of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If you have any questions, please contact Carl Chavez of my staff at (505-476-3491) or E-mail address: carlj.chavez@state.nm.us. On behalf of the staff of the OCD, I wish to thank you and your staff for your cooperation during this discharge permit review.

Sincerely,

Wayne Price
Environmental Bureau Chief

LWP/cc
Attachments-1
xc: OCD District Office

Released to Imaging: 7/12/2024 10:49:45 AM

ATTACHMENT TO THE DISCHARGE PERMIT
Navajo Refining Company WDW-3 Class I Waste Disposal Well UICCL1-008-3 (I-008)
DISCHARGE PERMIT APPROVAL CONDITIONS

August 13, 2007

Please remit a check for $4,500.00 made payable to Water Quality Management Fund:

Water Quality Management Fund
C/o: Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, New Mexico 87505

1. **Payment of Discharge Plan Fees:** All discharge permits are subject to WQCC Regulations. Every billable facility that submits a discharge permit application will be assessed a filing fee of $100.00, plus a renewal flat fee (*see* WQCC Regulation 20.6.2.3114 NMAC). The Oil Conservation Division ("OCD") has received the required $100.00 filing fee and the Navajo Refining Company still owes the required $4500.00 permit fee. The total fee amount due is $4500 for the Class I Well.

2. **Permit Expiration and Renewal Conditions and Penalties:** Pursuant to WQCC Regulation 20.6.2.3109.H.4 NMAC, this permit is valid for a period of five years. **The permit will expire on June 1, 2012** and an application for renewal should be submitted no later than 120 days before that expiration date. Pursuant to WQCC Regulation 20.6.2.3106.F NMAC, if a discharger submits a discharge permit renewal application at least 120 days before the discharge permit expires and is in compliance with the approved permit, then the existing discharge permit will not expire until the application for renewal has been approved or disapproved. ***Expired permits are a violation of the Water Quality Act (Chapter 74, Article 6, NMSA 1978) and civil penalties may be assessed accordingly.***

3. **Permit Terms and Conditions:** Pursuant to WQCC Regulation 20.6.2.3104 NMAC, when a permit has been issued, the Navajo Refining Company must ensure that all discharges shall be consistent with the terms and conditions of the permit. In addition, all facilities shall abide by the applicable rules and regulations administered by the OCD pursuant to the Oil and Gas Act, NMSA 1978, Sections 70-2-1 through 70-2-38. All injection operations related to oil and natural gas production in New Mexico are regulated under the provisions of the Oil and Gas Act, NMSA 1978, Sections 70-2-1 *et seq.* and the Water Quality Act, NMSA 1978, Sections 74-6-1 *et seq.* These Acts delegate authority for enforcement of their provisions relating to oil and natural gas drilling, production, processing, and transportation to the Oil Conservation Division (OCD) of the New Mexico Energy, Minerals and Natural Resources Department, and to the Oil Conservation Commission (OCC) and the Water Quality Control Commission (WQCC). To carry out its authority, the OCC has promulgated rules (19 NMAC) and numerous orders. Navajo Refining Company shall comply with WQCC Regulations 20.6.2 *et seq.* NMAC relating to Class I Waste Disposal Wells.

4. **Navajo Refining Company Commitments:** The Navajo Refining Company shall abide by all commitments submitted in its June 28, 2006 Application for Permit to Drill, Re-enter, Deepen, Plug back or Add a Zone API No. 30-015-26575" including subsequent attachments and amendments; letters and conditions herein for approval. Permit applications that reference previously approved plans on file with the division shall

be incorporated in this permit and the Navajo Refining Company shall abide by all previous commitments of such plans and these conditions for approval.

5. Modifications: WQCC Regulation 20.6.2.3107.C, 20.6.2.3109 and 20.6.2.5101.I NMAC addresses possible future modifications of a permit. The Navajo Refining Company (discharger) shall notify the OCD of any facility expansion, production increase or process modification that would result in any significant modification in the discharge of water contaminants. The Division Director may require a permit modification if any water quality standard specified at 20.6.2.3103 NMAC is or will be exceeded, or if a toxic pollutants as defined in WQCC Regulation 20.6.2.7 NMAC is present in ground water at any place of withdrawal for present or reasonably foreseeable future use, or that the Water Quality Standards for Interstate and Intrastate streams as specified in 20.6.4 NMAC are being or may be violated in surface water in New Mexico.

6. Waste Disposal and Storage: Navajo Refining Company shall dispose of all other non-injected wastes at an OCD-approved facility. Only oil field RCRA-exempt wastes may be disposed of by injection in a Class I well. RCRA non-hazardous, exempt and non-exempt oil field wastes may be disposed of at an OCD-approved facility upon proper waste determination pursuant to 40 CFR Part 261. Any waste stream that is not listed in the discharge permit application must be approved by the OCD on a case-by-case basis.

A. OCD Rule 712 Waste: Pursuant to OCD Rule 712 (19.15.9.712 NMAC) disposal of certain non-domestic waste without notification to the OCD is allowed at NMED permitted solid waste facilities if the waste stream has been identified in the discharge permit and existing process knowledge of the waste stream does not change.

B. Waste Storage: The Navajo Refining Company shall store all waste in an impermeable bermed area, except waste generated during emergency response operations for up to 72 hours. All waste storage areas shall be identified in the discharge permit application. Any waste storage area not identified in the permit shall be approved on a case-by-case basis only. The Navajo Refining Company shall not store oil field waste on-site for more than 180 days unless approved by the OCD.

7. Drum Storage: The Navajo Refining Company must store all drums, including empty drums, containing materials other than fresh water on an impermeable pad with curbing. The Navajo Refining Company must store empty drums on their sides with the bungs in place and lined up on a horizontal plane. The Navajo Refining Company must store chemicals in other containers, such as tote tanks, sacks, or buckets on an impermeable pad with curbing.

8. Process, Maintenance and Yard Areas: The Navajo Refining Company shall either pave and curb or have some type of spill collection device incorporated into the design at all process, maintenance, and yard areas which show evidence that water contaminants from releases, leaks and spills have reached the ground surface.

9. Above Ground Tanks: The Navajo Refining Company shall ensure that all aboveground tanks have impermeable secondary containment (e.g., liners and berms), which will contain a volume of at least one-third greater than the total volume of the largest tank or all interconnected tanks. The Navajo Refining Company shall retrofit all existing tanks before discharge permit renewal. Tanks that contain fresh water or fluids that are gases at atmospheric temperature and pressure are exempt from this condition.

10. Labeling: The Navajo Refining Company shall clearly label all tanks, drums, and containers to identify their contents and other emergency notification information. The Navajo Refining Company may use a tank code numbering system, which is incorporated into their emergency response plans.

11. Below-Grade Tanks/Sumps and Pits/Ponds.

A. All below-grade tanks and sumps must be approved by the OCD prior to installation and must incorporate secondary containment with leak detection into the design. The Navajo Refining Company shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal. All existing below-grade tanks and sumps without secondary containment and leak detection must be tested annually or as specified herein. Systems that have secondary containment with leak detection shall have a monthly inspection of the leak detection system to determine if the primary containment is leaking. Small sumps or depressions in secondary containment systems used to facilitate fluid removal are exempt from these requirements if fluids are removed within 72 hours.

B. All pits and ponds, including modifications and retrofits, shall be designed by a certified registered professional engineer and approved by the OCD prior to installation. In general, all pits or ponds shall have approved hydrologic and geologic reports, location, foundation, liners, and secondary containment with leak detection, monitoring and closure plans. All pits or ponds shall be designed, constructed and operated so as to contain liquids and solids in a manner that will protect fresh water, public health, safety and the environment for the foreseeable future. The Navajo Refining Company shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal.

C. The Navajo Refining Company shall ensure that all exposed pits, including lined pits and open top tanks (8 feet in diameter or larger) shall be fenced, screened, netted, or otherwise rendered non-hazardous to wildlife, including migratory birds.

D. The Navajo Refining Company shall maintain the results of tests and inspections at the facility covered by this discharge permit and available for OCD inspection. The Navajo Refining Company shall report the discovery of any system which is found to be leaking or has lost integrity to the OCD within 15 days. The Navajo Refining Company may propose various methods for testing such as pressure testing to 3 pounds per square inch greater than normal operating pressure and/or visual inspection of cleaned tanks and/or sumps, or other OCD-approved methods. The Navajo Refining Company shall notify the OCD at least 72 hours prior to all testing.

12. Underground Process/Wastewater Lines:

A. The Navajo Refining Company shall test all underground process/wastewater pipelines at least once every five (5) years to demonstrate their mechanical integrity, except lines containing fresh water or fluids that are gases at atmospheric temperature and pressure. Pressure rated pipe shall be tested by pressuring up to one and one-half times the normal operating pressure, if possible, or for atmospheric drain systems, to 3 pounds per square inch greater than normal operating pressure, and pressure held for a minimum of 30 minutes with no more

than a 1% loss/gain in pressure. The Navajo Refining Company may use other methods for testing if approved by the OCD.

B. Navajo Refining Company shall maintain underground process and wastewater pipeline schematic diagrams or plans showing all drains, vents, risers, valves, underground piping, pipe type, rating, size, and approximate location. All new underground piping must be approved by the OCD prior to installation. The Navajo Refining Company shall report any leaks or loss of integrity to the OCD within 15 days of discovery.

Navajo Refining Company shall maintain the results of all tests at the facility covered by this discharge permit and they shall be available for OCD inspection. The Navajo Refining Company shall notify the OCD at least 72 hours prior to all testing.

13. Class V Wells: The Navajo Refining Company shall close all Class V wells (e.g., septic systems, leach fields, dry wells, etc.) that inject non-hazardous industrial wastes or a mixture of industrial wastes and domestic wastes unless it can be demonstrated that ground water will not be impacted in the reasonably foreseeable future. Leach fields and other wastewater disposal systems at OCD-regulated facilities that inject non-hazardous fluid into or above an underground source of drinking water are considered Class V Waste Disposal Wells under the EPA UIC program. Class V wells that inject domestic waste only, must be permitted by the New Mexico Environment Department (NMED).

14. Housekeeping: The Navajo Refining Company shall inspect all systems designed for spill collection/prevention and leak detection at least monthly to ensure proper operation and to prevent over topping or system failure. All spill collection and/or secondary containment devices shall be emptied of fluids within 72 hours of discovery. The Navajo Refining Company shall maintain all records at the facility and available for OCD inspection.

15. Spill Reporting: The Navajo Refining Company shall report all unauthorized discharges, spills, leaks and releases and conduct corrective action pursuant to WQCC Regulation 20.5.12.1203 NMAC and OCD Rule 116 (19.15.3.116 NMAC). The Navajo Refining Company shall notify both the OCD District Office and the Santa Fe Office within 24 hours and file a written report within 15 days.

16. OCD Inspections: The OCD may place additional requirements on the facility and modify the permit conditions based on well emergencies, OCD inspections, and/or quarterly reporting information.

17. Storm Water: The Navajo Refining Company shall implement and maintain run-on and runoff plans and controls. The Navajo Refining Company shall not discharge any water contaminant that exceeds the WQCC standards specified in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) including any oil sheen in any stormwater run-off. The Navajo Refining Company shall notify the OCD within 24 hours of discovery of any releases and shall take immediate corrective action(s) to stop the discharge.

18. Unauthorized Discharges: The Navajo Refining Company shall not allow or cause water pollution, discharge or release of any water contaminant that exceeds the WQCC standards listed in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) unless specifically listed in the permit application approved herein.

An unauthorized discharge is a violation of this permit.

19. Vadose Zone and Water Pollution: The Navajo Refining Company shall address any contamination through the discharge permit process or pursuant to WQCC 20.6.2.4000-.4116 NMAC (Prevention and Abatement of Water Pollution). The OCD may require the Navajo Refining Company to modify its permit for investigation, remediation, abatement, and monitoring requirements for any vadose zone or water pollution. Failure to perform any required investigation, remediation, abatement and submit subsequent reports will be a violation of the permit.

20. Additional Site Specific Conditions: The Navajo Refining Company shall notify the OCD within 24 hours after having knowledge of ground water pollution complaints or well problems within a 1-mile radius of WDW-3.

21. Class I Injection Well(s) Construction Conditions.
All wells, except those municipal wells injection of non-corrosive wastes, shall inject fluids through tubing with a packer set immediately above the injection zone.

A. Construction: The tubing and packer shall be designed and maintained for the duration of expected service.

B. Logs or tests required for the following situations:

a. For surface casing intended to protect underground sources of drinking water:
   i. Resistivity, spontaneous potential, and caliper logs before the casing is installed; and
   ii. A cement bond, temperature, or density log after the casing is set and cemented.

b. For intermediate and long strings of casing intended to facilitate injection:
   i. Resistivity, spontaneous potential, porosity, and gamma ray logs before the casing is installed.
   ii. Fracture finder logs; and
   iii. A cement bond, temperature, or density log after the casing is set and cemented.
   iv. At a minimum, the following information concerning the injection formation shall be determined or calculated for new Class I wells:
      1. Fluid pressure;
      2. Temperature;
      3. Fracture pressure;
      4. Other physical and chemical characteristics of the injection matrix; and
      5. Physical and chemical characteristics of the formation fluids.

22. Class I Injection Well(s) Identification, Operation, Monitoring, Bonding and Reporting.

A. Well Identification: API # 30-015-26575

B. Well Work Over Operations: OCD approval will be obtained prior to performing remedial work, pressure test or any other work. Approval will be requested on OCD Form C-103 "Sundry Notices and Reports on Wells" (OCD Rule 1103.A) with appropriate copies sent to the OCD Environmental Bureau and District Office.

C. Injection Formation, Interval & Waste: Injected refinery exempt/non-exempt non-hazardous wastes will be injected into the Lower-Wolfcamp Formation at the interval 7650 ft to 8450 ft and 8450 ft to 8620 ft. Tubing shall be surrounded by surface casing set to a depth protective of fresh ground water (< 10,000 ppm TDS). The owner/operator shall take all steps necessary to ensure that the injected waste enters only the above specified injection interval and is not permitted to escape to other formations or onto the surface. The operator shall provide written notice of the date of commencement of injection to the Santa Fe Office of the Division.

D. Well Injection Pressure Limits: The wellhead injection pressure on the well shall be limited to no more than 1530 psig. In addition, the injection well or system shall be equipped with a pressure limiting device in workable condition, which shall, at all times, limit surface injection pressure to the maximum allowable pressure for this well. The maximum operating surface injection and/or test pressure measured at the wellhead shall not exceed 1530 psig unless otherwise approved by the OCD. The pressure-limiting device shall monthly be demonstrated and reported quarterly to the OCD. Navajo Refining Company shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the ground surface. Any pressure that causes new fractures or propagation in existing fractures or causes damage to the system shall be reported to OCD within 24 hours of discovery.

The Director of the OCD may authorize an increase in injection pressure upon demonstration by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formation. Such demonstration shall consist of a valid step-rate test run in accordance with and acceptable to the OCD.

E. Mechanical Integrity Testing (MIT):

The owner/operator shall complete an annual casing-tubing annulus pressure test from the surface to the approved injection depth and below the depth of fresh ground water (< 10,000 ppm TDS) to assess casing and tubing integrity. The MIT shall consist of a 30-minute test at a minimum pressure from 300 to 500 psig measured at the surface. A Bradenhead test(s) shall also be performed annually along with the casing-tubing annulus test. A Bradenhead test(s) shall be performed in all annular spaces including surface casing if not cemented.

The owner/operator shall complete an annual pressure fall-off test to monitor the pressure buildup in the injection zone. The well shall be shut down for a period sufficient to conduct the test and shall be submitted to the OCD in the annual report (see Section 22K (11)).

All well testing shall be performed annually or shall also be performed whenever the tubing is pulled or the packer reseated or when the injection formation will be isolated from the casing/tubing annuals.

The operator shall notify the supervisor of the Santa Fe Office of the Division of the date, time and time of the installation of disposal equipment and of any MIT so that it may be inspected and witnessed.

1. General Requirements:

   a. If the testing requires a packer then casing-tubing annulus must be loaded with inert fluid 24 hours prior to testing.
   b. Have manpower and equipment available for pressure test. Wellhead shall be prepared for test and all valves and gauges should be in good working order.
   c. Pumps, tanks, external lines etc. must be isolated from the wellhead during test.
   d. A continuous recording pressure device with a maximum 4-hour clock shall be installed on the casing-tubing annulus. The pressure range shall not be greater than 500 psig. The operator must provide proof that the pressure-recording device has been calibrated within the past 6 months.
   e. A minimum of one pressure gauge shall be installed on the casing/tubing annulus.
   f. OCD must witness the beginning of test (putting chart on) and ending of test (removing chart). At the end of test, the operator may be required to bleed-off well pressure to demonstrate recorder and gauge response.
   g. The Operator shall supply the following information on the pressure chart that the inspector will file in the well records:
      1. Company Name, Well Name, API #, Legal Location.
      2. Test Procedure with "Pass/Fail" designation.
      3. Testing Media: Water, Gas, Oil, Etc.
      4. Date, time started and ending.
      5. Name (printed) and signature of company representative and OCD Inspector

2. Test Acceptance:

The OCD will use the following criteria in determining if a well has passed the Mechanical Integrity Test:

   a. Passes if Zero Bleed-Off during the test.
   b. Passes if Final Test Pressure is within ± 10% of Starting Pressure, if approved by the OCD inspector.
   c. Fails if any Final Test Pressure is greater than ± 10% of Starting Pressure. Operators must investigate for leaks and demonstrate that mechanical integrity of the well(s) by ensuring there are no leaks in the tubing, casing, or packer, and injected/produced fluids are confined within the piping and/or injection zones. Wells shall not resume operations until approved by OCD.

   Note: OCD recognizes that different operations, well designs, formation characteristics and field conditions may cause variations in the above procedures. If the operator wishes to make or discuss anticipate changes, please notify the OCD for approval. All operators are responsible to notify OCD of any procedure that may cause harm to the well system or formation. Please be advised that OCD approval does not relieve any operator of liability should operations result in pollution of surface water, groundwater, or the environment.

d. When the MIT is not witnessed by an OCD Representative and fails, the owner/operator shall notify the OCD within 24 hours after having knowledge of well MIT failure.

F. Loss of Mechanical Integrity: The operator shall report within 24 hours of discovery any failure of the casing, tubing or packer, or movement of fluids outside of the injection zone. The operator shall cease operations until proper repairs are made and receive OCD approval to re-start injection operations. In addition, any associated fresh ground water monitor wells, which exhibit anomalous static water levels, detection of elevated general chemistry constituents, public health issues, etc. shall be immediately reported to the OCD.

G. Injection Record Volumes and Pressures: The owner/operator shall submit quarterly reports of its disposal, operation and well workovers provided herein. The minimum, maximum, average flow waste injection volumes (including total volumes) and annular pressures of waste (oil field exempt/non-exempt non-hazardous waste) injected will be recorded monthly and submitted to the OCD Santa Fe Office on a quarterly basis.

The casing-tubing annulus shall contain fluid and be equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. Due to pressure fluctuations observed at Navajo's other two nearby Class I Injection Wells, WDW-3 shall be equipped with an expansion tank under constant 100 psig pressure connected to the casing-annulus and maintained under constant pressure. The expansion tank shall initially be filled half-full (250 gallon expansion tank) with an approved fluid to establish an equilibrium volume and fluid level. Weekly monitoring of fluid levels in the expansion tank coupled with documented additions/ removals of fluids into or out of the expansion tank is required to maintain the equilibrium volume. Any loss or gain of fluids in the expansion tank shall be recorded, and if significant, reported to the OCD within 24 hours of discovery. The owner/operator shall provide the following information on a quarterly basis: weekly expansion tank volume readings shall be provided in a table in the cover letter of each quarterly report. Navajo shall monitor, record and note any fluid volume additions or removals from the expansion tank on a quarterly basis. In addition, any well activity (i.e., plugging, changing injection intervals, etc.) shall be conducted in accordance with all applicable New Mexico Oil Conservation Division regulations.

H. Analysis of Injected Waste: Provide an analytical data or test results summary of the injection waste water with each annual report. The analytical testing shall be conducted on a quarterly basis with any exceedence reported to the OCD within 24 hours after having knowledge of an exceedence(s). Records shall be maintained at Navajo for the life of the well. The required analytical test methods are:

a. Aromatic and halogenated volatile hydrocarbon scan by EPA Method 8260C GC/MS. Semi-volatile Organics GC/MS EPA Method 8270B including 1 and 2-methylnaphthalene.
b. General water chemistry (Method 40 CFR 136.3) to include calcium, potassium, magnesium, sodium, bicarbonate, carbonate, chloride, sulfate, total dissolved solids (TDS), pH, and conductivity.

c. Heavy metals using the ICP scan (EPA Method 6010) and Arsenic and Mercury using atomic absorption (EPA Methods 7060 and 7470).
d. EPA RCRA Characteristics for Ignitability, Corrosivity and Reactivity (40 CFR part 261 Subpart C Sections 261.21 – 261.23, July 1, 1992).

I. Area of Review (AOR): The operator shall report within 24 hours of discovery of any new wells, conduits, or any other device that penetrates or may penetrate the injection zone within a 1-mile radius from the Class I Well. Documentation of new wells shall be added to the existing AOR information in the well file within 30 days of the discovery.

J. Bonding or Financial Assurance: The operator shall maintain at a minimum, a one well plugging bond in the amount of $95,000 or the actual amount required to plug/abandon the well pursuant to OCD and WQCC rules and regulations. If warranted, OCD may require additional financial assurance to ensure adequate funding to plug and abandon the well or for any corrective actions.

K. Annual Report: All operators shall submit an annual report due on January 31 of each year. The report shall include the following information:

1. Cover sheet marked as "Annual Class I Well Report, name of operator, permit #, API# of well(s), date of report, and person submitting report.
2. Brief summary of Class I Well(s) operations including description and reason for any remedial or major work on the well with a copy of OCD Form C-103.
3. Production volumes as required above in 22.G. including a running total should be carried over to each year. The maximum and average injection pressure.
4. A copy of the chemical analysis as required above in 22.H.
5. A copy of any mechanical integrity test chart, including the type of test, i.e. duration, gauge pressure, etc.
6. Brief explanation describing deviations from normal production methods.
7. A copy of any expansion tank monitoring pressure, fluid removals/additions, well problems, drinking water impacts, leaks and spills reports.
8. If applicable, results of any groundwater monitoring.
9. An Area of Review (AOR) update summary.
10. Sign-off requirements pursuant to WQCC Subsection G 20.6.2.5101.
11. A summary with interpretation of MITs, Fall-Off Tests, etc., with conclusion(s) and recommendation(s).
12. Annual facility training.

23. Transfer of Discharge Permit: Pursuant to WQCC 20.6.2.5101.H the Navajo Refining Company and any new owner/operator shall provide written notice of any transfer of the permit in accordance with WQCC 20.6.2.3104 (Discharge Permit Required), 20.6.2.3111 (Transfer of Discharge Permit), 20.6.2.5101 (Discharge Permit and Other Requirements for Class I Non-Hazardous Waste Waste Disposal Wells, and Class III Wells). Both parties shall sign the notice 30 days prior to any transfer of ownership, control or possession of a Class I Well with an approved discharge permit. In addition, the purchaser shall include a written commitment to comply with the terms and conditions of the previously approved discharge permit. OCD will not transfer Class I Well operations until: correspondence between the transferor and transferee is submitted along with a signed

certification of acceptance by the transferee, and proper bonding or financial assurance is in place and approved by the division. OCD reserves the right to require a major modification of the permit during the transfer process.

24. Training: All personnel associated with operations at the Navajo Class I disposal well shall have appropriate training in accepting, processing, and disposing of Class I non exempt non-hazardous refinery waste to insure proper disposal. Provide training documentation in annual report under Section 22K(12).

25. Closure: The Navajo Refining Company shall notify the OCD when operations of the facility are to be discontinued for a period in excess of six months. Prior to closure of the facility, the operator shall submit for OCD approval, a closure plan including a completed C-103 form for plugging and abandonment of the well(s). Closure and waste disposal shall be in accordance with the statutes, rules and regulations in effect at the time of closure.

26. Certification: Navajo Refining Company, by the officer whose signature appears below, accepts this permit and agrees to comply with all submitted commitments, including these terms and conditions contained here. **Navajo Refining Company** further acknowledges that the OCD may, for good cause shown, as necessary to protect fresh water, public health, safety, and the environment, change the conditions and requirements of this permit administratively.

Conditions accepted by: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

Navajo Refining Company- print name above

JAMES RESINGER

Company Representative- print name

Company Representative- signature

Title VP - NAVAJO REFINERY

Date: 9/18/07

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Check Date		09/13/2007
Check Amount	$	4,500.00
Vendor No		5102035
Payment Document		2000023164
Company Code		1020

Invoice Date	Invoice Number	Description	Invoice Amount	Discount Amount	Net Amount
08/13/2007	081307		4,500.00	0.00	4,500.00

Payment document	Check number	Date	Currency	Payment amount
2000023164	1000009940	09/13/2007	USD	*********4,500.00*

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. 1000009940 dated 9/13/07

or cash received on _____ in the amount of $ 4500 00

from Navajo Refining Co LP

for WDW-3 UICCL-1-008-3 (CI-008)

Submitted by: Lawrence Romero Date: 9/24/07

Submitted to ASD by: Lawrence Romero Date: 9/24/07

Received in ASD by: _____ Date: _____

Filing Fee _____ New Facility _____ Renewal _____

Modification _____ Other _____

Organization Code 521.07 Applicable FY 2004

To be deposited in the Water Quality Management Fund.

Full Payment ✓ or Annual Increment _____

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

64-1278/611 1000009940
09/13/2007

PAY EXACTLY
*********4,500.00*USD

VOID AFTER 180 DAYS

PAY *** FOUR THOUSAND FIVE HUNDRED and 00 /100 USD***

TO THE ORDER OF WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Stephen D Wise
AUTHORIZED SIGNATURE

⑈1000009940⑈ ⑆111278833⑆ 29905321⑆

NAVAJO REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

April 25, 2007

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 First Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the first quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the 200 gallon tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2007 to March 31, 2007. We have disposed a total of 32,545,353 barrels of fluid into the two wells as of March 31, 2007. This is broken down as follows: 22,038,386 barrels into WDW-1 and 10,506,967 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Sr. Environmental Specialist

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	21,268,940
Jan-07	374	417	339	199	263	40	82	143	33	6,821	9,002	1,370	211,459	21,480,399
Feb-07	290	388	222	250	351	17	250	381	38	8,574	12,032	580	265,809	21,746,208
Mar-07	284	340	221	275	295	234	427	500	319	9,425	10,101	8,019	292,178	22,038,386
WDW-2													**Previous Quarter**	10,091,491
Jan-07	223	455	28	119	129	105	0	2	0	4,090	4,415	3,583	126,789	10,218,280
Feb-07	315	500	0	123	158	75	0	0	0	4,219	5,410	2,556	130,779	10,349,059
Mar-07	36	188	0	149	170	124	0	0	0	5,094	5,819	4,238	157,907	10,506,967
													Total Injected fluids:	32,545,353

Page 1007 of 5828

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 FIRST QUARTER WEEKLY WHAMS LEVEL TABLE

	1/1/07	1/8/07	1/15/07	1/22/07	1/29/07	2/5/07	2/12/07	2/19/07	2/26/07	3/5/07	3/12/07	3/19/07	3/26/07
WDW -1	300	300	300	300	200[1]	200	200	200	200	200	200	200	200
WDW-2	250	250	250	250	160[1]	160	160	160	160	160	160	160	160

[1] Removed material to ensure tanks don't overflow.

Page 1008 of 5828

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 (281) 530-5656 Fax (281) 530-5887

April 24, 2007

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj. Well Work Order : **0704309**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 1 sample on 4/17/2007 8:40:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 37.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Jeffrey L Croston

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Project: Inj. Well
Work Order: **0704309**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0704309-01	Inj. Well	Water		4/16/2007 13:30	4/17/2007 08:40	☐

e-Lab Analytical, Inc. **Date:** *April 24, 2007*

CLIENT: Navajo Refining Company
Project: Inj. Well
Work Order: 0704309

Case Narrative

pH sample was analyzed within 24 hours of collection.

Batch 22974 Metals MS/MSD was an unrelated sample.collection.

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **4/19/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	4/19/2007 5:03:37 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **4/19/2007**	Analyst: **ALR**
Aluminum	**2.63**		**1.00**	**mg/L**	100	4/20/2007 5:47:00 PM
Arsenic	**0.189**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Barium	**0.0462**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Beryllium	ND		0.00200	mg/L	1	4/20/2007 6:56:00 AM
Boron	**0.188**		**0.0200**	**mg/L**	1	4/20/2007 6:56:00 AM
Cadmium	ND		0.00200	mg/L	1	4/20/2007 6:56:00 AM
Calcium	**46.2**		**0.500**	**mg/L**	1	4/20/2007 6:56:00 AM
Chromium	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Cobalt	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Copper	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Iron	**0.286**		**0.200**	**mg/L**	1	4/20/2007 6:56:00 AM
Lead	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Magnesium	**43.0**		**1.00**	**mg/L**	5	4/23/2007 3:50:00 PM
Manganese	**0.0249**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Molybdenum	**0.0890**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Nickel	**0.00511**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Potassium	**82.8**		**1.00**	**mg/L**	5	4/23/2007 3:50:00 PM
Selenium	**0.170**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Silver	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Sodium	**2,000**		**20.0**	**mg/L**	100	4/20/2007 5:47:00 PM
Vanadium	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Zinc	**0.0201**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **4/20/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2,4,5-Trichlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2,4,6-Trichlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Methylnaphthalene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Methylphenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Nitrophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
3&4-Methylphenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
3-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
4-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
4-Nitrophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Acenaphthene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Acenaphthylene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Anthracene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Benz(a)anthracene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Benzidine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Hexachloroethane	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Indeno(1,2,3-cd)pyrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Isophorone	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodi-n-propylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodimethylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodiphenylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Naphthalene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Nitrobenzene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Pentachlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Phenanthrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Phenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Pyrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Surr: 2,4,6-Tribromophenol	*75.6*		*42-124*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 2-Fluorobiphenyl	*69.1*		*48-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 2-Fluorophenol	*65.6*		*20-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 4-Terphenyl-d14	*72.1*		*51-135*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: Nitrobenzene-d5	*76.7*		*41-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: Phenol-d6	*70.7*		*20-120*	*%REC*	1	4/20/2007 3:25:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
2-Butanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	4/20/2007 4:54:00 PM
2-Hexanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Acetone	**130**		**10**	**µg/L**	1	4/20/2007 4:54:00 PM
Benzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromoform	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromomethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Carbon disulfide	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloroform	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Ethylbenzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
m,p-Xylene	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Methylene chloride	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Styrene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Toluene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Trichloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Vinyl acetate	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Vinyl chloride	ND		2.0	µg/L	1	4/20/2007 4:54:00 PM
Xylenes, Total	ND		15	µg/L	1	4/20/2007 4:54:00 PM
Surr: 1,2-Dichloroethane-d4	*98.9*		*70-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: 4-Bromofluorobenzene	*100*		*72-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: Dibromofluoromethane	*97.6*		*71-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: Toluene-d8	*101*		*75-125*	*%REC*	1	4/20/2007 4:54:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	4/18/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	4/18/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **LMD**
Chloride	**953**		**25.0**	**mg/L**	50	4/19/2007 12:47:00 AM
Sulfate	**2,420**		**50.0**	**mg/L**	50	4/19/2007 12:47:00 AM
Surr: Selenate (surr)	*100*		*85-115*	*%REC*	50	4/19/2007 12:47:00 AM
ALKALINITY			**E310.1**			Analyst: **PV**
Alkalinity, Bicarbonate (As CaCO3)	**846**		**5.00**	**mg/L**	1	4/18/2007
Alkalinity, Carbonate (As CaCO3)	**124**		**5.00**	**mg/L**	1	4/18/2007
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	4/18/2007
Alkalinity, Total (As CaCO3)	**970**		**5.00**	**mg/L**	1	4/18/2007
CONDUCTIVITY			**E120.1**			Analyst: **PV**
Specific Conductance	**8,030**		**1.00**	**µmhos/cm**	1	4/17/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>200**		**50.0**	**°F**	1	4/19/2007

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	**8.72**	H	**0.100**	**pH units**	1	4/17/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	**6,740**		**10.0**	**mg/L**	1	4/17/2007

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
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e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

Date: *Apr 24 2007*

QC BATCH REPORT

Batch ID: **22964** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:27**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095860** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:29**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095861** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00548	0.00020	0.005	0	110	85-115	0			

LCSD Sample ID: **GLCSDW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:31**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095862** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00553	0.00020	0.005	0	111	85-115	0.00548	0.908	20	

MS Sample ID: **0704314-01DMS** Units: **mg/L** Analysis Date: **04/19/07 16:41**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095865** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00536	0.00020	0.005	-0.000016	108	85-115	0			

MSD Sample ID: **0704314-01DMSD** Units: **mg/L** Analysis Date: **04/19/07 16:43**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095866** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00551	0.00020	0.005	-0.000016	111	85-115	0.00536	2.76	20	

DUP Sample ID: **0704314-01DDUP** Units: **mg/L** Analysis Date: **04/19/07 16:35**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095864** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000016	0	20	

The following samples were analyzed in this batch: 0704309-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW2-041907** Units: **mg/L** Analysis Date: **04/20/07 6:43**
Client ID: Run ID: **ICPMS02_070419A** SeqNo: **1096355** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	0.153	0.50								J
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	0.0004649	0.0050								J
Iron	ND	0.20								
Lead	ND	0.0050								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

MBLK Sample ID: **MBLKW2-041907** Units: **mg/L** Analysis Date: **04/20/07 17:35**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097433** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002384	0.010								J
Magnesium	ND	0.20								
Potassium	ND	0.20								
Sodium	ND	0.20								

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW2-041907** Units: **mg/L** Analysis Date: **04/20/07 6:50**
Client ID: Run ID: **ICPMS02_070419A** SeqNo: **1096356** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04694	0.0050	0.05	0	93.9	80-120	0			
Barium	0.0492	0.0050	0.05	0	98.4	80-120	0			
Beryllium	0.04661	0.0020	0.05	0	93.2	80-120	0			
Boron	0.4886	0.020	0.5	0	97.7	80-120	0			
Cadmium	0.04819	0.0020	0.05	0	96.4	80-120	0			
Calcium	4.432	0.50	5	0	88.6	80-120	0			
Chromium	0.04374	0.0050	0.05	0	87.5	80-120	0			
Cobalt	0.04761	0.0050	0.05	0	95.2	80-120	0			
Copper	0.04604	0.0050	0.05	0	92.1	80-120	0			
Iron	4.78	0.20	5	0	95.6	80-120	0			
Lead	0.04708	0.0050	0.05	0	94.2	80-120	0			
Manganese	0.04577	0.0050	0.05	0	91.5	80-120	0			
Molybdenum	0.04668	0.0050	0.05	0	93.4	80-120	0			
Nickel	0.04595	0.0050	0.05	0	91.9	80-120	0			
Selenium	0.04865	0.0050	0.05	0	97.3	80-120	0			
Silver	0.04866	0.0050	0.05	0	97.3	80-120	0			
Vanadium	0.04467	0.0050	0.05	0	89.3	80-119	0			
Zinc	0.04782	0.0050	0.05	0	95.6	80-118	0			

LCS Sample ID: **MLCSW2-041907** Units: **mg/L** Analysis Date: **04/20/07 17:41**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097434** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.04611	0.010	0.05	0	92.2	80-120	0			
Magnesium	4.742	0.20	5	0	94.8	80-120	0			
Potassium	4.78	0.20	5	0	95.6	80-120	0			
Sodium	4.681	0.20	5	0	93.6	80-120	0			

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R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/20/07 23:33**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097709** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06546	0.0050	0.05	0.01224	106	80-120	0			
Barium	0.07401	0.0050	0.05	0.0219	104	80-120	0			
Cadmium	0.04766	0.0020	0.05	0.0003782	94.6	80-120	0			
Calcium	788.7	0.50	5	784.1	92	80-120	0			EO
Chromium	0.0485	0.0050	0.05	0.0001179	96.8	80-120	0			
Cobalt	0.04993	0.0050	0.05	-4.907E-05	100	80-120	0			
Copper	0.04552	0.0050	0.05	0.0001244	90.8	80-120	0			
Iron	7.65	0.20	5	2.781	97.4	80-120	0			
Lead	0.05079	0.0050	0.05	0.0001332	101	80-120	0			
Manganese	0.3215	0.0050	0.05	0.2683	106	80-120	0			O
Molybdenum	0.0586	0.0050	0.05	0.007029	103	80-120	0			
Nickel	0.04825	0.0050	0.05	0.0035	89.5	80-120	0			
Selenium	0.05793	0.0050	0.05	0.00277	110	80-120	0			
Silver	0.04486	0.0050	0.05	-0.0003654	90.5	80-120	0			
Sodium	ND	0.20	5	0	0	80-120	0			SX
Zinc	0.05858	0.0050	0.05	0.01406	89	80-118	0			

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/23/07 16:38**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098464** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04792	0.0040	0.05	-0.0001226	96.1	80-120	0			
Boron	1.713	0.040	0.5	1.21	100	80-120	0			
Vanadium	0.05208	0.010	0.05	-0.0005382	105	80-119	0			

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/23/07 18:54**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098605** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06834	0.020	0.05	0.01825	100	80-120	0			
Magnesium	258	0.40	5	259.2	-24	80-120	0			SEO
Potassium	39.84	0.40	5	35.54	86	80-120	0			O

ND - Not Detected at the Reporting Limit
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/20/07 23:39**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097710** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06506	0.0050	0.05	0.01224	106	80-120	0.06546	0.613	15	
Barium	0.07081	0.0050	0.05	0.0219	97.8	80-120	0.07401	4.42	15	
Cadmium	0.04533	0.0020	0.05	0.0003782	89.9	80-120	0.04766	5.01	15	
Calcium	751.3	0.50	5	784.1	-656	80-120	788.7	4.86	15	SEO
Chromium	0.04705	0.0050	0.05	0.0001179	93.9	80-120	0.0485	3.04	15	
Cobalt	0.04893	0.0050	0.05	-4.907E-05	98	80-120	0.04993	2.02	15	
Copper	0.04465	0.0050	0.05	0.0001244	89.1	80-120	0.04552	1.93	15	
Iron	7.313	0.20	5	2.781	90.6	80-120	7.65	4.5	15	
Lead	0.04983	0.0050	0.05	0.0001332	99.4	80-120	0.05079	1.91	15	
Manganese	0.3116	0.0050	0.05	0.2683	86.6	80-120	0.3215	3.13	15	O
Molybdenum	0.0569	0.0050	0.05	0.007029	99.7	80-120	0.0586	2.94	15	
Nickel	0.04624	0.0050	0.05	0.0035	85.5	80-120	0.04825	4.25	15	
Selenium	0.05633	0.0050	0.05	0.00277	107	80-120	0.05793	2.8	15	
Silver	0.04482	0.0050	0.05	-0.0003654	90.4	80-120	0.04486	0.0892	15	
Sodium	ND	0.20	5	0	0	80-120	0	0	15	SX
Zinc	0.04966	0.0050	0.05	0.01406	71.2	80-118	0.05858	16.5	15	SR

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/23/07 16:51**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098465** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04966	0.0040	0.05	-0.0001226	99.6	80-120	0.04792	3.57	15	
Boron	1.749	0.040	0.5	1.21	108	80-120	1.713	2.11	15	
Vanadium	0.05126	0.010	0.05	-0.0005382	104	80-119	0.05208	1.59	15	

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/23/07 19:06**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098606** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06672	0.020	0.05	0.01825	96.9	80-120	0.06834	2.4	15	
Magnesium	252.2	0.40	5	259.2	-140	80-120	258	2.27	15	SEO
Potassium	38.96	0.40	5	35.54	68.4	80-120	39.84	2.23	15	SO

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/20/07 18:18**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097442** Prep Date: **4/19/2007** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	746.2	50	0	0	0	0-0	738.2	1.08	25	
Magnesium	243.9	20	0	0	0	0-0	240.3	1.49	25	
Sodium	2752	20	0	0	0	0-0	2751	0.0363	25	

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/20/07 23:21**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097707** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.01246	0.0050	0	0	0	0-0	0.01224	1.78	25	
Barium	0.02203	0.0050	0	0	0	0-0	0.0219	0.592	25	
Cadmium	0.0002431	0.0020	0	0	0	0-0	0.0003782	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0001179	0	25	
Cobalt	ND	0.0050	0	0	0	0-0	-4.907E-05	0	25	
Copper	ND	0.0050	0	0	0	0-0	0.0001244	0	25	
Iron	2.77	0.20	0	0	0	0-0	2.781	0.396	25	
Lead	ND	0.0050	0	0	0	0-0	0.0001332	0	25	
Manganese	0.2679	0.0050	0	0	0	0-0	0.2683	0.149	25	
Molybdenum	0.00692	0.0050	0	0	0	0-0	0.007029	1.56	25	
Nickel	0.003014	0.0050	0	0	0	0-0	0.0035	0	25	J
Selenium	0.002389	0.0050	0	0	0	0-0	0.00277	0	25	J
Silver	ND	0.0050	0	0	0	0-0	-0.0003654	0	25	
Zinc	0.005127	0.0050	0	0	0	0-0	0.01406	93.1	25	R

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/23/07 16:07**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098409** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01785	0.020	0	0	0	0-0	0.01825	0	25	J
Beryllium	ND	0.0040	0	0	0	0-0	-0.0001226	0	25	
Boron	1.185	0.040	0	0	0	0-0	1.21	2.14	25	
Potassium	34.9	0.40	0	0	0	0-0	35.54	1.82	25	
Vanadium	ND	0.010	0	0	0	0-0	-0.0005382	0	25	

The following samples were analyzed in this batch: 0704309-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:09**

Client ID: Run ID: **SV-3_070420A** SeqNo: **1097700** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*76.15*	5.0	*100*	0	*76.1*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*81.66*	5.0	*100*	0	*81.7*	*48-120*	0			
Surr: 2-Fluorophenol	*74.34*	5.0	*100*	0	*74.3*	*20-120*	0			
Surr: 4-Terphenyl-d14	*87.27*	5.0	*100*	0	*87.3*	*51-135*	0			
Surr: Nitrobenzene-d5	*81.15*	5.0	*100*	0	*81.2*	*41-120*	0			
Surr: Phenol-d6	*76.4*	5.0	*100*	0	*76.4*	*20-120*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID: **SLCSW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:34**
Client ID: Run ID: **SV-3_070420A** SeqNo: **1097701** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	40.98	5.0	50	0	82	54-118	0			
2,4,5-Trichlorophenol	82.74	5.0	100	0	82.7	52-115	0			
2,4,6-Trichlorophenol	85.08	5.0	100	0	85.1	56-115	0			
2-Methylnaphthalene	43.85	5.0	50	0	87.7	46-117	0			
2-Methylphenol	81.32	5.0	100	0	81.3	53-115	0			
2-Nitroaniline	45.33	5.0	50	0	90.7	53-123	0			
2-Nitrophenol	79.93	5.0	100	0	79.9	53-115	0			
3&4-Methylphenol	118.5	5.0	150	0	79	48-115	0			
3-Nitroaniline	36.53	5.0	50	0	73.1	26-115	0			
4-Nitroaniline	41.73	5.0	50	0	83.5	47-115	0			
4-Nitrophenol	94.88	5.0	100	0	94.9	26-133	0			
Acenaphthene	43.38	5.0	50	0	86.8	57-115	0			
Acenaphthylene	45.78	5.0	50	0	91.6	57-118	0			
Aniline	32.26	5.0	50	0	64.5	36-115	0			
Anthracene	44.87	5.0	50	0	89.7	65-115	0			
Benz(a)anthracene	38.95	5.0	50	0	77.9	53-115	0			
Benzidine	15.57	5.0	50	0	31.1	10-115	0			
Hexachloroethane	41.99	5.0	50	0	84	54-115	0			
Indeno(1,2,3-cd)pyrene	42.04	5.0	50	0	84.1	51-115	0			
Isophorone	41.19	5.0	50	0	82.4	55-115	0			
N-Nitrosodi-n-propylamine	40.8	5.0	50	0	81.6	55-115	0			
N-Nitrosodimethylamine	37.08	5.0	50	0	74.2	42-115	0			
N-Nitrosodiphenylamine	44.27	5.0	50	0	88.5	52-115	0			
Naphthalene	42.77	5.0	50	0	85.5	55-115	0			
Nitrobenzene	40.53	5.0	50	0	81.1	40-124	0			
Pentachlorophenol	90.61	5.0	100	0	90.6	45-125	0			
Phenanthrene	44.33	5.0	50	0	88.7	57-115	0			
Phenol	77.82	5.0	100	0	77.8	38-115	0			
Pyrene	41.57	5.0	50	0	83.1	51-115	0			
Surr: 2,4,6-Tribromophenol	*84.37*	5.0	*100*	0	*84.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*83.81*	5.0	*100*	0	*83.8*	*48-120*	0			
Surr: 2-Fluorophenol	*76*	5.0	*100*	0	*76*	*20-120*	0			
Surr: 4-Terphenyl-d14	*78.04*	5.0	*100*	0	*78*	*51-135*	0			
Surr: Nitrobenzene-d5	*81.76*	5.0	*100*	0	*81.8*	*41-120*	0			
Surr: Phenol-d6	*79.46*	5.0	*100*	0	*79.5*	*20-120*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:58**

Client ID: Run ID: **SV-3_070420A** SeqNo: **1097702** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	42.92	5.0	50	0	85.8	54-118	40.98	4.62	20	
2,4,5-Trichlorophenol	89.79	5.0	100	0	89.8	52-115	82.74	8.17	20	
2,4,6-Trichlorophenol	89.01	5.0	100	0	89	56-115	85.08	4.52	20	
2-Methylnaphthalene	45.67	5.0	50	0	91.3	46-117	43.85	4.07	20	
2-Methylphenol	85.68	5.0	100	0	85.7	53-115	81.32	5.22	20	
2-Nitroaniline	47.16	5.0	50	0	94.3	53-123	45.33	3.98	20	
2-Nitrophenol	86.43	5.0	100	0	86.4	53-115	79.93	7.81	20	
3&4-Methylphenol	126.7	5.0	150	0	84.5	48-115	118.5	6.72	20	
3-Nitroaniline	37.83	5.0	50	0	75.7	26-115	36.53	3.49	20	
4-Nitroaniline	42.27	5.0	50	0	84.5	47-115	41.73	1.29	20	
4-Nitrophenol	94.83	5.0	100	0	94.8	26-133	94.88	0.048	20	
Acenaphthene	45.32	5.0	50	0	90.6	57-115	43.38	4.39	20	
Acenaphthylene	48.52	5.0	50	0	97	57-118	45.78	5.82	20	
Aniline	36.05	5.0	50	0	72.1	36-115	32.26	11.1	20	
Anthracene	45.5	5.0	50	0	91	65-115	44.87	1.38	20	
Benz(a)anthracene	40.58	5.0	50	0	81.2	53-115	38.95	4.11	20	
Benzidine	18.35	5.0	50	0	36.7	10-115	15.57	16.4	20	
Hexachloroethane	44.99	5.0	50	0	90	54-115	41.99	6.9	20	
Indeno(1,2,3-cd)pyrene	44	5.0	50	0	88	51-115	42.04	4.55	20	
Isophorone	42.55	5.0	50	0	85.1	55-115	41.19	3.25	20	
N-Nitrosodi-n-propylamine	43.4	5.0	50	0	86.8	55-115	40.8	6.18	20	
N-Nitrosodimethylamine	41.08	5.0	50	0	82.2	42-115	37.08	10.2	20	
N-Nitrosodiphenylamine	46.04	5.0	50	0	92.1	52-115	44.27	3.92	20	
Naphthalene	45.39	5.0	50	0	90.8	55-115	42.77	5.93	20	
Nitrobenzene	42.89	5.0	50	0	85.8	40-124	40.53	5.65	20	
Pentachlorophenol	90.27	5.0	100	0	90.3	45-125	90.61	0.378	20	
Phenanthrene	45.7	5.0	50	0	91.4	57-115	44.33	3.04	20	
Phenol	82.62	5.0	100	0	82.6	38-115	77.82	5.98	20	
Pyrene	42.88	5.0	50	0	85.8	51-115	41.57	3.09	20	
Surr: 2,4,6-Tribromophenol	*81.47*	5.0	*100*	0	*81.5*	*42-124*	84.37	*3.5*	*20*	
Surr: 2-Fluorobiphenyl	*80.25*	5.0	*100*	0	*80.2*	*48-120*	83.81	*4.34*	*20*	
Surr: 2-Fluorophenol	*75.96*	5.0	*100*	0	*76*	*20-120*	76	*0.0635*	*20*	
Surr: 4-Terphenyl-d14	*74.62*	5.0	*100*	0	*74.6*	*51-135*	78.04	*4.48*	*20*	
Surr: Nitrobenzene-d5	*80.37*	5.0	*100*	0	*80.4*	*41-120*	81.76	*1.71*	*20*	
Surr: Phenol-d6	*83.42*	5.0	*100*	0	*83.4*	*20-120*	79.46	*4.86*	*20*	

The following samples were analyzed in this batch: 0704309-01D

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-042007** Units: **µg/L** Analysis Date: **04/20/07 11:51**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096817** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*48.6*	5.0	*50*	0	*97.2*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*50.22*	5.0	*50*	0	*100*	*72-125*	0			
Surr: Dibromofluoromethane	*49.42*	5.0	*50*	0	*98.8*	*71-125*	0			
Surr: Toluene-d8	*50.95*	5.0	*50*	0	*102*	*75-125*	0			

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-042007** Units: **µg/L** Analysis Date: **04/20/07 11:00**
Client ID: Run ID: **VOA1_070420A** SeqNo: **1096816** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.57	5.0	50	0	97.1	80-120	0			
1,1,2,2-Tetrachloroethane	50.18	5.0	50	0	100	72-120	0			
1,1,2-Trichloroethane	50.68	5.0	50	0	101	80-120	0			
1,1-Dichloroethane	48.74	5.0	50	0	97.5	76-120	0			
1,1-Dichloroethene	47.27	5.0	50	0	94.5	73-124	0			
1,2-Dichloroethane	49.42	5.0	50	0	98.8	78-120	0			
2-Butanone	105.8	10	100	0	106	58-132	0			
2-Chloroethyl vinyl ether	105.8	10	100	0	106	74-120	0			
2-Hexanone	103.7	10	100	0	104	61-130	0			
4-Methyl-2-pentanone	107.1	10	100	0	107	65-127	0			
Acetone	98.11	10	100	0	98.1	59-137	0			
Benzene	48.83	5.0	50	0	97.7	73-121	0			
Bromodichloromethane	48.22	5.0	50	0	96.4	80-120	0			
Bromoform	46.52	5.0	50	0	93	79-120	0			
Bromomethane	47.32	5.0	50	0	94.6	66-137	0			
Carbon disulfide	94.62	10	100	0	94.6	68-141	0			
Carbon tetrachloride	46.42	5.0	50	0	92.8	75-124	0			
Chlorobenzene	48.72	5.0	50	0	97.4	80-120	0			
Chloroethane	47.15	5.0	50	0	94.3	76-121	0			
Chloroform	48.82	5.0	50	0	97.6	80-120	0			
Chloromethane	42.92	5.0	50	0	85.8	67-123	0			
cis-1,3-Dichloropropene	49.93	5.0	50	0	99.9	80-120	0			
Dibromochloromethane	50.55	5.0	50	0	101	80-120	0			
Ethylbenzene	48.19	5.0	50	0	96.4	80-120	0			
m,p-Xylene	95.22	10	100	0	95.2	78-121	0			
Methylene chloride	46.36	10	50	0	92.7	65-133	0			
Styrene	49.71	5.0	50	0	99.4	80-120	0			
Tetrachloroethene	47.21	5.0	50	0	94.4	79-120	0			
Toluene	47.98	5.0	50	0	96	80-120	0			
trans-1,3-Dichloropropene	50.69	5.0	50	0	101	80-120	0			
Trichloroethene	48.41	5.0	50	0	96.8	80-120	0			
Vinyl acetate	108.6	10	100	0	109	67-139	0			
Vinyl chloride	43.31	2.0	50	0	86.6	74-122	0			
Xylenes, Total	143.3	15	150	0	95.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	*50.26*	5.0	*50*	0	*101*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*51.33*	5.0	*50*	0	*103*	*72-125*	0			
Surr: Dibromofluoromethane	*50.99*	5.0	*50*	0	*102*	*71-125*	0			
Surr: Toluene-d8	*51.95*	5.0	*50*	0	*104*	*75-125*	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0704367-01AMS** Units: **µg/L** Analysis Date: **04/20/07 12:41**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096823** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.57	5.0	50	0	93.1	80-120		0		
1,1,2,2-Tetrachloroethane	51.33	5.0	50	0	103	72-120		0		
1,1,2-Trichloroethane	51.95	5.0	50	0	104	80-120		0		
1,1-Dichloroethane	48.37	5.0	50	0	96.7	76-120		0		
1,1-Dichloroethene	45.82	5.0	50	0	91.6	73-124		0		
1,2-Dichloroethane	50.11	5.0	50	0	100	78-120		0		
2-Butanone	110.2	10	100	0	110	58-132		0		
2-Chloroethyl vinyl ether	109.7	10	100	0	110	74-120		0		
2-Hexanone	111.7	10	100	0	112	61-130		0		
4-Methyl-2-pentanone	112.1	10	100	0	112	65-127		0		
Acetone	103.2	10	100	0.8797	102	59-137		0		
Benzene	47.63	5.0	50	0	95.3	73-121		0		
Bromodichloromethane	49.95	5.0	50	0	99.9	80-120		0		
Bromoform	47.58	5.0	50	0	95.2	79-120		0		
Bromomethane	43.93	5.0	50	0	87.9	66-137		0		
Carbon disulfide	90.67	10	100	0	90.7	68-141		0		
Carbon tetrachloride	44.69	5.0	50	0	89.4	75-124		0		
Chlorobenzene	47.56	5.0	50	0	95.1	80-120		0		
Chloroethane	43.04	5.0	50	0	86.1	76-121		0		
Chloroform	49.18	5.0	50	0	98.4	80-120		0		
Chloromethane	41.05	5.0	50	0	82.1	67-123		0		
cis-1,3-Dichloropropene	50.92	5.0	50	0	102	80-120		0		
Dibromochloromethane	52.39	5.0	50	0	105	80-120		0		
Ethylbenzene	46.46	5.0	50	0	92.9	80-120		0		
m,p-Xylene	94.12	10	100	0	94.1	78-121		0		
Methylene chloride	45.96	10	50	0	91.9	65-133		0		
Styrene	48.39	5.0	50	0	96.8	80-120		0		
Tetrachloroethene	45.71	5.0	50	0	91.4	79-120		0		
Toluene	46.08	5.0	50	0	92.2	80-120		0		
trans-1,3-Dichloropropene	50.97	5.0	50	0	102	80-120		0		
Trichloroethene	47.15	5.0	50	0	94.3	80-120		0		
Vinyl acetate	111.9	10	100	0	112	67-139		0		
Vinyl chloride	40.33	2.0	50	0	80.7	74-122		0		
Xylenes, Total	141	15	150	0	94	80-120		0		
Surr: 1,2-Dichloroethane-d4	*50.37*	5.0	*50*	0	*101*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*50.31*	5.0	*50*	0	*101*	*72-125*		0		
Surr: Dibromofluoromethane	*51.6*	5.0	*50*	0	*103*	*71-125*		0		
Surr: Toluene-d8	*51.99*	5.0	*50*	0	*104*	*75-125*		0		

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R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0704367-01AMSD** Units: **µg/L** Analysis Date: **04/20/07 13:06**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096824** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	43.74	5.0	50	0	87.5	80-120	46.57	6.27	20	
1,1,2,2-Tetrachloroethane	53.33	5.0	50	0	107	72-120	51.33	3.81	20	
1,1,2-Trichloroethane	52.88	5.0	50	0	106	80-120	51.95	1.78	20	
1,1-Dichloroethane	47.37	5.0	50	0	94.7	76-120	48.37	2.09	20	
1,1-Dichloroethene	42.93	5.0	50	0	85.9	73-124	45.82	6.51	20	
1,2-Dichloroethane	48.84	5.0	50	0	97.7	78-120	50.11	2.57	20	
2-Butanone	110.9	10	100	0	111	58-132	110.2	0.693	20	
2-Chloroethyl vinyl ether	111.3	10	100	0	111	74-120	109.7	1.44	20	
2-Hexanone	113	10	100	0	113	61-130	111.7	1.13	20	
4-Methyl-2-pentanone	116.9	10	100	0	117	65-127	112.1	4.23	20	
Acetone	99.56	10	100	0.8797	98.7	59-137	103.2	3.57	20	
Benzene	46.66	5.0	50	0	93.3	73-121	47.63	2.07	20	
Bromodichloromethane	50.08	5.0	50	0	100	80-120	49.95	0.258	20	
Bromoform	48.99	5.0	50	0	98	79-120	47.58	2.93	20	
Bromomethane	45.06	5.0	50	0	90.1	66-137	43.93	2.54	20	
Carbon disulfide	86.9	10	100	0	86.9	68-141	90.67	4.25	20	
Carbon tetrachloride	41.85	5.0	50	0	83.7	75-124	44.69	6.56	20	
Chlorobenzene	46.5	5.0	50	0	93	80-120	47.56	2.24	20	
Chloroethane	41.73	5.0	50	0	83.5	76-121	43.04	3.07	20	
Chloroform	48.58	5.0	50	0	97.2	80-120	49.18	1.21	20	
Chloromethane	40.89	5.0	50	0	81.8	67-123	41.05	0.403	20	
cis-1,3-Dichloropropene	50.77	5.0	50	0	102	80-120	50.92	0.297	20	
Dibromochloromethane	52.86	5.0	50	0	106	80-120	52.39	0.889	20	
Ethylbenzene	43.35	5.0	50	0	86.7	80-120	46.46	6.94	20	
m,p-Xylene	91.01	10	100	0	91	78-121	94.12	3.37	20	
Methylene chloride	46.2	10	50	0	92.4	65-133	45.96	0.53	20	
Styrene	47.29	5.0	50	0	94.6	80-120	48.39	2.29	20	
Tetrachloroethene	42.07	5.0	50	0	84.1	79-120	45.71	8.3	20	
Toluene	45.9	5.0	50	0	91.8	80-120	46.08	0.395	20	
trans-1,3-Dichloropropene	52.11	5.0	50	0	104	80-120	50.97	2.22	20	
Trichloroethene	45.17	5.0	50	0	90.3	80-120	47.15	4.29	20	
Vinyl acetate	108.9	10	100	0	109	67-139	111.9	2.66	20	
Vinyl chloride	38.59	2.0	50	0	77.2	74-122	40.33	4.41	20	
Xylenes, Total	135.2	15	150	0	90.1	80-120	141	4.21	20	
Surr: 1,2-Dichloroethane-d4	*49.77*	5.0	*50*	0	*99.5*	*70-125*	50.37	*1.18*	*20*	
Surr: 4-Bromofluorobenzene	*49.34*	5.0	*50*	0	*98.7*	*72-125*	50.31	*1.96*	*20*	
Surr: Dibromofluoromethane	*50.41*	5.0	*50*	0	*101*	*71-125*	51.6	*2.33*	*20*	
Surr: Toluene-d8	*50.95*	5.0	*50*	0	*102*	*75-125*	51.99	*2.03*	*20*	

The following samples were analyzed in this batch: 0704309-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48864** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-041707** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093574** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-041707** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093575** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1410	1.0	1413	0	99.8	80-120		0		

DUP Sample ID: **0704241-01BDUP** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093581** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	42.93	1.0	0	0	0	0-0	43.13	0.465	20	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48869** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-041707** Units: **pH units** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417G** SeqNo: **1093613** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.02	0.10	6	0	100	90-110	0			

DUP Sample ID: **0704322-01ADUP** Units: **pH units** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417G** SeqNo: **1093616** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.71	0.10	0	0	0	0-0	7.69	0.26	20	H

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48897** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094263** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094264** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	971	10	1000	0	97.1	85-115		0		

DUP Sample ID: **0704293-18CDUP** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094254** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1422	10	0	0	0	0-0	1347	5.42	20	

The following samples were analyzed in this batch: 0704309-01C

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48926** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-041807** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094851** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-041807** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094852** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1006	5.0	1000	0	101	80-120	0			

DUP Sample ID: **0704260-04FDUP** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094866** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	371.5	5.0	0	0	0	0-0	356	4.26	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	371.5	5.0	0	0	0	0-0	356	4.26	20	

The following samples were analyzed in this batch: 0704309-01C

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48945** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-041907** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095481** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID: **0704158-01EDUP** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095487** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

DUP Sample ID: **0704338-01ADUP** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095488** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
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O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48972** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-041707** Units: **mg/L** Analysis Date: **04/17/07 21:23**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096082** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Selenate (surr)	*4.803*	0.10	*5*	0	*96.1*	*85-115*		0		

LCS Sample ID: **WLCSW1-041707/** Units: **mg/L** Analysis Date: **04/17/07 21:47**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096083** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.12	0.50	20	0	101	90-110		0		
Sulfate	20.19	1.0	20	0	101	90-110		0		
Surr: Selenate (surr)	*5.152*	0.10	*5*	0	*103*	*85-115*		0		

MS Sample ID: **0704301-01FMS** Units: **mg/L** Analysis Date: **04/17/07 23:00**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096086** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	53.34	0.50	10	44.17	91.7	80-120		0		EO
Sulfate	87.46	1.0	10	78.84	86.2	80-120		0		EO
Surr: Selenate (surr)	*4.848*	0.10	*5*	0	*97*	*85-115*		0		

MSD Sample ID: **0704301-01FMSD** Units: **mg/L** Analysis Date: **04/17/07 23:25**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096087** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	53.3	0.50	10	44.17	91.3	80-120	53.34	0.0731	20	EO
Sulfate	87.29	1.0	10	78.84	84.5	80-120	87.46	0.195	20	EO
Surr: Selenate (surr)	*4.833*	0.10	*5*	0	*96.7*	*85-115*	4.848	*0.31*	*20*	

DUP Sample ID: **0704301-01FDUP** Units: **mg/L** Analysis Date: **04/17/07 22:36**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096085** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	44.13	0.50	0	0	0	0-0	44.17	0.0861	20	
Sulfate	78.82	1.0	0	0	0	0-0	78.84	0.019	20	E
Surr: Selenate (surr)	*4.843*	0.10	*5*	0	*96.9*	*85-115*	4.847	*0.0826*	*20*	

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48972** Instrument ID **ICS3000** Method: **E300**

DUP Sample ID: **0704301-01FDUP** Units: **mg/L** Analysis Date: **04/18/07 9:33**

Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096131** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	43.19	5.0	0	0	0	0-0	43.34	0.337	20	
Sulfate	76.4	10	0	0	0	0-0	76.35	0.0615	20	
Surr: Selenate (surr)	*48.09*	1.0	*50*	0	*96.2*	*85-115*	47.96	*0.273*	*20*	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
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O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab
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☐ e-Lab Analytical, Inc.
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Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

The Chain of Custody is a Legal Document. All information must be completed accurately.

☐ e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager:

e-Lab Work Order #: 0704309

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Well	A	Injection Well Quarterly
Work Order		Project Number		B	
Company Name	Navajo Refining	Bill To Company	Same	C	
Send Report To	Jeff Byrd	Invoice Attn		D	
Address		Address		E	
				F	
City/State/Zip	Artesia	City/State/Zip		G	
Phone		Phone		H	
Fax		Fax		I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Well	4/16/07	1330	L	Y	8	X										
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Jeff Byrd

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Other ☐ STD-10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour X

Results Due Date:

Relinquished by: Jeff Byrd	Date: 4/16/07	Time: 1615	Received by:	Notes:	
Relinquished by:	Date:	Time:	Received by (Laboratory): 4/17/07 08:46	e-Lab Analytical Cooler ID	Trip Blank Number
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 4/17/2007 8:40:00 AM

Work Order Number 0704309 Received by: RNG

Checklist completed by RMR 4-17-07 Reviewed by 9L 4/18/07

Signature Date Initials Date

Matrix: Liquid Carrier name: E-Lab

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.7c	002	
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

FedEx
Emp# 520550 01:01 17APR07

STANDARD OVERNIGHT

TUE

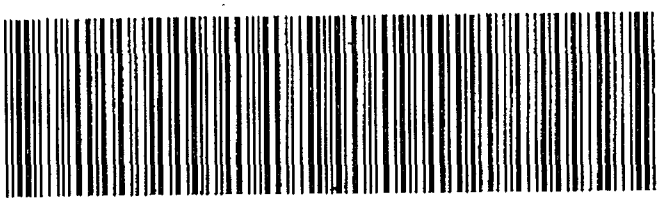
Deliver By:
17APR07

TRK# 9046 7991 1241 FORM 0201

IAH

77099 -TX-US

XH JGQA



e-Lab Analytical, Inc.
10460 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.6887

CUSTOD
Date: 4/16/07
Name:
Company:

DY SEAL
me: 1615

Seal Broken By:
Date: 4/17/07

e-Lab Analytical, Inc

Date: *April 20, 2007*

CLIENT: e-Lab Analytical, Inc
Project: 0704309
Work Order: **0704354**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0704354-01	0704309-01E	Water		4/16/2007 13:30	4/18/2007 10:00	☐

e-Lab Analytical, Inc

Date: *April 20, 2007*

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309
Lab ID: 0704354-01

Client Sample ID: 0704309-01E
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **RAR**
Cyanide, Reactive	ND	40.0		mg/Kg	1	4/18/2007
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **RAR**
Sulfide, Reactive	ND	40.0		mg/Kg	1	4/18/2007

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309

Date: *Apr 20 2007*

QC BATCH REPORT

Batch ID: **R48120** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID **WBLKW1-041707** Units: **mg/Kg** Analysis Date: **04/18/07 0:00**

Client ID: Run ID: **WETCHEM_070417P** SeqNo: **764493** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0704354-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309

QC BATCH REPORT

Batch ID: **R48121** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID **WBLKW1-041707** Units: **mg/Kg** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764522** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID **WLCSW1-041707** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764531** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	190.8	40	619	0	30.8	2.8-70	0			

LCSD Sample ID **WLCSDW1-04170** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764530** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	194.5	40	619	0	31.4	2.8-70	190.8	1.92	35	

MS Sample ID **0704315-01A MS** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764532** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	157	40	619	0	25.4	2.8-70	0			

MSD Sample ID **0704315-01A MSD** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764533** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	131	40	619	0	21.2	2.8-70	157	18.1	35	

The following samples were analyzed in this batch: 0704354-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

0704354

Subcontractor:
e-Lab Analytical, Inc.
3352 128th Ave.
Holland, MI 49424
TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

QUALITY • INTEGRITY • SERVICE

CHAIN-OF-CUSTODY RECORD

Date: Apr 17, 2007
COC ID: 4918
Due Date 4/23/2007

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	0704309	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jcroston@elabi.com	eMail CC	oelliston@elabi.com	J

Sample ID	Matrix	Collection Date	Bottle	A	B	C	D	E	F	G	H	I	J
0704309-01E (Inj. Well)	Water	4/16/2007 13:30	(1) 1LPNEAT	X	X								

Comments:

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
					Std
Relinquished by:	Date/Time	Received by:	Date/Time		
UPS	4-17-07/UPS 4/18/07 1000	UPS	4/17/07 4/18/07 1000		

e-Lab Analytical, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 4/18/2007 10:00:00 AM

Work Order Number 0704354 Received by: AJK

Checklist completed by Signature 4/18/07 Date Reviewed by Initials 4/18/07 Date

Matrix: Water Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.2 C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

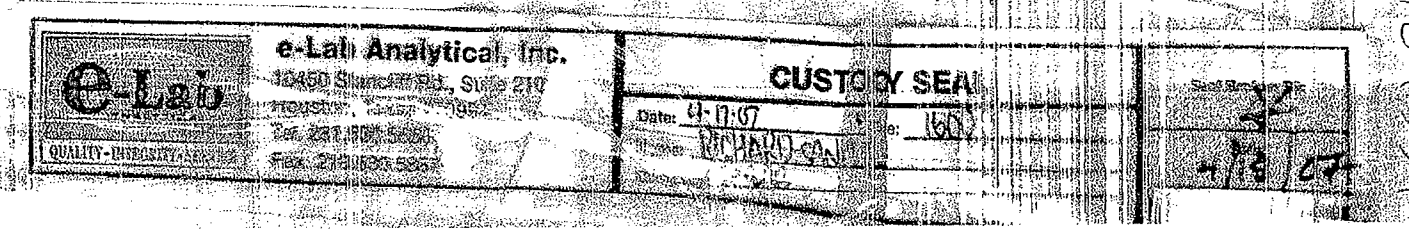
Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

UPS Next Day Air Saver
U.S. Domestic Shipping Document
WEIGHT
1 0
DIMENSIONAL WEIGHT
LARGE AIR PACKAGE
SHIPPER RELEASE
Saver
SHIPMENT FROM
UPS ACCOUNT NO.
698174
REFERENCE NUMBER
SUB
R. SANCHEZ
TELEPHONE
281-530-5656
E-LAB, INC.
10450 STANCLIFF RD STE #210
HOUSTON
TX 77099
DELIVER TO
TELEPHONE
RECEIVING
616-399-6070
E-LAB, INC.
3352 128TH AVE
HOLLAND
MI 49424
MI 495 9-04
UPS Next Day Air Saver 1P
1Z 678 17[illegible] 23 1002 7565
(URC v.48.0A 10/2005)
0201952542609 1:05 S
United Parcel Service, Louisville, KY
SHIPMENT ID NUMBER
6981 7479 [illegible]


e-Lab Analytical, Inc.
CUSTODY SEAL
Date: 4-11-07
Time:
QUALITY - INTEGRITY

0704350

OK cc. 5/17/07 Sam Gamboa

NAVAJO REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

April 16, 2006

RECEIVED

APR 19 2007

Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2006 Fourth Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the fourth quarter of 2006 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2006 to December 31, 2006. We have disposed a total of 31,360,431 barrels of fluid into the two wells as of December 31, 2006. This is broken down as follows: 21,268,940 barrels into WDW-1 and 10,091,491 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Sr. Environmental Specialist

Encl.

ccc: DGM
File; REF:ART: 4 A 02 D

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2006 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	20,500,126
Oct-06	229	353	7	242	312	125	241	349	154	8,311	10,708	4,296	257,630	20,757,756
Nov-06	279	368	36	248	298	122	267	325	130	8,491	10,221	4,189	263,211	21,020,967
Dec-06	349	402	294	233	342	129	157	232	102	7,999	11,712	4,420	247,973	21,268,940
WDW-2													**Previous Quarter**	9,745,400
Oct-06	481	500	358	94	150	0	0	0	0	3,237	5,160	0	100,352	9,845,752
Nov-06	497	500	447	109	154	0	0	0	0	3,735	5,291	0	115,797	9,961,549
Dec-06	406	500	205	122	140	69	0	0	0	4,192	4,799	2,382	129,942	10,091,491
													Total Injected fluids:	31,360,431

Page 1047 of 5828

2006 FOURTH QUARTER WEEKLY WHAMS LEVEL TABLE

	12/4/06	12/11/06	12/18/06	12/25/06
	Gallons	Gallons	Gallons	Gallons
WDW-1	300	300	300	300
WDW-2	250	250	250	250

Released to Imaging: 7/12/2024 10:49:45 AM

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 (281) 530-5656 Fax (281) 530-5887

December 29, 2006

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Wells Work Order : **0612199**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 2 samples on 12/12/2006 10:35:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 45.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Odette E. Elliston

Jeffrey L Croston
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: **0612199**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0612199-01	Injection Wells	Water		12/11/2006 13:30	12/12/2006 10:35	☐
0612199-02	Trip Blank 1338	Trip Blank		12/11/2006	12/12/2006 10:35	☑

e-Lab Analytical, Inc. **Date:** *December 29, 2006*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0612199

Case Narrative

Batch's 21185 and 21217 Metals MS/MSD were unrelated samples.

Batch's R44863 and R45027 Volatiles MS/MSD were unrelated samples.

Batch R44808 Anions (sample Injection Wells) MS/MSD recoveries were below the control limits for Sulfate (76.4% and 64.8%). Recoveries were E/O-flagged.

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **12/18/2006**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	12/18/2006 5:21:59 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **12/13/2006**	Analyst: **ALR**
Aluminum	**1.27**		**0.0100**	**mg/L**	1	12/15/2006 12:10:00 AM
Arsenic	**0.159**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Barium	**0.0250**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Beryllium	ND		0.00200	mg/L	1	12/15/2006 12:10:00 AM
Boron	**0.237**		**0.0200**	**mg/L**	1	12/19/2006 8:58:00 AM
Cadmium	ND		0.00100	mg/L	1	12/15/2006 12:10:00 AM
Calcium	**121**		**0.500**	**mg/L**	1	12/15/2006 12:10:00 AM
Chromium	**0.00234**		**0.00200**	**mg/L**	1	12/15/2006 12:10:00 AM
Cobalt	ND		0.00200	mg/L	1	12/15/2006 12:10:00 AM
Copper	**0.00417**		**0.00200**	**mg/L**	1	12/15/2006 12:10:00 AM
Iron	**0.802**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Lead	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Magnesium	**25.0**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Manganese	**0.0726**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Molybdenum	**0.0925**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Nickel	**0.0103**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Potassium	**18.8**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Selenium	**0.344**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Silver	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Sodium	**1,400**		**40.0**	**mg/L**	200	12/15/2006 4:58:00 PM
Vanadium	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Zinc	**0.159**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **12/13/2006**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2,4,5-Trichlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2,4,6-Trichlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Methylnaphthalene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Methylphenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Nitrophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
3&4-Methylphenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
3-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
4-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
4-Nitrophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Acenaphthene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Acenaphthylene	ND		10	µg/L	1	12/14/2006 5:22:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Anthracene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Benz(a)anthracene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Benzidine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Hexachloroethane	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Indeno(1,2,3-cd)pyrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Isophorone	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodi-n-propylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodimethylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodiphenylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Naphthalene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Nitrobenzene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Pentachlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Phenanthrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Phenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Pyrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Surr: 2,4,6-Tribromophenol	*69.3*		*42-124*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 2-Fluorobiphenyl	*65.2*		*48-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 2-Fluorophenol	*53.3*		*20-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 4-Terphenyl-d14	*66.0*		*51-135*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: Nitrobenzene-d5	*62.9*		*41-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: Phenol-d6	*61.1*		*20-120*	*%REC*	1	12/14/2006 5:22:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
2-Butanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	12/18/2006 7:17:00 PM
2-Hexanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Acetone	**53**		**10**	**µg/L**	1	12/18/2006 7:17:00 PM
Benzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromoform	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromomethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Carbon disulfide	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloroform	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Ethylbenzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
m,p-Xylene	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Methylene chloride	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Styrene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Toluene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Trichloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Vinyl acetate	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Vinyl chloride	ND		2.0	µg/L	1	12/18/2006 7:17:00 PM
Xylenes, Total	ND		15	µg/L	1	12/18/2006 7:17:00 PM
Surr: 1,2-Dichloroethane-d4	*107*		*70-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: 4-Bromofluorobenzene	*116*		*72.4-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: Dibromofluoromethane	*121*		*71.2-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: Toluene-d8	*123*		*75-125*	*%REC*	1	12/18/2006 7:17:00 PM
FLASHPOINT			**SW1010**			Analyst: **MAG**
Ignitability	**>180**		**50.0**	**°F**	1	12/15/2006
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	12/15/2006
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	12/15/2006
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **LMD**
Chloride	**907**		**25.0**	**mg/L**	50	12/13/2006 12:38:00 AM
Sulfate	**1,810**		**50.0**	**mg/L**	50	12/13/2006 12:38:00 AM
Surr: Selenate (surr)	*92.9*		*80-120*	*%REC*	50	12/13/2006 12:38:00 AM
ALKALINITY			**E310.1**			Analyst: **PV**
Alkalinity, Bicarbonate (As CaCO3)	**224**		**5.00**	**mg/L**	1	12/18/2006
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	12/18/2006
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	12/18/2006
Alkalinity, Total (As CaCO3)	**224**		**5.00**	**mg/L**	1	12/18/2006
CONDUCTIVITY			**E120.1**			Analyst: **RPM**
Specific Conductance	**5,800**		**1.00**	**µmhos/cm**	1	12/12/2006

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **RPM**
pH	7.32		0.100	pH units	1	12/12/2006
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	4,530		10.0	mg/L	1	12/13/2006

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-02

Client Sample ID: Trip Blank 1338
Collection Date: 12/11/2006
Matrix: TRIP BLANK

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
2-Butanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	12/13/2006 8:56:00 PM
2-Hexanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Acetone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Benzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromoform	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromomethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Carbon disulfide	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chlorobenzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloroform	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Ethylbenzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
m,p-Xylene	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Methylene chloride	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Styrene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Toluene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Trichloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Vinyl acetate	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Vinyl chloride	ND		2.0	µg/L	1	12/13/2006 8:56:00 PM
Xylenes, Total	ND		15	µg/L	1	12/13/2006 8:56:00 PM
Surr: 1,2-Dichloroethane-d4	*104*		*70-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: 4-Bromofluorobenzene	*80.6*		*72.4-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: Dibromofluoromethane	*99.8*		*71.2-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: Toluene-d8	*91.4*		*75-125*	*%REC*	1	12/13/2006 8:56:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

Date: *Dec 29 2006*

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW1-121306** Units: **mg/L** Analysis Date: **12/14/06 14:44**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014550** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	ND	0.0050								

MBLK Sample ID: **MBLKW1-121306** Units: **mg/L** Analysis Date: **12/14/06 18:48**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014885** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	0.02435	0.20								J
Selenium	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	0.00299	0.0050								J

LCS Sample ID: **MLCSW1-121306** Units: **mg/L** Analysis Date: **12/14/06 14:50**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014551** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	0.04857	0.0050	0.05	0	97.1	80-117		0		

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW1-121306** Units: **mg/L** Analysis Date: **12/14/06 18:54**

Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014886** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05627	0.010	0.05	0	113	79-126	0			
Arsenic	0.0495	0.0050	0.05	0	99	80-121	0			
Barium	0.05205	0.0050	0.05	0	104	79.8-119	0			
Beryllium	0.04927	0.0020	0.05	0	98.5	78.9-120	0			
Cadmium	0.05273	0.0020	0.05	0	105	79.1-119	0			
Calcium	5.374	0.50	5	0	107	80-121	0			
Chromium	0.05011	0.0050	0.05	0	100	79.3-121	0			
Cobalt	0.0542	0.0050	0.05	0	108	82-121	0			
Copper	0.04994	0.0050	0.05	0	99.9	81-120	0			
Iron	5.01	0.20	5	0	100	80-120	0			
Lead	0.0496	0.0050	0.05	0	99.2	80-118	0			
Magnesium	4.874	0.20	5	0	97.5	80-120	0			
Manganese	0.05128	0.0050	0.05	0	103	82-119	0			
Molybdenum	0.04974	0.0050	0.05	0	99.5	81-116	0			
Nickel	0.05207	0.0050	0.05	0	104	82-120	0			
Potassium	4.844	0.20	5	0	96.9	80-120	0			
Selenium	0.04976	0.0050	0.05	0	99.5	79.2-118	0			
Sodium	4.873	0.20	5	0	97.5	80.6-119	0			
Vanadium	0.05329	0.0050	0.05	0	107	82.1-119	0			
Zinc	0.05312	0.0050	0.05	0	106	79-118	0			

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/14/06 6:12**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014199** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05019	0.0050	0.05	0.003835	92.7	80-121	0			
Barium	0.2575	0.0050	0.05	0.2123	90.4	79.8-119	0			O
Cadmium	0.04615	0.0020	0.05	-0.0003191	92.9	79.1-119	0			
Calcium	110.8	0.50	5	102.6	164	80-121	0			SO
Chromium	0.05279	0.0050	0.05	0.002521	101	79.3-121	0			
Cobalt	0.05119	0.0050	0.05	-0.0001729	103	82-121	0			
Copper	0.06686	0.0050	0.05	0.02236	89	80-120	0			
Iron	4.641	0.20	5	0.03176	92.2	80-120	0			
Lead	0.04808	0.0050	0.05	-0.00005234	96.3	80-118	0			
Manganese	0.04835	0.0050	0.05	-0.0001617	97	82-119	0			
Molybdenum	0.04822	0.0050	0.05	0.00133	93.8	81-116	0			
Nickel	0.04771	0.0050	0.05	0.0005055	94.4	82-120	0			
Potassium	87.71	0.20	5	79.47	165	80-120	0			SO
Selenium	0.04355	0.0050	0.05	0.001252	84.6	79.2-118	0			
Silver	0.04151	0.0050	0.05	-0.0003545	83.7	80-117	0			
Sodium	1377	0.20	5	1299	1560	80.6-119	0			SEO
Vanadium	0.06184	0.0050	0.05	0.008266	107	82.1-119	0			
Zinc	0.06342	0.0050	0.05	0.01872	89.4	79-118	0			

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/14/06 22:05**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014913** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04543	0.0020	0.05	0.00003426	90.8	78.9-120	0			

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/15/06 15:39**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015920** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.0583	0.010	0.05	0.007915	101	79-126	0			
Magnesium	7.084	0.20	5	2.247	96.7	80-120	0			

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/14/06 6:42**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014202** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05268	0.0050	0.05	0.003835	97.7	80-121	0.05019	4.84	15	
Barium	0.2609	0.0050	0.05	0.2123	97.2	79.8-119	0.2575	1.31	15	O
Cadmium	0.04664	0.0020	0.05	-0.0003191	93.9	79.1-119	0.04615	1.06	15	
Calcium	111.3	0.50	5	102.6	174	80-121	110.8	0.45	15	SO
Chromium	0.05392	0.0050	0.05	0.002521	103	79.3-121	0.05279	2.12	15	
Cobalt	0.05257	0.0050	0.05	-0.0001729	105	82-121	0.05119	2.66	15	
Copper	0.06723	0.0050	0.05	0.02236	89.7	81-120	0.06686	0.552	15	
Iron	4.76	0.20	5	0.03176	94.6	80-120	4.641	2.53	15	
Lead	0.04907	0.0050	0.05	-0.00005234	98.2	80-118	0.04808	2.04	15	
Manganese	0.04982	0.0050	0.05	-0.0001617	100	82-119	0.04835	2.99	15	
Molybdenum	0.05058	0.0050	0.05	0.00133	98.5	81-116	0.04822	4.78	15	
Nickel	0.04836	0.0050	0.05	0.0005055	95.7	82-120	0.04771	1.35	15	
Potassium	88.86	0.20	5	79.47	188	80-120	87.71	1.3	15	SO
Selenium	0.04557	0.0050	0.05	0.001252	88.6	79.2-118	0.04355	4.53	15	
Silver	0.04232	0.0050	0.05	-0.0003545	85.3	80-117	0.04151	1.93	15	
Sodium	1368	0.20	5	1299	1380	80.6-119	1377	0.656	15	SEO
Vanadium	0.06322	0.0050	0.05	0.008266	110	82.1-119	0.06184	2.21	15	
Zinc	0.06534	0.0050	0.05	0.01872	93.2	79-118	0.06342	2.98	15	

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/14/06 22:11**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014914** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04628	0.0020	0.05	0.00003426	92.5	78.9-120	0.04543	1.85	15	

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/15/06 15:45**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015921** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05953	0.010	0.05	0.007915	103	79-126	0.0583	2.09	15	
Magnesium	7.342	0.20	5	2.247	102	80-120	7.084	3.58	15	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 6:00**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014197** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.003896	0.0050	0	0	0	0-0	0.003835	0	25	J
Barium	0.2164	0.0050	0	0	0	0-0	0.2123	1.91	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.0003191	0	25	
Calcium	108.1	0.50	0	0	0	0-0	102.6	5.22	25	
Chromium	0.002547	0.0050	0	0	0	0-0	0.002521	0	25	J
Cobalt	ND	0.0050	0	0	0	0-0	-0.0001729	0	25	
Copper	0.02359	0.0050	0	0	0	0-0	0.02236	5.35	25	
Iron	ND	0.20	0	0	0	0-0	0.03176	0	25	
Lead	ND	0.0050	0	0	0	0-0	-0.00005234	0	25	
Manganese	ND	0.0050	0	0	0	0-0	-0.0001617	0	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.00133	0	25	
Nickel	ND	0.0050	0	0	0	0-0	0.0005055	0	25	
Potassium	84.36	0.20	0	0	0	0-0	79.47	5.97	25	
Selenium	ND	0.0050	0	0	0	0-0	0.001252	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003545	0	25	
Vanadium	0.008473	0.0050	0	0	0	0-0	0.008266	2.47	25	
Zinc	0.01981	0.0050	0	0	0	0-0	0.01872	5.66	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 19:12**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014889** Prep Date: **12/13/2006** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	1115	20	0	0	0	0-0	1159	3.87	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 21:53**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014911** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020	0	0	0	0-0	0.00003426	0	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/15/06 15:09**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015916** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.008813	0.010	0	0	0	0-0	0.007915	0	25	J
Magnesium	2.464	0.20	0	0	0	0-0	2.247	9.21	25	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW2-121406** Units: **mg/L** Analysis Date: **12/15/06 23:07**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016132** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Boron	ND	0.020								
Selenium	ND	0.0050								
Silver	ND	0.0050								

MBLK Sample ID: **MBLKW2-121406** Units: **mg/L** Analysis Date: **12/19/06 7:35**
Client ID: Run ID: **ICPMS02_061218A** SeqNo: **1017633** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.001537	0.0050								J
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Manganese	ND	0.0050								

LCS Sample ID: **MLCSW2-121406** Units: **mg/L** Analysis Date: **12/15/06 23:13**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016133** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04677	0.0050	0.05	0	93.5	80-121	0			
Boron	0.4806	0.020	0.5	0	96.1	80-120	0			
Selenium	0.04586	0.0050	0.05	0	91.7	79.2-118	0			
Silver	0.04708	0.0050	0.05	0	94.2	80-117	0			

LCS Sample ID: **MLCSW2-121406** Units: **mg/L** Analysis Date: **12/19/06 7:41**
Client ID: Run ID: **ICPMS02_061218A** SeqNo: **1017634** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.04922	0.0050	0.05	0	98.4	79.8-119	0			
Cadmium	0.05144	0.0020	0.05	0	103	79.1-119	0			
Chromium	0.04955	0.0050	0.05	0	99.1	79.3-121	0			
Iron	4.899	0.20	5	0	98	80-120	0			
Lead	0.04956	0.0050	0.05	0	99.1	80-118	0			
Manganese	0.04994	0.0050	0.05	0	99.9	82-119	0			

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0612242-05CMS** Units: **mg/L** Analysis Date: **12/15/06 23:43**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016138** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05464	0.0050	0.05	0.004181	101	80-121	0			
Barium	0.3228	0.0050	0.05	0.2688	108	79.8-119	0			O
Boron	0.65	0.020	0.5	0.1409	102	80-120	0			
Cadmium	0.05025	0.0020	0.05	0.0001167	100	79.1-119	0			
Chromium	0.06074	0.0050	0.05	0.00971	102	79.3-121	0			
Iron	5.036	0.20	5	0.1981	96.8	80-120	0			
Lead	0.05276	0.0050	0.05	0.0009405	104	80-118	0			
Manganese	0.6335	0.0050	0.05	0.554	159	82-119	0			SO
Selenium	0.05114	0.0050	0.05	0.00048	101	79.2-118	0			
Silver	0.04824	0.0050	0.05	-0.0003112	97.1	80-117	0			

MSD Sample ID: **0612242-05CMSD** Units: **mg/L** Analysis Date: **12/15/06 23:49**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016139** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05287	0.0050	0.05	0.004181	97.4	80-121	0.05464	3.29	15	
Barium	0.307	0.0050	0.05	0.2688	76.4	79.8-119	0.3228	5.02	15	SO
Boron	0.6264	0.020	0.5	0.1409	97.1	80-120	0.65	3.7	15	
Cadmium	0.04894	0.0020	0.05	0.0001167	97.6	79.1-119	0.05025	2.64	15	
Chromium	0.05741	0.0050	0.05	0.00971	95.4	79.3-121	0.06074	5.64	15	
Iron	4.782	0.20	5	0.1981	91.7	80-120	5.036	5.17	15	
Lead	0.05067	0.0050	0.05	0.0009405	99.5	80-118	0.05276	4.04	15	
Manganese	0.5899	0.0050	0.05	0.554	71.8	82-119	0.6335	7.13	15	SO
Selenium	0.04877	0.0050	0.05	0.00048	96.6	79.2-118	0.05114	4.74	15	
Silver	0.04559	0.0050	0.05	-0.0003112	91.8	80-117	0.04824	5.65	15	

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0612242-05CDUP** Units: **mg/L** Analysis Date: **12/15/06 23:31**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016136** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.003997	0.0050	0	0	0	0-0	0.004181	0	25	J
Barium	0.257	0.0050	0	0	0	0-0	0.2688	4.49	25	
Boron	0.1321	0.020	0	0	0	0-0	0.1409	6.45	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.0001167	0	25	
Chromium	0.009143	0.0050	0	0	0	0-0	0.00971	6.01	25	
Iron	0.1797	0.20	0	0	0	0-0	0.1981	0	25	J
Lead	0.0008973	0.0050	0	0	0	0-0	0.0009405	0	25	J
Manganese	0.5385	0.0050	0	0	0	0-0	0.554	2.84	25	
Selenium	ND	0.0050	0	0	0	0-0	0.00048	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003112	0	25	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21263** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:07**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017389** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:09**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017390** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	0	101	85-115	0			

LCSD Sample ID: **GLCSDW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:11**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017391** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00527	0.00020	0.005	0	105	85-115	0.00506	4.07	20	

MS Sample ID: **0612163-01DMS** Units: **mg/L** Analysis Date: **12/18/06 17:17**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017394** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	-0.000011	101	85-115	0			

MSD Sample ID: **0612163-01DMSD** Units: **mg/L** Analysis Date: **12/18/06 17:19**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017395** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00532	0.00020	0.005	-0.000011	107	85-115	0.00506	5.01	20	

DUP Sample ID: **0612163-01DDUP** Units: **mg/L** Analysis Date: **12/18/06 17:15**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017393** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000011	0	20	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

MBLK Sample ID: **SBLKW2-061213** Units: **µg/L** Analysis Date: **12/14/06 9:34**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015216** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3&4-Methylphenol	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Surr: 2,4,6-Tribromophenol	*91.62*	10	*100*	0	*91.6*	*42-124*		0		
Surr: 2-Fluorobiphenyl	*91.9*	10	*100*	0	*91.9*	*48-120*		0		
Surr: 2-Fluorophenol	*79.87*	10	*100*	0	*79.9*	*20-120*		0		
Surr: 4-Terphenyl-d14	*94.4*	10	*100*	0	*94.4*	*51-135*		0		
Surr: Nitrobenzene-d5	*91.1*	10	*100*	0	*91.1*	*41-120*		0		
Surr: Phenol-d6	*85.53*	10	*100*	0	*85.5*	*20-120*		0		

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

LCS Sample ID: **SLCSW2-061213** Units: **µg/L** Analysis Date: **12/14/06 10:59**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015220** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	49.76	10	50	0	99.5	54-118	0			
2,4,5-Trichlorophenol	100.5	10	100	0	101	52-115	0			
2,4,6-Trichlorophenol	98.68	10	100	0	98.7	56-115	0			
2-Methylnaphthalene	48.02	10	50	0	96	46-117	0			
2-Methylphenol	88.15	10	100	0	88.2	53-115	0			
2-Nitroaniline	50.67	10	50	0	101	53-123	0			
2-Nitrophenol	96.62	10	100	0	96.6	53-115	0			
3&4-Methylphenol	131.3	10	150	0	87.5	48-115	0			
3-Nitroaniline	26.98	10	50	0	54	26-115	0			
4-Nitroaniline	47.99	10	50	0	96	47-115	0			
4-Nitrophenol	100.4	10	100	0	100	26-133	0			
Acenaphthene	50.39	10	50	0	101	57-115	0			
Acenaphthylene	50.97	10	50	0	102	57-118	0			
Aniline	27.7	10	50	0	55.4	36-115	0			
Anthracene	49.9	10	50	0	99.8	65-115	0			
Benz(a)anthracene	50.43	10	50	0	101	53-115	0			
Benzidine	16.61	10	50	0	33.2	10-115	0			
Hexachloroethane	46.18	10	50	0	92.4	54-115	0			
Indeno(1,2,3-cd)pyrene	49.6	10	50	0	99.2	51-115	0			
Isophorone	45.9	10	50	0	91.8	55-115	0			
N-Nitrosodi-n-propylamine	43.38	10	50	0	86.8	55-115	0			
N-Nitrosodimethylamine	37.69	10	50	0	75.4	42-115	0			
N-Nitrosodiphenylamine	50.13	10	50	0	100	52-115	0			
Naphthalene	47.53	10	50	0	95.1	55-115	0			
Nitrobenzene	48.39	10	50	0	96.8	40-124	0			
Pentachlorophenol	85.2	10	100	0	85.2	45-125	0			
Phenanthrene	50.15	10	50	0	100	57-115	0			
Phenol	91.85	10	100	0	91.8	38-115	0			
Pyrene	51.73	10	50	0	103	51-115	0			
Surr: 2,4,6-Tribromophenol	*99.22*	10	*100*	0	*99.2*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*90.57*	10	*100*	0	*90.6*	*48-120*	0			
Surr: 2-Fluorophenol	*87.64*	10	*100*	0	*87.6*	*20-120*	0			
Surr: 4-Terphenyl-d14	*95.5*	10	*100*	0	*95.5*	*51-135*	0			
Surr: Nitrobenzene-d5	*91.29*	10	*100*	0	*91.3*	*41-120*	0			
Surr: Phenol-d6	*90.94*	10	*100*	0	*90.9*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-061213** Units: **µg/L** Analysis Date: **12/14/06 11:24**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015222** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.01	10	50	0	86	54-118	49.76	14.5	20	
2,4,5-Trichlorophenol	89.8	10	100	0	89.8	52-115	100.5	11.3	20	
2,4,6-Trichlorophenol	92.36	10	100	0	92.4	56-115	98.68	6.62	20	
2-Methylnaphthalene	42.9	10	50	0	85.8	46-117	48.02	11.3	20	
2-Methylphenol	82.74	10	100	0	82.7	53-115	88.15	6.34	20	
2-Nitroaniline	46.15	10	50	0	92.3	53-123	50.67	9.35	20	
2-Nitrophenol	87.51	10	100	0	87.5	53-115	96.62	9.9	20	
3&4-Methylphenol	123.9	10	150	0	82.6	48-115	131.3	5.8	20	
3-Nitroaniline	24.38	10	50	0	48.8	26-115	26.98	10.1	20	
4-Nitroaniline	44.16	10	50	0	88.3	47-115	47.99	8.32	20	
4-Nitrophenol	91.73	10	100	0	91.7	26-133	100.4	9.03	20	
Acenaphthene	45.07	10	50	0	90.1	57-115	50.39	11.1	20	
Acenaphthylene	46.98	10	50	0	94	57-118	50.97	8.16	20	
Aniline	29.08	10	50	0	58.2	36-115	27.7	4.86	20	
Anthracene	43.31	10	50	0	86.6	65-115	49.9	14.1	20	
Benz(a)anthracene	44.44	10	50	0	88.9	53-115	50.43	12.6	20	
Benzidine	17.87	10	50	0	35.7	10-115	16.61	7.28	20	
Hexachloroethane	39.9	10	50	0	79.8	54-115	46.18	14.6	20	
Indeno(1,2,3-cd)pyrene	44.07	10	50	0	88.1	51-115	49.6	11.8	20	
Isophorone	39.52	10	50	0	79	55-115	45.9	14.9	20	
N-Nitrosodi-n-propylamine	41.77	10	50	0	83.5	55-115	43.38	3.8	20	
N-Nitrosodimethylamine	35.66	10	50	0	71.3	42-115	37.69	5.52	20	
N-Nitrosodiphenylamine	43.9	10	50	0	87.8	52-115	50.13	13.3	20	
Naphthalene	41.66	10	50	0	83.3	55-115	47.53	13.2	20	
Nitrobenzene	41.58	10	50	0	83.2	40-124	48.39	15.1	20	
Pentachlorophenol	83.42	10	100	0	83.4	45-125	85.2	2.11	20	
Phenanthrene	43.9	10	50	0	87.8	57-115	50.15	13.3	20	
Phenol	83.92	10	100	0	83.9	38-115	91.85	9.02	20	
Pyrene	44.47	10	50	0	88.9	51-115	51.73	15.1	20	
Surr: 2,4,6-Tribromophenol	*84.73*	10	*100*	0	*84.7*	*42-124*	99.22	*15.8*	*20*	
Surr: 2-Fluorobiphenyl	*81.48*	10	*100*	0	*81.5*	*48-120*	90.57	*10.6*	*20*	
Surr: 2-Fluorophenol	*80.36*	10	*100*	0	*80.4*	*20-120*	87.64	*8.67*	*20*	
Surr: 4-Terphenyl-d14	*81.65*	10	*100*	0	*81.6*	*51-135*	95.5	*15.6*	*20*	
Surr: Nitrobenzene-d5	*80.37*	10	*100*	0	*80.4*	*41-120*	91.29	*12.7*	*20*	
Surr: Phenol-d6	*85.36*	10	*100*	0	*85.4*	*20-120*	90.94	*6.33*	*20*	

The following samples were analyzed in this batch: 0612199-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MBLK Sample ID: **VBLKW-061213** Units: **µg/L** Analysis Date: **12/13/06 13:50**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014211** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*53.04*	5.0	*50*	0	*106*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*45.6*	5.0	*50*	0	*91.2*	*72.4-125*	0			
Surr: Dibromofluoromethane	*48.61*	5.0	*50*	0	*97.2*	*71.2-125*	0			
Surr: Toluene-d8	*45.8*	5.0	*50*	0	*91.6*	*75-125*	0			

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

LCS Sample ID: **VLCSW-061213** Units: **µg/L** Analysis Date: **12/13/06 12:58**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014210** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.96	5.0	50	0	108	79.6-120		0		
1,1,2,2-Tetrachloroethane	52.48	5.0	50	0	105	78.9-121		0		
1,1,2-Trichloroethane	51.25	5.0	50	0	103	80-120		0		
1,1-Dichloroethane	54.29	5.0	50	0	109	74.2-122		0		
1,1-Dichloroethene	55.19	5.0	50	0	110	75.8-122		0		
1,2-Dichloroethane	51.56	5.0	50	0	103	78.8-120		0		
2-Butanone	107.9	10	100	0	108	69.2-131		0		
2-Chloroethyl vinyl ether	110.7	10	100	0	111	60.6-128		0		
2-Hexanone	119	10	100	0	119	59.1-135		0		
4-Methyl-2-pentanone	115.7	10	100	0	116	71.6-124		0		
Acetone	125.8	10	100	0	126	60.1-141		0		
Benzene	51.03	5.0	50	0	102	80-120		0		
Bromodichloromethane	52.32	5.0	50	0	105	80-120		0		
Bromoform	55.1	5.0	50	0	110	78.1-120		0		
Bromomethane	50.42	5.0	50	0	101	52.8-147		0		
Carbon disulfide	110.6	10	100	0	111	78.8-120		0		
Carbon tetrachloride	46.71	5.0	50	0	93.4	76.8-120		0		
Chlorobenzene	49.19	5.0	50	0	98.4	80-120		0		
Chloroethane	55.82	5.0	50	0	112	74.2-120		0		
Chloroform	51.51	5.0	50	0	103	80-120		0		
Chloromethane	50.21	5.0	50	0	100	63.5-133		0		
cis-1,3-Dichloropropene	51.04	5.0	50	0	102	80-120		0		
Dibromochloromethane	53.73	5.0	50	0	107	80-120		0		
Ethylbenzene	53.35	5.0	50	0	107	80-120		0		
m,p-Xylene	100.4	10	100	0	100	80-120		0		
Methylene chloride	55.38	10	50	0	111	74.7-120		0		
Styrene	50.76	5.0	50	0	102	80-120		0		
Tetrachloroethene	49.54	5.0	50	0	99.1	80-120		0		
Toluene	52.61	5.0	50	0	105	80-120		0		
trans-1,3-Dichloropropene	52	5.0	50	0	104	80-120		0		
Trichloroethene	50.53	5.0	50	0	101	80-120		0		
Vinyl acetate	120	10	100	0	120	61.1-148		0		
Vinyl chloride	54.01	2.0	50	0	108	76.2-121		0		
Xylenes, Total	151.2	15	150	0	101	80-120		0		
Surr: 1,2-Dichloroethane-d4	*47.29*	5.0	*50*	0	*94.6*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*48.35*	5.0	*50*	0	*96.7*	*72.4-125*		0		
Surr: Dibromofluoromethane	*46.28*	5.0	*50*	0	*92.6*	*71.2-125*		0		
Surr: Toluene-d8	*44.74*	5.0	*50*	0	*89.5*	*75-125*		0		

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R - RPD outside accepted recovery limits
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MS Sample ID: **0612207-06AMS** Units: **µg/L** Analysis Date: **12/13/06 15:31**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014213** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.13	5.0	50	0	94.3	79.6-120	0			
1,1,2,2-Tetrachloroethane	49.71	5.0	50	0	99.4	78.9-121	0			
1,1,2-Trichloroethane	49.93	5.0	50	0	99.9	80-120	0			
1,1-Dichloroethane	49.68	5.0	50	0	99.4	74.2-122	0			
1,1-Dichloroethene	42.37	5.0	50	0	84.7	75.8-122	0			
1,2-Dichloroethane	53.32	5.0	50	0	107	78.8-120	0			
2-Butanone	89.06	10	100	0	89.1	69.2-131	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0			S
2-Hexanone	99.21	10	100	0	99.2	59.1-135	0			
4-Methyl-2-pentanone	100.2	10	100	0	100	71.6-124	0			
Acetone	105.1	10	100	0	105	60.1-141	0			
Benzene	48.83	5.0	50	0	97.7	80-120	0			
Bromodichloromethane	57.77	5.0	50	0	116	80-120	0			
Bromoform	51.22	5.0	50	0	102	78.1-120	0			
Bromomethane	31.91	5.0	50	0	63.8	52.8-147	0			
Carbon disulfide	82.89	10	100	0	82.9	78.8-120	0			
Carbon tetrachloride	40.65	5.0	50	0	81.3	76.8-120	0			
Chlorobenzene	47.12	5.0	50	0	94.2	80-120	0			
Chloroethane	47.21	5.0	50	0	94.4	74.2-120	0			
Chloroform	66.8	5.0	50	15.69	102	80-120	0			
Chloromethane	68.5	5.0	50	0	137	63.5-133	0			S
cis-1,3-Dichloropropene	49.23	5.0	50	0	98.5	80-120	0			
Dibromochloromethane	54.19	5.0	50	0	108	80-120	0			
Ethylbenzene	47.77	5.0	50	0	95.5	80-120	0			
m,p-Xylene	88.72	10	100	0	88.7	80-120	0			
Methylene chloride	51.8	10	50	0	104	74.7-120	0			
Styrene	2.286	5.0	50	0	4.57	80-120	0			JS
Tetrachloroethene	41.24	5.0	50	0	82.5	80-120	0			
Toluene	48.44	5.0	50	0	96.9	80-120	0			
trans-1,3-Dichloropropene	50.31	5.0	50	0	101	80-120	0			
Trichloroethene	47.47	5.0	50	0	94.9	80-120	0			
Vinyl acetate	93.51	10	100	0	93.5	61.1-148	0			
Vinyl chloride	42.79	2.0	50	0	85.6	76.2-121	0			
Xylenes, Total	134.1	15	150	0	89.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	*48.63*	5.0	*50*	0	*97.3*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*45.72*	5.0	*50*	0	*91.4*	*72.4-125*	0			
Surr: Dibromofluoromethane	*48.38*	5.0	*50*	0	*96.8*	*71.2-125*	0			
Surr: Toluene-d8	*44.7*	5.0	*50*	0	*89.4*	*75-125*	*0*			

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B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MSD Sample ID: **0612207-06AMSD** Units: **µg/L** Analysis Date: **12/13/06 15:56**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014214** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.53	5.0	50	0	89.1	79.6-120	47.13	5.67	20	
1,1,2,2-Tetrachloroethane	47.84	5.0	50	0	95.7	78.9-121	49.71	3.83	20	
1,1,2-Trichloroethane	47.76	5.0	50	0	95.5	80-120	49.93	4.44	20	
1,1-Dichloroethane	48.57	5.0	50	0	97.1	74.2-122	49.68	2.25	20	
1,1-Dichloroethene	42.69	5.0	50	0	85.4	75.8-122	42.37	0.752	20	
1,2-Dichloroethane	50.65	5.0	50	0	101	78.8-120	53.32	5.13	20	
2-Butanone	91.28	10	100	0	91.3	69.2-131	89.06	2.47	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0	0	20	S
2-Hexanone	100.9	10	100	0	101	59.1-135	99.21	1.67	20	
4-Methyl-2-pentanone	98.83	10	100	0	98.8	71.6-124	100.2	1.41	20	
Acetone	109.4	10	100	0	109	60.1-141	105.1	4.06	20	
Benzene	49.12	5.0	50	0	98.2	80-120	48.83	0.601	20	
Bromodichloromethane	55.5	5.0	50	0	111	80-120	57.77	4	20	
Bromoform	49.93	5.0	50	0	99.9	78.1-120	51.22	2.54	20	
Bromomethane	36.1	5.0	50	0	72.2	52.8-147	31.91	12.3	20	
Carbon disulfide	83.36	10	100	0	83.4	78.8-120	82.89	0.565	20	
Carbon tetrachloride	40.16	5.0	50	0	80.3	76.8-120	40.65	1.2	20	
Chlorobenzene	47.19	5.0	50	0	94.4	80-120	47.12	0.141	20	
Chloroethane	47.51	5.0	50	0	95	74.2-120	47.21	0.645	20	
Chloroform	63.04	5.0	50	15.69	94.7	80-120	66.8	5.79	20	
Chloromethane	68.53	5.0	50	0	137	63.5-133	68.5	0.0443	20	S
cis-1,3-Dichloropropene	48.1	5.0	50	0	96.2	80-120	49.23	2.32	20	
Dibromochloromethane	52.7	5.0	50	0	105	80-120	54.19	2.79	20	
Ethylbenzene	49.24	5.0	50	0	98.5	80-120	47.77	3.04	20	
m,p-Xylene	90.84	10	100	0	90.8	80-120	88.72	2.36	20	
Methylene chloride	51.51	10	50	0	103	74.7-120	51.8	0.573	20	
Styrene	2.426	5.0	50	0	4.85	80-120	2.286	0	20	JS
Tetrachloroethene	43.42	5.0	50	0	86.8	80-120	41.24	5.17	20	
Toluene	49.39	5.0	50	0	98.8	80-120	48.44	1.95	20	
trans-1,3-Dichloropropene	49.57	5.0	50	0	99.1	80-120	50.31	1.48	20	
Trichloroethene	47.31	5.0	50	0	94.6	80-120	47.47	0.332	20	
Vinyl acetate	90.54	10	100	0	90.5	61.1-148	93.51	3.24	20	
Vinyl chloride	42.98	2.0	50	0	86	76.2-121	42.79	0.425	20	
Xylenes, Total	137.6	15	150	0	91.7	80-120	134.1	2.57	20	
Surr: 1,2-Dichloroethane-d4	*45.53*	5.0	*50*	0	*91.1*	*70-125*	48.63	*6.6*	*20*	
Surr: 4-Bromofluorobenzene	*45.59*	5.0	*50*	0	*91.2*	*72.4-125*	45.72	*0.305*	*20*	
Surr: Dibromofluoromethane	*46.89*	5.0	*50*	0	*93.8*	*71.2-125*	48.38	*3.13*	*20*	
Surr: Toluene-d8	*43.92*	5.0	*50*	0	*87.8*	*75-125*	44.7	*1.76*	*20*	

The following samples were analyzed in this batch: 0612199-02A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-061218** Units: **µg/L** Analysis Date: **12/18/06 11:35**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017955** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*49.84*	5.0	*50*	0	*99.7*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*48.43*	5.0	*50*	0	*96.9*	*72.4-125*		0		
Surr: Dibromofluoromethane	*55.4*	5.0	*50*	0	*111*	*71.2-125*		0		
Surr: Toluene-d8	*57.8*	5.0	*50*	0	*116*	*75-125*		0		

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-061218** Units: **µg/L** Analysis Date: **12/18/06 10:40**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017953** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.59	5.0	50	0	99.2	79.6-120	0			
1,1,2,2-Tetrachloroethane	46.95	5.0	50	0	93.9	78.9-121	0			
1,1,2-Trichloroethane	51.26	5.0	50	0	103	80-120	0			
1,1-Dichloroethane	50.01	5.0	50	0	100	74.2-122	0			
1,1-Dichloroethene	53.61	5.0	50	0	107	75.8-122	0			
1,2-Dichloroethane	50.67	5.0	50	0	101	78.8-120	0			
2-Butanone	108.4	10	100	0	108	69.2-131	0			
2-Chloroethyl vinyl ether	90.4	10	100	0	90.4	60.6-128	0			
2-Hexanone	96.82	10	100	0	96.8	59.1-135	0			
4-Methyl-2-pentanone	96.74	10	100	0	96.7	71.6-124	0			
Acetone	89.55	10	100	0	89.5	60.1-141	0			
Benzene	51.45	5.0	50	0	103	80-120	0			
Bromodichloromethane	52.4	5.0	50	0	105	80-120	0			
Bromoform	48.04	5.0	50	0	96.1	78.1-120	0			
Bromomethane	51.57	5.0	50	0	103	52.8-147	0			
Carbon disulfide	108.1	10	100	0	108	78.8-120	0			
Carbon tetrachloride	48.27	5.0	50	0	96.5	76.8-120	0			
Chlorobenzene	47.1	5.0	50	0	94.2	80-120	0			
Chloroethane	51.32	5.0	50	0	103	74.2-120	0			
Chloroform	50.1	5.0	50	0	100	80-120	0			
Chloromethane	50.91	5.0	50	0	102	63.5-133	0			
cis-1,3-Dichloropropene	51.02	5.0	50	0	102	80-120	0			
Dibromochloromethane	52.41	5.0	50	0	105	80-120	0			
Ethylbenzene	45.9	5.0	50	0	91.8	80-120	0			
m,p-Xylene	100.4	10	100	0	100	80-120	0			
Methylene chloride	46.84	10	50	0	93.7	74.7-120	0			
Styrene	48.4	5.0	50	0	96.8	80-120	0			
Tetrachloroethene	48.76	5.0	50	0	97.5	80-120	0			
Toluene	49.54	5.0	50	0	99.1	80-120	0			
trans-1,3-Dichloropropene	51.89	5.0	50	0	104	80-120	0			
Trichloroethene	50.07	5.0	50	0	100	80-120	0			
Vinyl acetate	117.2	10	100	0	117	61.1-148	0			
Vinyl chloride	47.07	2.0	50	0	94.1	76.2-121	0			
Xylenes, Total	148.2	15	150	0	98.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	*53.68*	5.0	*50*	0	*107*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.89*	5.0	*50*	0	*110*	*72.4-125*	0			
Surr: Dibromofluoromethane	*56.87*	5.0	*50*	0	*114*	*71.2-125*	0			
Surr: Toluene-d8	*58.04*	5.0	*50*	0	*116*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0612221-63AMS** Units: **µg/L** Analysis Date: **12/18/06 12:56**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.74	5.0	50	0	93.5	79.6-120	0			
1,1,2,2-Tetrachloroethane	51.25	5.0	50	0	103	78.9-121	0			
1,1,2-Trichloroethane	53.81	5.0	50	0	108	80-120	0			
1,1-Dichloroethane	50.99	5.0	50	0	102	74.2-122	0			
1,1-Dichloroethene	46.61	5.0	50	0	93.2	75.8-122	0			
1,2-Dichloroethane	49.45	5.0	50	0	98.9	78.8-120	0			
2-Butanone	118.5	10	100	0	118	69.2-131	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0			S
2-Hexanone	102.1	10	100	0	102	59.1-135	0			
4-Methyl-2-pentanone	113.1	10	100	0	113	71.6-124	0			
Acetone	99.9	10	100	0	99.9	60.1-141	0			
Benzene	50.89	5.0	50	0	102	80-120	0			
Bromodichloromethane	53.44	5.0	50	0	107	80-120	0			
Bromoform	48.91	5.0	50	0	97.8	78.1-120	0			
Bromomethane	47.75	5.0	50	0	95.5	52.8-147	0			
Carbon disulfide	105.7	10	100	0	106	78.8-120	0			
Carbon tetrachloride	76.78	5.0	50	26.11	101	76.8-120	0			
Chlorobenzene	47.77	5.0	50	0	95.5	80-120	0			
Chloroethane	48.53	5.0	50	0	97.1	74.2-120	0			
Chloroform	63.44	5.0	50	7.131	113	80-120	0			
Chloromethane	50.17	5.0	50	0	100	63.5-133	0			
cis-1,3-Dichloropropene	50.82	5.0	50	0	102	80-120	0			
Dibromochloromethane	51.3	5.0	50	0	103	80-120	0			
Ethylbenzene	44.98	5.0	50	0	90	80-120	0			
m,p-Xylene	85.39	10	100	0	85.4	80-120	0			
Methylene chloride	47.78	10	50	0	95.6	74.7-120	0			
Styrene	47.68	5.0	50	0	95.4	80-120	0			
Tetrachloroethene	48.1	5.0	50	2.298	91.6	80-120	0			
Toluene	49.69	5.0	50	0	99.4	80-120	0			
trans-1,3-Dichloropropene	53.57	5.0	50	0	107	80-120	0			
Trichloroethene	113.9	5.0	50	43.84	140	80-120	0			S
Vinyl acetate	124.3	10	100	0	124	61.1-148	0			
Vinyl chloride	48.86	2.0	50	0	97.7	76.2-121	0			
Xylenes, Total	133.6	15	150	0	89.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	*55.76*	5.0	*50*	0	*112*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*53.17*	5.0	*50*	0	*106*	*72.4-125*	0			
Surr: Dibromofluoromethane	*55.85*	5.0	*50*	0	*112*	*71.2-125*	0			
Surr: Toluene-d8	*56.03*	5.0	*50*	0	*112*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0612221-63AMSD** Units: **µg/L** Analysis Date: **12/18/06 13:24**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017962** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.56	5.0	50	0	91.1	79.6-120	46.74	2.56	20	
1,1,2,2-Tetrachloroethane	55.93	5.0	50	0	112	78.9-121	51.25	8.73	20	
1,1,2-Trichloroethane	51.55	5.0	50	0	103	80-120	53.81	4.3	20	
1,1-Dichloroethane	52.46	5.0	50	0	105	74.2-122	50.99	2.85	20	
1,1-Dichloroethene	45.52	5.0	50	0	91	75.8-122	46.61	2.36	20	
1,2-Dichloroethane	50.89	5.0	50	0	102	78.8-120	49.45	2.87	20	
2-Butanone	122.1	10	100	0	122	69.2-131	118.5	2.99	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0	0	20	S
2-Hexanone	104.3	10	100	0	104	59.1-135	102.1	2.07	20	
4-Methyl-2-pentanone	109.3	10	100	0	109	71.6-124	113.1	3.41	20	
Acetone	100.5	10	100	0	100	60.1-141	99.9	0.578	20	
Benzene	50.54	5.0	50	0	101	80-120	50.89	0.682	20	
Bromodichloromethane	50.75	5.0	50	0	101	80-120	53.44	5.17	20	
Bromoform	49.36	5.0	50	0	98.7	78.1-120	48.91	0.928	20	
Bromomethane	51.95	5.0	50	0	104	52.8-147	47.75	8.42	20	
Carbon disulfide	93.83	10	100	0	93.8	78.8-120	105.7	11.9	20	
Carbon tetrachloride	67.89	5.0	50	26.11	83.6	76.8-120	76.78	12.3	20	
Chlorobenzene	44.62	5.0	50	0	89.2	80-120	47.77	6.81	20	
Chloroethane	45.72	5.0	50	0	91.4	74.2-120	48.53	5.96	20	
Chloroform	59.96	5.0	50	7.131	106	80-120	63.44	5.65	20	
Chloromethane	47.45	5.0	50	0	94.9	63.5-133	50.17	5.58	20	
cis-1,3-Dichloropropene	51.8	5.0	50	0	104	80-120	50.82	1.9	20	
Dibromochloromethane	51.93	5.0	50	0	104	80-120	51.3	1.22	20	
Ethylbenzene	45.1	5.0	50	0	90.2	80-120	44.98	0.265	20	
m,p-Xylene	83.89	10	100	0	83.9	80-120	85.39	1.77	20	
Methylene chloride	50.37	10	50	0	101	74.7-120	47.78	5.29	20	
Styrene	46.6	5.0	50	0	93.2	80-120	47.68	2.29	20	
Tetrachloroethene	46.42	5.0	50	2.298	88.2	80-120	48.1	3.54	20	
Toluene	48.96	5.0	50	0	97.9	80-120	49.69	1.47	20	
trans-1,3-Dichloropropene	50.1	5.0	50	0	100	80-120	53.57	6.7	20	
Trichloroethene	96.42	5.0	50	43.84	105	80-120	113.9	16.7	20	
Vinyl acetate	112.7	10	100	0	113	61.1-148	124.3	9.8	20	
Vinyl chloride	44.32	2.0	50	0	88.6	76.2-121	48.86	9.74	20	
Xylenes, Total	129.1	15	150	0	86.1	80-120	133.6	3.42	20	
Surr: 1,2-Dichloroethane-d4	*56.27*	5.0	*50*	0	*113*	*70-125*	55.76	*0.915*	*20*	
Surr: 4-Bromofluorobenzene	*55.09*	5.0	*50*	0	*110*	*72.4-125*	53.17	*3.54*	*20*	
Surr: Dibromofluoromethane	*57.56*	5.0	*50*	0	*115*	*71.2-125*	55.85	*3.02*	*20*	
Surr: Toluene-d8	*57.05*	5.0	*50*	0	*114*	*75-125*	56.03	*1.8*	*20*	

The following samples were analyzed in this batch: 0612199-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44782** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-121206** Units: **pH units** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212C** SeqNo: **1012683** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	90-110	0			

DUP Sample ID: **0612199-01BDUP** Units: **pH units** Analysis Date: **12/12/06 0:00**
Client ID: **Injection Wells** Run ID: **WETCHEM_061212C** SeqNo: **1012685** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.34	0.10	0	0	0	0-0	7.32	0.273	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44783** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-121206** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012794** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-121206** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012795** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1413	1.0	1413	0	100	80-120	0			

DUP Sample ID: **0612142-01CDUP** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012800** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	767.3	1.0	0	0	0	0-0	765.3	0.261	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44808** Instrument ID **IC201** Method: **E300**

MBLK Sample ID: **WBLKW1-121206** Units: **mg/L** Analysis Date: **12/12/06 20:15**
Client ID: Run ID: **IC201_061212A** SeqNo: **1013297** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Selenate (surr)	*4.903*	0.10	*5*	0	*98.1*	*85-115*		0		

LCS Sample ID: **WLCSW1-364-33-** Units: **mg/L** Analysis Date: **12/12/06 20:37**
Client ID: Run ID: **IC201_061212A** SeqNo: **1013299** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.14	0.50	20	0	101	90-110		0		
Sulfate	20.12	1.0	20	0	101	90-110		0		
Surr: Selenate (surr)	*5.006*	0.10	*5*	0	*100*	*85-115*		0		

MS Sample ID: **0612199-01BMS** Units: **mg/L** Analysis Date: **12/12/06 23:54**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013307** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1005	5.0	100	916.6	88.5	80-120		0		EO
Sulfate	1888	10	100	1812	76.4	80-120		0		SEO
Surr: Selenate (surr)	*47.8*	1.0	*50*	0	*95.6*	*80-120*		0		

MSD Sample ID: **0612199-01BMSD** Units: **mg/L** Analysis Date: **12/13/06 0:16**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013308** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1011	5.0	100	916.6	94.4	80-120	1005	0.594	20	EO
Sulfate	1877	10	100	1812	64.8	80-120	1888	0.613	20	SEO
Surr: Selenate (surr)	*47.92*	1.0	*50*	0	*95.8*	*80-120*	47.8	*0.247*	*20*	

DUP Sample ID: **0612199-01BDUP** Units: **mg/L** Analysis Date: **12/12/06 23:32**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013305** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	924.3	5.0	0	0	0	0-0	916.6	0.835	20	E
Sulfate	1808	10	0	0	0	0-0	1812	0.23	20	E
Surr: Selenate (surr)	*47.29*	1.0	*50*	0	*94.6*	*80-120*	47.18	*0.231*	*20*	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44808** Instrument ID **IC201** Method: **E300**

DUP Sample ID: **0612199-01BDUP** Units: **mg/L** Analysis Date: **12/13/06 1:00**

Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013310** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	933.2	25	0	0	0	0-0	907.3	2.82	20	
Sulfate	1816	50	0	0	0	0-0	1811	0.274	20	
Surr: Selenate (surr)	*233.6*	5.0	*250*	0	*93.5*	*80-120*	232.3	*0.586*	*20*	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44894** Instrument ID **Balance1** Method: **E160.1**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014727** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014728** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	934	10	1000	0	93.4	85-115	0			

DUP Sample ID: **0612223-01DDUP** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014710** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1658	10	0	0	0	0-0	1483	11.1	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45013** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-R45013** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017499** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-R45013** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017500** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1012	5.0	1000	0	101	80-120	0			

DUP Sample ID: **0612285-01DDUP** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017520** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	276.9	5.0	0	0	0	0-0	276.9	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	276.9	5.0	0	0	0	0-0	276.9	0	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical
QUALITY • INTEGRITY • SERVICE

10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Chain of Custody Form

Page 1 of 1

e-Lab Project Manager:

e-Lab Work Order #: 0612199

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	Injection Well Qrtly	A VOC (8260) Select
Work Order		Project Number		B Total Metals (6020/7000)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C SVOC (8270) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D Anions (300) Chloride, Sulfate
Address	PO Box 159	Address	PO Box 159	E Alkalinity
				F pH
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G Conductivity
Phone	(505) 748-3311	Phone	(505) 748-3311	H TDS
Fax	(505) 746-5421	Fax	(505) 746-5421	I RCI Profile
e-Mail Address		e-Mail Address		J

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Wells	12/11/06	1330	L	Y		X	X	X	X	X	X	X	X	X		
2	Trip blank			L	Y	2	X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Tyler Hall

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☑ Std 10 WK Days ☐ 5 WK Days ☐ Other ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by: Tyler Hall Date: 12/11/06 Time: 16:15 Received by:

Relinquished by: Date: Time: Received by (Laboratory): 12/12/06 1085

Logged by (Laboratory): Date: Time: Checked by (Laboratory):

Notes:

e-Lab Analytical Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

ote: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 12/12/2006 10:35:00 AM

Work Order Number 0612199 Received by: RSZ

Checklist completed by Signature 12/12/06 Date Reviewed by Initials 12/13/06 Date

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.5 C	002	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? Checked by

Login Notes:

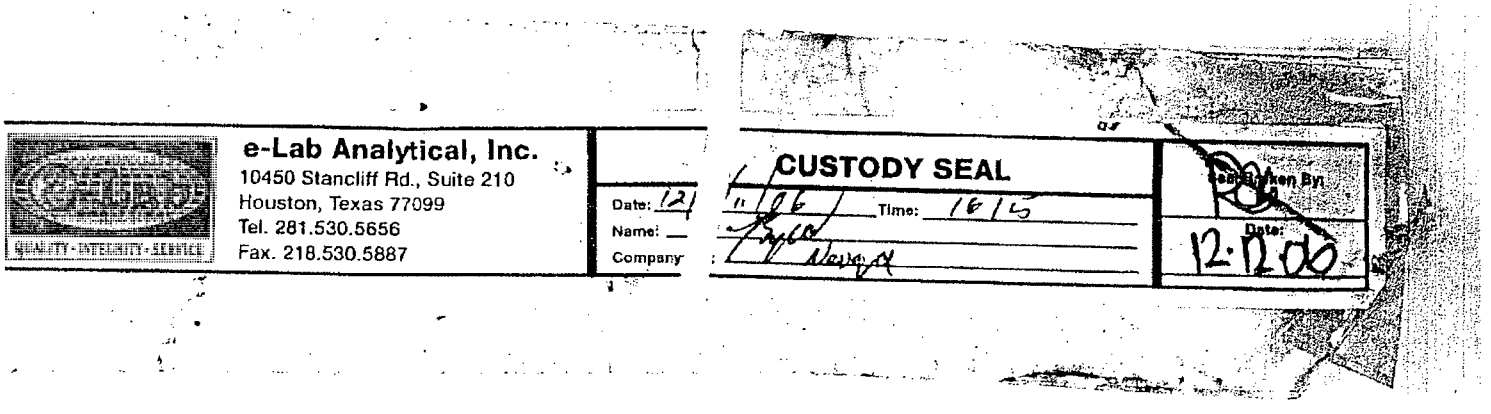
Client contacted: Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action:

062199



e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

Date: 12/
Name:
Company:

CUSTODY SEAL

Time: 1615

Date: 12.12.00

e-Lab Analytical, Inc

Date: *December 21, 2006*

CLIENT: e-Lab Analytical, Inc
Project: 0612199
Work Order: **0612274**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0612274-01	0612199-01E	Water		12/11/2006 13:30	12/13/2006 11:00	☐

e-Lab Analytical, Inc

Date: *December 21, 2006*

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199
Lab ID: 0612274-01

Client Sample ID: 0612199-01E
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **CES**
Cyanide, Reactive	ND	40.0		mg/Kg	1	12/15/2006
FLASHPOINT, P-M CLOSED-CUP			**ASTM D93**			Analyst: **CES**
Flashpoint, P-M Closed-cup	**>180**			**°F**	1	12/15/2006
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **CES**
Sulfide, Reactive	ND	40.0		mg/Kg	1	12/15/2006

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

Date: *Dec 21 2006*

QC BATCH REPORT

Batch ID: **R44830** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID **WBLKW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704189** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID **WLCSW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704190** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	293.6	40	619	0	47.4	2.8-70		0		

LCSD Sample ID **WLCSDW1-12150** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704196** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	337.7	40	619	0	54.6	2.8-70	293.6	14	35	

MS Sample ID **0612274-01A MS** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: **0612199-01E** Run ID: **WETCHEM_061215D** SeqNo: **704193** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	176.2	40	619	0	28.5	2.8-70		0		

MSD Sample ID **0612274-01A MSD** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: **0612199-01E** Run ID: **WETCHEM_061215D** SeqNo: **704194** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	205.5	40	619	0	33.2	2.8-70	176.2	15.4	35	

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

QC BATCH REPORT

Batch ID: **R44831** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID **WBLKW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**

Client ID: Run ID: **WETCHEM_061215E** SeqNo: **704197** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

QC BATCH REPORT

Batch ID: **R44839** Instrument ID **WETCHEM** Method: **ASTM D93**

LCS Sample ID **WLCSW1-121506** Units: **°F** Analysis Date: **12/15/06 0:00**

Client ID: Run ID: **WETCHEM_061215I** SeqNo: **704314** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	81	0	81	0	100	97-103		0		

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: Dec 12, 2006
COC ID: 4464
Due Date 12/22/2006

0612274

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order	2111061	Project Name	0612199	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C Flashpoint (SW1010)
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd. Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jcroston@elabi.com	eMail CC	oelliston@elabi.com	J

Sample ID	Matrix	Collection Date	Bottle	A	B	C	D	E	F	G	H	I	J
0612199-01E (Inj. Well)	Water	12/11/2006 13:30	(2) 1LPNEAT	X	X	X							

Comments

Please analyze for Reactive Cyanide, Reactive Sulfide, and Ignitability. Results needed by 12/22/06. Please email results to Jeff Croston- jcroston@elabi.com and CC: O. Elliston- oelliston@elabi.com

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
			12/13/06 1100		Std
Relinquished by:	Date/Time	Received by:	Date/Time		

e-Lab Analytical, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 12/13/2006 11:00:00 AM

Work Order Number 0612274 Received by: WJC

Checklist completed by Signature 12/13/06 Date Reviewed by Initials 12/13/06 Date

Matrix: Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.6 C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked b _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

01200
004795_P1
16594091
222 of 300

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E-LAB, INC.

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HOUSTON TX 77099

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HOLLAND MI 49424

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United Parcel Service, Louisville, KY

e-Lab

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e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

CUSTODY SEAL

Date: 12-12-20 Time: 1600

Name: RHIANNON SPRICHER

Company: E-LAB

Seal Broken By:

Date:

Page 1093 of 5828

REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
OCT 25 2004
OIL CONSERVATION DIVISION

October 21, 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2004 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2004 to September 30, 2004. We have disposed a total of 20,939,501 bbls. of fluid into the two wells as of September 30, 2004. This is broken down as follows: 14,224,878 bbls. into WDW-1 and 6,714,623 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

2004 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jul-04	146	238	102	207	263	172	238	286	192	7110	9021	5901	220,420
Aug-04	175	250	51	216	269	124	254	345	143	7411	9221	4259	229,735
Sep-04	139	154	120	190	201	175	184.9	233.2	101.4	6509	6894	6003	201,778
WDW-2													
Jul-04	156	253	110	127	169	95	441	500	320	4362	5801	3244	135,207
Aug-04	185	266	47	131	176	32	469	500	225	4497	6045	1082	139,421
Sep-04	152	170	129	121	134	103.0	440	498	242	4154	4604	3532	128,764

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5887

July 23, 2004

Darrell Moore
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5281
Fax: (505) 746-5421

Re: Injection Wells Work Order : **0407074**

Dear Darrell Moore,

e-Lab Analytical, Inc. received 2 samples on 7/8/2004 8:40:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. The total number of pages in this report is 38.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Patrina A. Dathorne

Jeffrey L Croston

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0407074

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0407074-01	Inj Wells	Water		7/7/2004 09:00	7/8/2004 08:40	☐
0407074-02	Trip Blank	Water		7/7/2004	7/8/2004 08:40	☐

e-Lab Analytical, Inc. **Date:** *July 23, 2004*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0407074

Case Narrative

Semivolatile (sample Inj. Wells) Surrogates were outside of control limits due to a matrix interference. Sample was re-extracted and re-analyzed and surrogates recoveries were confirmed.

Batch 9539 Metals MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL		**SW7470**			Prep Date: **7/17/2004**	Analyst: **JCJ**
Mercury	ND	0.000200		mg/L	1	7/17/2004 6:08:25 PM
ICP METALS, TOTAL		**SW6020**			Prep Date: **7/9/2004**	Analyst: **ALR**
Aluminum	0.556	0.100		mg/L	10	7/9/2004 10:24:00 PM
Arsenic	0.171	0.0500		mg/L	10	7/9/2004 10:24:00 PM
Barium	0.0354	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Beryllium	ND	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Boron	0.240	0.200		mg/L	10	7/9/2004 10:24:00 PM
Cadmium	ND	0.00200		mg/L	2	7/23/2004 2:11:00 PM
Calcium	216	25.0		mg/L	50	7/9/2004 9:39:00 PM
Chromium	0.00818	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Cobalt	ND	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Copper	0.00655	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Iron	4.42	0.400		mg/L	2	7/23/2004 12:23:00 AM
Lead	ND	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Magnesium	34.1	2.00		mg/L	10	7/9/2004 10:24:00 PM
Manganese	0.116	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Molybdenum	ND	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Nickel	0.0195	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Potassium	24.9	0.400		mg/L	2	7/23/2004 12:23:00 AM
Selenium	0.432	0.0500		mg/L	10	7/9/2004 10:24:00 PM
Silver	ND	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Sodium	1,580	10.0		mg/L	50	7/9/2004 9:39:00 PM
Vanadium	ND	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Zinc	0.0677	0.0100		mg/L	2	7/23/2004 12:23:00 AM
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **7/12/2004**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2,4,5-Trichlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2,4,6-Trichlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Methylnaphthalene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Methylphenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Nitrophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
3-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Methylphenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Nitrophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Acenaphthene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Acenaphthylene	ND	12		µg/L	1	7/15/2004 1:53:00 AM

Qualifiers:

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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Aniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Anthracene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Benz(a)anthracene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Benzidine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Hexachloroethane	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Indeno(1,2,3-cd)pyrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Isophorone	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodi-n-propylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodimethylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodiphenylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Naphthalene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Nitrobenzene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Pentachlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Phenanthrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Phenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Pyrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Surr: 2,4,6-Tribromophenol	28.6	39-153	S	%REC	1	7/15/2004 1:53:00 AM
Surr: 2-Fluorobiphenyl	45.7	40-147		%REC	1	7/15/2004 1:53:00 AM
Surr: 2-Fluorophenol	12.1	21-110	S	%REC	1	7/15/2004 1:53:00 AM
Surr: 4-Terphenyl-d14	40.9	39-141		%REC	1	7/15/2004 1:53:00 AM
Surr: Nitrobenzene-d5	40.8	37-140		%REC	1	7/15/2004 1:53:00 AM
Surr: Phenol-d6	7.92	11-100	S	%REC	1	7/15/2004 1:53:00 AM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
2-Butanone	16	10		µg/L	1	7/19/2004 2:58:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	7/19/2004 2:58:00 PM
2-Hexanone	ND	10		µg/L	1	7/19/2004 2:58:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Acetone	87	10		µg/L	1	7/19/2004 2:58:00 PM
Benzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromoform	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromomethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Carbon disulfide	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM

Qualifiers:
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* - Value exceeds Maximum Contaminant Level
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
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e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloroform	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Ethylbenzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
m,p-Xylene	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Methylene chloride	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Styrene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Toluene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Trichloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Vinyl acetate	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Vinyl chloride	ND	2.0		µg/L	1	7/19/2004 2:58:00 PM
Xylenes, Total	ND	15		µg/L	1	7/19/2004 2:58:00 PM
Surr: 1,2-Dichloroethane-d4	85.9	71-126		%REC	1	7/19/2004 2:58:00 PM
Surr: 4-Bromofluorobenzene	93.8	74-125		%REC	1	7/19/2004 2:58:00 PM
Surr: Dibromofluoromethane	89.3	73-126		%REC	1	7/19/2004 2:58:00 PM
Surr: Toluene-d8	89.9	75-125		%REC	1	7/19/2004 2:58:00 PM
FLASHPOINT		**SW1010**				Analyst: **MAG**
Ignitability	>200	50		°F	1	7/16/2004
CYANIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Cyanide	ND	0.0300		mg/L	1	7/16/2004
SULFIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Sulfide	ND	40.0		mg/L	1	7/16/2004
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **MG**
Chloride	992	50.0		mg/L	100	7/13/2004 3:25:00 AM
Sulfate	2,270	100		mg/L	100	7/13/2004 3:25:00 AM
Surr: Dichloroacetic acid (surr)	107	80-120		%REC	100	7/13/2004 3:25:00 AM
ALKALINITY		**E310.1**				Analyst: **HDO**
Alkalinity, Bicarbonate (As CaCO3)	157	5.00		mg/L	1	7/12/2004
Alkalinity, Carbonate (As CaCO3)	ND	5.00		mg/L	1	7/12/2004
Alkalinity, Hydroxide (As CaCO3)	ND	5.00		mg/L	1	7/12/2004
Alkalinity, Total (As CaCO3)	157	5.00		mg/L	1	7/12/2004
CONDUCTIVITY		**E120.1**				Analyst: **HDO**
Specific Conductance	7,200	1.00		µmhos/cm	1	7/12/2004

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E - Value above quantitation range
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e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **LMD**
pH	6.92	0.100		pH units	1	7/8/2004
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **LMD**
Total Dissolved Solids (Residue, Filterable)	4,960	10.0		mg/L	1	7/8/2004

Qualifiers:

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E - Value above quantitation range
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e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

Date: *Jul 23 2004*

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MBLK Sample ID: **MBLKW3-070904** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/09/04 21:25**

Client ID: Run ID: **ICP4500_040709A** SeqNo: **505844** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.003459	0.010								J
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

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O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

LCS Sample ID: **MLCSW3-070904** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/09/04 21:29**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505845** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.04844	0.010	0.05	0	96.9	79-126	0			
Arsenic	0.04766	0.0050	0.05	0	95.3	80-121	0			
Barium	0.04274	0.0050	0.05	0	85.5	79.8-119	0			
Beryllium	0.04529	0.0020	0.05	0	90.6	78.9-120	0			
Boron	0.4936	0.020	0.5	0	98.7	80-120	0			
Cadmium	0.04849	0.0020	0.05	0	97	79.1-119	0			
Calcium	4.804	0.50	5	0	96.1	80-121	0			
Chromium	0.04798	0.0050	0.05	0	96	79.3-121	0			
Cobalt	0.04761	0.0050	0.05	0	95.2	82-121	0			
Copper	0.04535	0.0050	0.05	0	90.7	83-121	0			
Iron	4.902	0.20	5	0	98	80-120	0			
Lead	0.04454	0.0050	0.05	0	89.1	80-118	0			
Magnesium	5.139	0.20	5	0	103	80-120	0			
Manganese	0.04778	0.0050	0.05	0	95.6	82-119	0			
Molybdenum	0.04486	0.0050	0.05	0	89.7	84.6-115	0			
Nickel	0.04723	0.0050	0.05	0	94.5	85-120	0			
Potassium	4.953	0.20	5	0	99.1	80-120	0			
Selenium	0.0466	0.0050	0.05	0	93.2	79.2-118	0			
Silver	0.04787	0.0050	0.05	0	95.7	83-117	0			
Sodium	5.081	0.20	5	0	102	82.4-120	0			
Vanadium	0.04735	0.0050	0.05	0	94.7	82.1-119	0			
Zinc	0.04587	0.0050	0.05	0	91.7	83-118	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MS Sample ID: **0407028-83CMS** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:14**

Client ID: Run ID: **ICP4500_040709A** SeqNo: **505874** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05038	0.010	0.05	0.002733	95.3	79-126	0			
Arsenic	0.04968	0.0050	0.05	0.003932	91.5	80-121	0			
Barium	0.07232	0.0050	0.05	0.02595	92.7	79.8-119	0			
Beryllium	0.0509	0.0020	0.05	0.0005094	101	78.9-120	0			
Boron	0.623	0.020	0.5	0.09092	106	80-120	0			
Cadmium	0.04574	0.0020	0.05	0.0003332	90.8	79.1-119	0			
Calcium	90.82	0.50	5	84.69	123	80-121	0			SEO
Chromium	0.04515	0.0050	0.05	0	90.3	79.3-121	0			
Cobalt	0.04827	0.0050	0.05	0.004039	88.5	82-121	0			
Copper	0.04228	0.0050	0.05	0.0009502	82.7	83-121	0			S
Iron	5.002	0.20	5	0.2496	95	80-120	0			
Lead	0.04748	0.0050	0.05	0	95	80-118	0			
Magnesium	28.5	0.20	5	23.83	93.4	80-120	0			O
Manganese	0.1942	0.0050	0.05	0.1499	88.6	82-119	0			
Molybdenum	0.04699	0.0050	0.05	0	94	84.6-115	0			
Nickel	0.05298	0.0050	0.05	0.01094	84.1	85-120	0			S
Potassium	7.353	0.20	5	2.353	100	80-120	0			
Selenium	0.046	0.0050	0.05	0.003609	84.8	79.2-118	0			
Silver	0.04262	0.0050	0.05	0	85.2	83-117	0			
Sodium	164.1	0.20	5	161.8	46	82.4-120	0			SEO
Vanadium	0.0482	0.0050	0.05	0.0006576	95.1	82.1-119	0			
Zinc	0.04617	0.0050	0.05	0.004682	83	83-118	0			S

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U - Analyzed for but not detected
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MSD Sample ID: **0407028-83CMSD** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:19**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505875** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05215	0.010	0.05	0.002733	98.8	79-126	0.05038	3.45	15	
Arsenic	0.04869	0.0050	0.05	0.003932	89.5	80-121	0.04968	2.01	15	
Barium	0.07266	0.0050	0.05	0.02595	93.4	79.8-119	0.07232	0.469	15	
Beryllium	0.05198	0.0020	0.05	0.0005094	103	78.9-120	0.0509	2.1	15	
Boron	0.6325	0.020	0.5	0.09092	108	80-120	0.623	1.51	15	
Cadmium	0.04625	0.0020	0.05	0.0003332	91.8	79.1-119	0.04574	1.11	15	
Calcium	93.55	0.50	5	84.69	177	80-121	90.82	2.96	15	SEO
Chromium	0.04685	0.0050	0.05	0	93.7	79.3-121	0.04515	3.7	15	
Cobalt	0.04998	0.0050	0.05	0.004039	91.9	82-121	0.04827	3.48	15	
Copper	0.04371	0.0050	0.05	0.0009502	85.5	83-121	0.04228	3.33	15	
Iron	5.13	0.20	5	0.2496	97.6	80-120	5.002	2.53	15	
Lead	0.0471	0.0050	0.05	0	94.2	80-118	0.04748	0.804	15	
Magnesium	30.14	0.20	5	23.83	126	80-120	28.5	5.59	15	SO
Manganese	0.2008	0.0050	0.05	0.1499	102	82-119	0.1942	3.34	15	
Molybdenum	0.04735	0.0050	0.05	0	94.7	84.6-115	0.04699	0.763	15	
Nickel	0.05422	0.0050	0.05	0.01094	86.6	85-120	0.05298	2.31	15	
Potassium	7.483	0.20	5	2.353	103	80-120	7.353	1.75	15	
Selenium	0.04327	0.0050	0.05	0.003609	79.3	79.2-118	0.046	6.12	15	
Silver	0.04351	0.0050	0.05	0	87	83-117	0.04262	2.07	15	
Sodium	173.9	0.20	5	161.8	242	82.4-120	164.1	5.8	15	SEO
Vanadium	0.04997	0.0050	0.05	0.0006576	98.6	82.1-119	0.0482	3.61	15	
Zinc	0.04806	0.0050	0.05	0.004682	86.8	83-118	0.04617	4.01	15	

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

DUP Sample ID: **0407028-83CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:09**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505873** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002615	0.010	0	0	0	0-0	0.002733	0	25	J
Arsenic	0.003323	0.0050	0	0	0	0-0	0.003932	0	25	J
Barium	0.026	0.0050	0	0	0	0-0	0.02595	0.192	25	
Beryllium	0.000439	0.0020	0	0	0	0-0	0.0005094	0	25	J
Boron	0.08249	0.020	0	0	0	0-0	0.09092	9.72	25	
Cadmium	0.0002675	0.0020	0	0	0	0-0	0.0003332	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0003544	0	25	
Cobalt	0.003999	0.0050	0	0	0	0-0	0.004039	0	25	J
Copper	0.001006	0.0050	0	0	0	0-0	0.0009502	0	25	J
Iron	0.2425	0.20	0	0	0	0-0	0.2496	2.89	25	
Lead	ND	0.0050	0	0	0	0-0	0.0001737	0	25	
Magnesium	22.32	0.20	0	0	0	0-0	23.83	6.54	25	
Manganese	0.1501	0.0050	0	0	0	0-0	0.1499	0.133	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.0005272	0	25	
Nickel	0.01059	0.0050	0	0	0	0-0	0.01094	3.25	25	
Potassium	2.237	0.20	0	0	0	0-0	2.353	5.05	25	
Selenium	ND	0.0050	0	0	0	0-0	0.003609	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0001129	0	25	
Vanadium	0.0005641	0.0050	0	0	0	0-0	0.0006576	0	25	J
Zinc	0.00462	0.0050	0	0	0	0-0	0.004682	0	25	J

DUP Sample ID: **0407028-83CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/12/04 20:25**
Client ID: Run ID: **ICP4500_040712A** SeqNo: **506283** Prep Date: **7/9/2004** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	85.98	5.0	0	0	0	0-0	85.98	0	25	
Sodium	175.6	2.0	0	0	0	0-0	175.6	0	25	

The following samples were analyzed in this batch: 0407074-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9641** InstrumentID: **Mercury**

MBLK Sample ID: **GBLKW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:39**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509754** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0			

LCS Sample ID: **GLCSW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:41**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509755** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00503	0.00020	0.005	0	101	83-115	0			

LCSD Sample ID: **GLCSDW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:43**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509756** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	0	101	83-115	0.00503	0.595	20	

MS Sample ID: **0407082-18CMS** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:50**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509759** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00482	0.00020	0.005	-0.000006	96.5	83-115	0			

MSD Sample ID: **0407082-18CMSD** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:51**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509760** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00484	0.00020	0.005	-0.000006	96.9	83-115	0.00482	0.414	20	

DUP Sample ID: **0407082-18CDUP** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:48**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509758** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000006	0	20	

The following samples were analyzed in this batch: 0407074-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 15:58**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507356** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	82.25	10	100	0	82.2	39-153	0			
Surr: 2-Fluorobiphenyl	78.39	10	100	0	78.4	40-147	0			
Surr: 2-Fluorophenol	33.79	10	100	0	33.8	21-110	0			
Surr: 4-Terphenyl-d14	84.32	10	100	0	84.3	39-141	0			
Surr: Nitrobenzene-d5	70.65	10	100	0	70.7	37-140	0			
Surr: Phenol-d6	18.81	10	100	0	18.8	11-100	0			

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 16:29**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507357** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	31.26	10	50	0	62.5	50-115	0			
2,4,5-Trichlorophenol	86.7	10	100	0	86.7	68-128	0			
2,4,6-Trichlorophenol	85.39	10	100	0	85.4	66-125	0			
2-Methylnaphthalene	34.79	10	50	0	69.6	47-122	0			
2-Methylphenol	61.44	10	100	0	61.4	51-115	0			
2-Nitroaniline	46.51	10	50	0	93	64-128	0			
2-Nitrophenol	76.92	10	100	0	76.9	60-119	0			
3-Nitroaniline	44.47	10	50	0	88.9	61-118	0			
4-Methylphenol	81.14	10	150	0	54.1	44-115	0			
4-Nitroaniline	44.56	10	50	0	89.1	61-123	0			
4-Nitrophenol	29.12	10	100	0	29.1	17-100	0			
Acenaphthene	40.9	10	50	0	81.8	68-115	0			
Acenaphthylene	40.88	10	50	0	81.8	67-116	0			
Aniline	32.02	10	50	0	64	40-130	0			
Anthracene	43.56	10	50	0	87.1	70-129	0			
Benz(a)anthracene	42.22	10	50	0	84.4	55-131	0			
Benzidine	30.17	10	50	0	60.3	10-115	0			
Hexachloroethane	30.87	10	50	0	61.7	46-115	0			
Indeno(1,2,3-cd)pyrene	48.4	10	50	0	96.8	42-123	0			
Isophorone	39.55	10	50	0	79.1	63-117	0			
N-Nitrosodi-n-propylamine	42.61	10	50	0	85.2	67-115	0			
N-Nitrosodimethylamine	21.15	10	50	0	42.3	28-115	0			
N-Nitrosodiphenylamine	46.31	10	50	0	92.6	72-144	0			
Naphthalene	33.4	10	50	0	66.8	52-115	0			
Nitrobenzene	38.35	10	50	0	76.7	65-115	0			
Pentachlorophenol	70.64	10	100	0	70.6	65-123	0			
Phenanthrene	41.84	10	50	0	83.7	69-119	0			
Phenol	23.79	10	100	0	23.8	16-115	0			
Pyrene	40.12	10	50	0	80.2	51-130	0			
Surr: 2,4,6-Tribromophenol	87.89	10	100	0	87.9	39-153	0			
Surr: 2-Fluorobiphenyl	82.26	10	100	0	82.3	40-147	0			
Surr: 2-Fluorophenol	40.23	10	100	0	40.2	21-110	0			
Surr: 4-Terphenyl-d14	86.41	10	100	0	86.4	39-141	0			
Surr: Nitrobenzene-d5	75.5	10	100	0	75.5	37-140	0			
Surr: Phenol-d6	23.26	10	100	0	23.3	11-100	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

LCSD Sample ID: **SLCSDW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 16:59**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507358** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	31.58	10	50	0	63.2	50-115	31.26	1.01	30	
2,4,5-Trichlorophenol	87.3	10	100	0	87.3	68-128	86.7	0.685	30	
2,4,6-Trichlorophenol	86.39	10	100	0	86.4	66-125	85.39	1.16	30	
2-Methylnaphthalene	33.56	10	50	0	67.1	47-122	34.79	3.61	30	
2-Methylphenol	60.16	10	100	0	60.2	51-115	61.44	2.11	30	
2-Nitroaniline	47.23	10	50	0	94.5	64-128	46.51	1.53	30	
2-Nitrophenol	75.92	10	100	0	75.9	60-119	76.92	1.32	30	
3-Nitroaniline	40.62	10	50	0	81.2	61-118	44.47	9.05	30	
4-Methylphenol	81.3	10	150	0	54.2	44-115	81.14	0.188	30	
4-Nitroaniline	42.15	10	50	0	84.3	61-123	44.56	5.54	30	
4-Nitrophenol	30.34	10	100	0	30.3	17-100	29.12	4.08	30	
Acenaphthene	39.88	10	50	0	79.8	68-115	40.9	2.52	30	
Acenaphthylene	39.7	10	50	0	79.4	67-116	40.88	2.93	30	
Aniline	31.01	10	50	0	62	40-130	32.02	3.2	30	
Anthracene	42.13	10	50	0	84.3	70-129	43.56	3.34	30	
Benz(a)anthracene	41.72	10	50	0	83.4	55-131	42.22	1.2	30	
Benzidine	28.39	10	50	0	56.8	10-115	30.17	6.06	30	
Hexachloroethane	29.4	10	50	0	58.8	46-115	30.87	4.89	30	
Indeno(1,2,3-cd)pyrene	44.19	10	50	0	88.4	42-123	48.4	9.1	30	
Isophorone	38.71	10	50	0	77.4	63-117	39.55	2.15	30	
N-Nitrosodi-n-propylamine	41.17	10	50	0	82.3	67-115	42.61	3.43	30	
N-Nitrosodimethylamine	22.1	10	50	0	44.2	28-115	21.15	4.41	30	
N-Nitrosodiphenylamine	44.6	10	50	0	89.2	72-144	46.31	3.77	30	
Naphthalene	32.74	10	50	0	65.5	52-115	33.4	1.99	30	
Nitrobenzene	38.2	10	50	0	76.4	65-115	38.35	0.387	30	
Pentachlorophenol	72.91	10	100	0	72.9	65-123	70.64	3.15	30	
Phenanthrene	40.12	10	50	0	80.2	69-119	41.84	4.2	30	
Phenol	24.22	10	100	0	24.2	16-115	23.79	1.79	30	
Pyrene	40.25	10	50	0	80.5	51-130	40.12	0.331	30	
Surr: 2,4,6-Tribromophenol	86.61	10	100	0	86.6	39-153	87.89	1.46	30	
Surr: 2-Fluorobiphenyl	81.97	10	100	0	82	40-147	82.26	0.35	30	
Surr: 2-Fluorophenol	39.11	10	100	0	39.1	21-110	40.23	2.82	30	
Surr: 4-Terphenyl-d14	85.17	10	100	0	85.2	39-141	86.41	1.45	30	
Surr: Nitrobenzene-d5	75.33	10	100	0	75.3	37-140	75.5	0.231	30	
Surr: Phenol-d6	23.6	10	100	0	23.6	11-100	23.26	1.46	30	

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MS Sample ID: **0407082-18DMS** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 18:00**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507360** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.77	11	53.19	0	72.9	50-115	0			
2,4,5-Trichlorophenol	91.48	11	106.4	0	86	68-128	0			
2,4,6-Trichlorophenol	92.28	11	106.4	0	86.7	66-125	0			
2-Methylnaphthalene	39.59	11	53.19	0	74.4	47-122	0			
2-Methylphenol	68.77	11	106.4	0	64.6	51-115	0			
2-Nitroaniline	49.37	11	53.19	0	92.8	64-128	0			
2-Nitrophenol	82.66	11	106.4	0	77.7	60-119	0			
3-Nitroaniline	39.84	11	53.19	0	74.9	61-118	0			
4-Methylphenol	95.14	11	159.6	0	59.6	44-115	0			
4-Nitroaniline	41.31	11	53.19	0	77.7	61-123	0			
4-Nitrophenol	36.34	11	106.4	0	34.2	17-100	0			
Acenaphthene	46.9	11	53.19	0	88.2	68-115	0			
Acenaphthylene	42.53	11	53.19	0	80	67-116	0			
Aniline	31.51	11	53.19	0	59.2	40-130	0			
Anthracene	45.14	11	53.19	0	84.9	70-129	0			
Benz(a)anthracene	44.52	11	53.19	0	83.7	55-131	0			
Benzidine	24.16	11	53.19	0	45.4	10-115	0			
Hexachloroethane	42.45	11	53.19	0	79.8	46-115	0			
Indeno(1,2,3-cd)pyrene	49.91	11	53.19	0	93.8	42-123	0			
Isophorone	41.24	11	53.19	0	77.5	63-117	0			
N-Nitrosodi-n-propylamine	46.57	11	53.19	0	87.5	67-115	0			
N-Nitrosodimethylamine	26.9	11	53.19	0	50.6	28-115	0			
N-Nitrosodiphenylamine	47.19	11	53.19	0	88.7	72-144	0			
Naphthalene	37.95	11	53.19	0	71.4	52-115	0			
Nitrobenzene	42.36	11	53.19	0	79.6	65-115	0			
Pentachlorophenol	71.64	11	106.4	0	67.3	65-123	0			
Phenanthrene	43.67	11	53.19	0	82.1	69-119	0			
Phenol	29.8	11	106.4	0	28	16-115	0			
Pyrene	41.73	11	53.19	0	78.4	51-130	0			
Surr: 2,4,6-Tribromophenol	88.29	11	106.4	0	83	39-153	0			
Surr: 2-Fluorobiphenyl	88.06	11	106.4	0	82.8	40-147	0			
Surr: 2-Fluorophenol	46.77	11	106.4	0	44	21-110	0			
Surr: 4-Terphenyl-d14	88.44	11	106.4	0	83.1	39-141	0			
Surr: Nitrobenzene-d5	81.74	11	106.4	0	76.8	37-140	0			
Surr: Phenol-d6	27.76	11	106.4	0	26.1	11-100	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MSD Sample ID: **0407082-18DMSD** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 18:30**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507361** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.35	11	53.19	0	72.1	50-115	38.77	1.09	30	
2,4,5-Trichlorophenol	95.8	11	106.4	0	90.1	68-128	91.48	4.61	30	
2,4,6-Trichlorophenol	92.06	11	106.4	0	86.5	66-125	92.28	0.244	30	
2-Methylnaphthalene	39.08	11	53.19	0	73.5	47-122	39.59	1.29	30	
2-Methylphenol	70.25	11	106.4	0	66	51-115	68.77	2.12	30	
2-Nitroaniline	48.77	11	53.19	0	91.7	64-128	49.37	1.21	30	
2-Nitrophenol	83.64	11	106.4	0	78.6	60-119	82.66	1.17	30	
3-Nitroaniline	37.37	11	53.19	0	70.3	61-118	39.84	6.4	30	
4-Methylphenol	94.8	11	159.6	0	59.4	44-115	95.14	0.358	30	
4-Nitroaniline	38.45	11	53.19	0	72.3	61-123	41.31	7.17	30	
4-Nitrophenol	36.01	11	106.4	0	33.8	17-100	36.34	0.923	30	
Acenaphthene	47.64	11	53.19	0	89.6	68-115	46.9	1.56	30	
Acenaphthylene	42.64	11	53.19	0	80.2	67-116	42.53	0.255	30	
Aniline	31.17	11	53.19	0	58.6	40-130	31.51	1.09	30	
Anthracene	45.61	11	53.19	0	85.7	70-129	45.14	1.04	30	
Benz(a)anthracene	45.17	11	53.19	0	84.9	55-131	44.52	1.46	30	
Benzidine	18.51	11	53.19	0	34.8	10-115	24.16	26.5	30	
Hexachloroethane	40.74	11	53.19	0	76.6	46-115	42.45	4.12	30	
Indeno(1,2,3-cd)pyrene	50.25	11	53.19	0	94.5	42-123	49.91	0.68	30	
Isophorone	42.87	11	53.19	0	80.6	63-117	41.24	3.88	30	
N-Nitrosodi-n-propylamine	46.44	11	53.19	0	87.3	67-115	46.57	0.281	30	
N-Nitrosodimethylamine	25.12	11	53.19	0	47.2	28-115	26.9	6.83	30	
N-Nitrosodiphenylamine	47.79	11	53.19	0	89.8	72-144	47.19	1.25	30	
Naphthalene	38.24	11	53.19	0	71.9	52-115	37.95	0.757	30	
Nitrobenzene	42.83	11	53.19	0	80.5	65-115	42.36	1.09	30	
Pentachlorophenol	81.78	11	106.4	0	76.9	65-123	71.64	13.2	30	
Phenanthrene	44.03	11	53.19	0	82.8	69-119	43.67	0.831	30	
Phenol	29.65	11	106.4	0	27.9	16-115	29.8	0.497	30	
Pyrene	42.44	11	53.19	0	79.8	51-130	41.73	1.71	30	
Surr: 2,4,6-Tribromophenol	93.87	11	106.4	0	88.2	39-153	88.29	6.12	30	
Surr: 2-Fluorobiphenyl	87.34	11	106.4	0	82.1	40-147	88.06	0.818	30	
Surr: 2-Fluorophenol	46.17	11	106.4	0	43.4	21-110	46.77	1.28	30	
Surr: 4-Terphenyl-d14	90.02	11	106.4	0	84.6	39-141	88.44	1.78	30	
Surr: Nitrobenzene-d5	80.82	11	106.4	0	76	37-140	81.74	1.14	30	
Surr: Phenol-d6	27.76	11	106.4	0	26.1	11-100	27.76	0.011	30	

The following samples were analyzed in this batch: 0407074-01D

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MBLK Sample ID: **VBLKW-0719** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 11:33**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510670** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	42.27	5.0	50	0	84.5	71-126	0			
Surr: 4-Bromofluorobenzene	43.71	5.0	50	0	87.4	74-125	0			
Surr: Dibromofluoromethane	43.99	5.0	50	0	88	73-126	0			
Surr: Toluene-d8	44.34	5.0	50	0	88.7	75-125	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

LCS Sample ID: **VLCSW-0719** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 10:42**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510669** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.5	5.0	50	0	99	75.2-120	0			
1,1,2,2-Tetrachloroethane	47.64	5.0	50	0	95.3	72.4-121	0			
1,1,2-Trichloroethane	49.05	5.0	50	0	98.1	80-120	0			
1,1-Dichloroethane	40.8	5.0	50	0	81.6	76.9-120	0			
1,1-Dichloroethene	42.24	5.0	50	0	84.5	72.6-123	0			
1,2-Dichloroethane	50.08	5.0	50	0	100	80-120	0			
2-Butanone	98.22	10	100	0	98.2	69-131	0			
2-Chloroethyl vinyl ether	99.78	10	100	0	99.8	60-135	0			
2-Hexanone	109.7	10	100	0	110	55.6-126	0			
4-Methyl-2-pentanone	105.7	10	100	0	106	67.4-121	0			
Acetone	110	10	100	0	110	64.4-140	0			
Benzene	47.36	5.0	50	0	94.7	80-120	0			
Bromodichloromethane	49.67	5.0	50	0	99.3	80-120	0			
Bromoform	52.48	5.0	50	0	105	77.9-121	0			
Bromomethane	46.73	5.0	50	0	93.5	63.3-137	0			
Carbon disulfide	81.78	10	100	0	81.8	74.1-123	0			
Carbon tetrachloride	50.26	5.0	50	0	101	74.7-120	0			
Chlorobenzene	48.77	5.0	50	0	97.5	80-120	0			
Chloroethane	46	5.0	50	0	92	74.7-126	0			
Chloroform	46.23	5.0	50	0	92.5	80-120	0			
Chloromethane	43.9	5.0	50	0	87.8	64.5-132	0			
cis-1,3-Dichloropropene	51.24	5.0	50	0	102	80-120	0			
Dibromochloromethane	50.88	5.0	50	0	102	80-120	0			
Ethylbenzene	49.39	5.0	50	0	98.8	80-120	0			
m,p-Xylene	98.82	10	100	0	98.8	80-120	0			
Methylene chloride	41.13	10	50	0	82.3	76.2-120	0			
Styrene	50.69	5.0	50	0	101	80-120	0			
Tetrachloroethene	51.64	5.0	50	0	103	68.5-130	0			
Toluene	48.46	5.0	50	0	96.9	80-120	0			
trans-1,3-Dichloropropene	52.38	5.0	50	0	105	80-120	0			
Trichloroethene	50.2	5.0	50	0	100	78.9-120	0			
Vinyl acetate	106.1	10	100	0	106	62.4-133	0			
Vinyl chloride	46.69	2.0	50	0	93.4	72.7-128	0			
Xylenes, Total	148.4	15	150	0	98.9	80-120	0			
Surr: 1,2-Dichloroethane-d4	40.65	5.0	50	0	81.3	71-126	0			
Surr: 4-Bromofluorobenzene	46.15	5.0	50	0	92.3	74-125	0			
Surr: Dibromofluoromethane	41.66	5.0	50	0	83.3	73-126	0			
Surr: Toluene-d8	45.05	5.0	50	0	90.1	75-125	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MS Sample ID: **0407154-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 14:05**

Client ID: Run ID: **VOA2_040719A** SeqNo: **510672** Prep Date: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12140	1,200	12500	0	97.1	75.2-120	0			
1,1,2,2-Tetrachloroethane	11150	1,200	12500	0	89.2	72.4-121	0			
1,1,2-Trichloroethane	12470	1,200	12500	0	99.8	80-120	0			
1,1-Dichloroethane	11610	1,200	12500	0	92.9	76.9-120	0			
1,1-Dichloroethene	9668	1,200	12500	0	77.3	72.6-123	0			
1,2-Dichloroethane	12100	1,200	12500	0	96.8	80-120	0			
2-Butanone	24170	2,500	25000	0	96.7	69-131	0			
2-Chloroethyl vinyl ether	23350	2,500	25000	0	93.4	60-135	0			
2-Hexanone	28460	2,500	25000	0	114	55.6-126	0			
4-Methyl-2-pentanone	26920	2,500	25000	0	108	67.4-121	0			
Acetone	28630	2,500	25000	0	115	64.4-140	0			
Benzene	12840	1,200	12500	1617	89.8	80-120	0			
Bromodichloromethane	12110	1,200	12500	0	96.9	80-120	0			
Bromoform	12900	1,200	12500	0	103	77.9-121	0			
Bromomethane	10540	1,200	12500	0	84.3	63.3-137	0			
Carbon disulfide	21710	2,500	25000	0	86.8	74.1-123	0			
Carbon tetrachloride	15530	1,200	12500	3701	94.7	74.7-120	0			
Chlorobenzene	17760	1,200	12500	6761	88	80-120	0			
Chloroethane	11150	1,200	12500	0	89.2	74.7-126	0			
Chloroform	27960	1,200	12500	16690	90.2	80-120	0			
Chloromethane	11340	1,200	12500	0	90.7	64.5-132	0			
cis-1,3-Dichloropropene	12280	1,200	12500	0	98.3	80-120	0			
Dibromochloromethane	12560	1,200	12500	0	101	80-120	0			
Ethylbenzene	12120	1,200	12500	0	97	80-120	0			
m,p-Xylene	24660	2,500	25000	0	98.7	80-120	0			
Methylene chloride	11050	2,500	12500	251	86.4	76.2-120	0			
Styrene	12310	1,200	12500	0	98.5	80-120	0			
Tetrachloroethene	12830	1,200	12500	307.5	100	68.5-130	0			
Toluene	11740	1,200	12500	0	93.9	80-120	0			
trans-1,3-Dichloropropene	12720	1,200	12500	0	102	80-120	0			
Trichloroethene	13050	1,200	12500	382.7	101	78.9-120	0			
Vinyl acetate	16340	2,500	25000	0	65.4	62.4-133	0			
Vinyl chloride	11910	500	12500	0	95.2	72.7-128	0			
Xylenes, Total	36910	3,800	37500	0	98.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	10910	1,200	12500	0	87.3	71-126	0			
Surr: 4-Bromofluorobenzene	12050	1,200	12500	0	96.4	74-125	0			
Surr: Dibromofluoromethane	10810	1,200	12500	0	86.5	73-126	0			
Surr: Toluene-d8	11660	1,200	12500	0	93.3	75-125	0			

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MSD Sample ID: **0407154-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 14:33**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510673** Prep Date: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12300	1,200	12500	0	98.4	75.2-120	12140	1.31	20	
1,1,2,2-Tetrachloroethane	11100	1,200	12500	0	88.8	72.4-121	11150	0.381	20	
1,1,2-Trichloroethane	12660	1,200	12500	0	101	80-120	12470	1.46	20	
1,1-Dichloroethane	10890	1,200	12500	0	87.2	76.9-120	11610	6.37	20	
1,1-Dichloroethene	10340	1,200	12500	0	82.7	72.6-123	9668	6.67	20	
1,2-Dichloroethane	12510	1,200	12500	0	100	80-120	12100	3.41	20	
2-Butanone	25510	2,500	25000	0	102	69-131	24170	5.39	20	
2-Chloroethyl vinyl ether	23900	2,500	25000	0	95.6	60-135	23350	2.29	20	
2-Hexanone	29060	2,500	25000	0	116	55.6-126	28460	2.07	20	
4-Methyl-2-pentanone	27690	2,500	25000	0	111	67.4-121	26920	2.82	20	
Acetone	28630	2,500	25000	0	115	64.4-140	28630	0.0181	20	
Benzene	13310	1,200	12500	1617	93.5	80-120	12840	3.55	20	
Bromodichloromethane	12400	1,200	12500	0	99.2	80-120	12110	2.29	20	
Bromoform	13180	1,200	12500	0	105	77.9-121	12900	2.16	20	
Bromomethane	11380	1,200	12500	0	91	63.3-137	10540	7.65	20	
Carbon disulfide	22610	2,500	25000	0	90.4	74.1-123	21710	4.08	20	
Carbon tetrachloride	16060	1,200	12500	3701	98.9	74.7-120	15530	3.35	20	
Chlorobenzene	18250	1,200	12500	6761	91.9	80-120	17760	2.71	20	
Chloroethane	11550	1,200	12500	0	92.4	74.7-126	11150	3.48	20	
Chloroform	27240	1,200	12500	16690	84.4	80-120	27960	2.59	20	
Chloromethane	11380	1,200	12500	0	91.1	64.5-132	11340	0.38	20	
cis-1,3-Dichloropropene	12670	1,200	12500	0	101	80-120	12280	3.12	20	
Dibromochloromethane	12910	1,200	12500	0	103	80-120	12560	2.71	20	
Ethylbenzene	12480	1,200	12500	0	99.8	80-120	12120	2.91	20	
m,p-Xylene	25180	2,500	25000	0	101	80-120	24660	2.07	20	
Methylene chloride	10390	2,500	12500	251	81.1	76.2-120	11050	6.19	20	
Styrene	12620	1,200	12500	0	101	80-120	12310	2.5	20	
Tetrachloroethene	13110	1,200	12500	307.5	102	68.5-130	12830	2.1	20	
Toluene	12160	1,200	12500	0	97.3	80-120	11740	3.54	20	
trans-1,3-Dichloropropene	12790	1,200	12500	0	102	80-120	12720	0.554	20	
Trichloroethene	13550	1,200	12500	382.7	105	78.9-120	13050	3.73	20	
Vinyl acetate	16770	2,500	25000	0	67.1	62.4-133	16340	2.6	20	
Vinyl chloride	11890	500	12500	0	95.1	72.7-128	11910	0.11	20	
Xylenes, Total	37950	3,800	37500	0	101	80-120	36910	2.78	20	
Surr: 1,2-Dichloroethane-d4	10830	1,200	12500	0	86.7	71-126	10910	0.714	20	
Surr: 4-Bromofluorobenzene	12050	1,200	12500	0	96.4	74-125	12050	0.0324	20	
Surr: Dibromofluoromethane	11040	1,200	12500	0	88.3	73-126	10810	2.07	20	
Surr: Toluene-d8	11800	1,200	12500	0	94.4	75-125	11660	1.17	20	

The following samples were analyzed in this batch: 0407074-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21602** InstrumentID: **WetChem**

LCS Sample ID: **WLCSW1-070804** Test Code: **E150.1** Units: **pH units** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708A** SeqNo: **504779** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.04	0.10	6	0	101	85-115	0			

DUP Sample ID: **0407074-01CDUP** Test Code: **E150.1** Units: **pH units** Analysis Date: **07/08/04 0:00**
Client ID: **Inj Wells** Run ID: **WETCHEM_040708A** SeqNo: **504783** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.91	0.10	0	0	0	0-0	6.92	0.145	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21620** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW1-070804** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505164** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **WLCSW1-070804** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505165** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1058	10	1000	0	106	80-120	0			

DUP Sample ID: **0407068-01EDUP** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505171** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	25900	10	0	0	0	0-0	25620	1.07	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21657** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW-071204** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506101** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-071204** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506102** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	980.7	5.0	0	0.9806	0	0-0	0			
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Total (As CaCO3)	980.7	5.0	1000	0	98.1	80-120	0			

DUP Sample ID: **0407076-01BDUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506130** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	421.7	5.0	0	0	0	0-0	421.7	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	421.7	5.0	0	0	0	0-0	421.7	0	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21661** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW1-071204** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712D** SeqNo: **506172** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-071204** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712D** SeqNo: **506173** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1440	1.0	1409	0	102	80-120	0			

DUP Sample ID: **0407074-01CDUP** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: **Inj Wells** Run ID: **WETCHEM_040712D** SeqNo: **506175** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	7190	1.0	0	0	0	0-0	7200	0.139	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21698** InstrumentID: **IC201**

MBLK Sample ID: **WBLKW1-071204** Test Code: **E300** Units: **mg/L** Analysis Date: **07/12/04 23:08**
Client ID: Run ID: **IC201_040712B** SeqNo: **506929** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Dichloroacetic acid (surr)	5.26	0.10	5	0	105	80-120		0		

LCS Sample ID: **WLCSW1-071204** Test Code: **E300** Units: **mg/L** Analysis Date: **07/12/04 23:37**
Client ID: Run ID: **IC201_040712B** SeqNo: **506930** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.89	0.50	10	0	98.9	80-120		0		
Sulfate	10.41	1.0	10	0	104	80-120		0		
Surr: Dichloroacetic acid (surr)	5.58	0.10	5	0	112	80-120		0		

LCSD Sample ID: **WLCSW1DUP-071** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 0:05**
Client ID: Run ID: **IC201_040712B** SeqNo: **506931** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.9	0.50	10	0	99	80-120		0		
Sulfate	10.43	1.0	10	0	104	80-120		0		
Surr: Dichloroacetic acid (surr)	5.6	0.10	5	0	112	80-120		0		

MS Sample ID: **0407016-02AMS** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:31**
Client ID: Run ID: **IC201_040712B** SeqNo: **506934** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3695	50	1000	2719	97.6	75-125		0		
Sulfate	1255	100	1000	273	98.2	75-125		0		
Surr: Dichloroacetic acid (surr)	528	10	500	0	106	80-120		0		

MSD Sample ID: **0407016-02AMSD** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:59**
Client ID: Run ID: **IC201_040712B** SeqNo: **506935** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3686	50	1000	2719	96.7	75-125	3695	0.244	20	
Sulfate	1255	100	1000	273	98.2	75-125	1255	0	20	
Surr: Dichloroacetic acid (surr)	534	10	500	0	107	80-120	528	1.13	20	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21698** InstrumentID: **IC201**

DUP Sample ID: **0407016-02ADUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:02**
Client ID: Run ID: **IC201_040712B** SeqNo: **506933** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2515	50	0	0	0	0-0	2719	7.8	20	
Sulfate	259	100	0	0	0	0-0	273	5.26	20	
Surr: Dichloroacetic acid (surr)	538	10	500	0	108	80-120	571	5.95	20	

DUP Sample ID: **0407076-04BDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 11:01**
Client ID: Run ID: **IC201_040712B** SeqNo: **506938** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	844	25	0	0	0	0-0	845.5	0.178	20	
Sulfate	2172	50	0	0	0	0-0	2174	0.115	20	
Surr: Dichloroacetic acid (surr)	279	5.0	250	0	112	80-120	284.5	1.95	20	

DUP Sample ID: **0407076-07BDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 14:49**
Client ID: Run ID: **IC201_040712B** SeqNo: **506944** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3191	0.50	0	0	0	0-0	3183	0.227	20	E
Sulfate	4941	1.0	0	0	0	0-0	4912	0.6	20	E
Surr: Dichloroacetic acid (surr)	4.38	0.10	5	0	87.6	80-120	5.6	24.4	20	R

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page _____ of _____

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 04070U

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Wells	A	VOC (8260)
Work Order		Project Number		B	SVOC (8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Tot Metals WQCC + Cations (6020)
Send Report To	Charlie Plymale	Invoice Attn	Charlie Plymale	D	Anions: Cl, SO4 (300)
Address	P.O. Box 159	Address	P.O. Box 159	E	Alkalintiy (310.1)
				F	pH
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	TDS
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	Uranium
e-Mail Address		e-Mail Address		J	RCI

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj Wells	7/7/04	900			11	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Charlie Plymale

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ STD 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☐ Other 10 Day TAT

Results Due Date:

Relinquished by:	Date: 7/7/04	Time: 1615	Received by:	Notes:
Relinquished by:	Date:	Time:	Received by (Laboratory):	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory): 04:90 7/8/04	

e-lab Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 7/8/2004 8:40:00 AM

Work Order Number 0407074 Received by: FSM

Checklist completed by RICHARD SANCHEZ 7-8-04 (Signature / Date) Reviewed by (Initials) 7/9/04 (Date)

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.0c	002	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes: Trip blank not on COC; logged in without anlaysis.

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab, Inc **Date:** *July 19, 2004*

CLIENT: e-Lab, Inc
Project: 0407074
Work Order: 0407128

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0407128-01	0407074-01E	Water		7/7/2004 09:00	7/9/2004 10:00	☐

e-Lab, Inc

Date: *July 19, 2004*

CLIENT: e-Lab, Inc
Project: 0407074
Work Order: 0407128

Lab ID: 0407128-01A
Client Sample ID: 0407074-01E
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE		**EPA 7.3.3.2**				Analyst: **KAE**
Cyanide, Reactive	ND	0.0300		mg/Kg	1	7/16/2004
FLASHPOINT, P-M CLOSED-CUP		**ASTM D93**				Analyst: **MB**
Flashpoint, P-M Closed-cup	>200			°F	1	7/16/2004
SULFIDE, REACTIVE		**EPA 7.3.4.2**				Analyst: **KAE**
Sulfide, Reactive	ND	40.0		mg/Kg	1	7/16/2004

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - *Analyte detected in the associated Method Blank*
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - *Value above quantitation range*
H - Analyzed outside of Hold Time

e-Lab, Inc

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

Date: *Jul 19 2004*

QC BATCH REPORT

Batch ID: **R22476** InstrumentID: **WETCHEM**

LCS Sample ID: **WLCSW1-071504** Test Code: **ASTM D93** Units: **°F** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716G** SeqNo: **329758** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	80	0	81	0	98.8	97.5-102.4	0			

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

QC BATCH REPORT

Batch ID: **R22479** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-071504** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716I** SeqNo: **329826** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	0.030								

LCS Sample ID: **WLCSW1-071504** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716I** SeqNo: **329827** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	4.238	0.75	19.71	0	21.5	5-100		0		

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

QC BATCH REPORT

Batch ID: **R22482** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-071604** Test Code: **EPA 7.3.4.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716L** SeqNo: **329840** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Page 1131 of 5828

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

04/07/22

CHAIN-OF-CUSTODY RECORD

Work Order: [illegible]
Page: 1 of 1
Date Printed: 7/20/2021

Client Information	Project Information	Parameters/Methods Required or Analyzed
Purchase Order:	Project Name: [illegible]	A: Chloride, Sulfate (EPA 300.0)
Work Order:	Project Number:	B: BTEX (EPA 8021B)
Company Name: [illegible]	Bill to Company: [illegible]	C: TPH (EPA 8015)
Send Report To: [illegible]	Invoice To:	D:
Address: [illegible]	Address: [illegible]	E:
City/State/Zip: [illegible]	City/State/Zip: [illegible]	F:
Phone: [illegible]	Phone: [illegible]	G:
Fax: [illegible]	Fax: [illegible]	H:
Email Address:		I:
		J:

Sample ID	Matrix	Collection Date	Bottle	A	B	C	D	E	F	G	H	I	J
[illegible]	Water	7/7/2021 9:00	1 LIN DAT	X	X	X							

Comments:

Relinquished By:	Received By:	Relinquished By:	Received By:	Verified	Special Terms
[signature]	[signature]	[signature]	[signature]		24

e-Lab, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 7/9/2004 10:00:00 AM

Work Order Number 0407128 Received by: TL

Checklist completed by [signature] 7/9/04 (Signature / Date) Reviewed by [initials] 7/9/04 (Initials / Date)

Matrix: Carrier name FedEx

Shipping container/cooler in good condition?	Yes ✔	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✔	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✔
Chain of custody present?	Yes ✔	No	
Chain of custody signed when relinquished and received?	Yes ✔	No	
Chain of custody agrees with sample labels?	Yes ✔	No	
Samples in proper container/bottle?	Yes ✔	No	
Sample containers intact?	Yes ✔	No	
Sufficient sample volume for indicated test?	Yes ✔	No	
All samples received within holding time?	Yes ✔	No	
Container/Temp Blank temperature in compliance?	Yes ✔	No	
Temperature(s)/Thermometer(s):	1.8 C		
Water - VOA vials have zero headspace?	Yes	No	No VOA vials submitted ✔
Water - pH acceptable upon receipt?	Yes ✔	No	N/A

Adjusted? Checked b

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action

ALIGN OPEN END OF FEDEX AIRBILL POUCH HERE
CUSTODY SEAL
FedEx
PRIORITY OVERNIGHT
FRI
GRR
TR
79-3 8343
49424
MI-US
XR HLMA
Holland MI 49424

Navajo REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED

MAY 0 3 2004

OIL CONSERVATION DIVISION

April 30 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2004 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2004 to March 31, 2004. We have disposed a total of 18,858,402 bbls. of fluid into the two wells as of March 31, 2004. This is broken down as follows: 12,908,972 bbls. into WDW-1 and 5,949,430 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jan-04	410	483	241	271	322	165	322	450	179	9281	11030	5641	287,699
Feb-04	313	427	160	253	299	149	65	351	0	8680	10243	5095	269,077
Mar-04	312	463	17	235	294	101	0.2	0.3	0.1	8048	10067	3477	249,489
WDW-2													
Jan-04	461	500	53	143	168	94	278	460	144	4919	5753	3212	152,491
Feb-04	236	452	0	140	249	91	369	500	196	4784	8546	3127	148,313
Mar-04	325	477	1	117	170	0.5	407	500	158	4026	5844	16	124,792

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5658 Fax 281-530-5887

January 26, 2004

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj Wells Work Order : **0401037**

Dear Jeff Byrd,

e-Lab, Inc. received 1 sample on 1/7/2004 9:25:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 36.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Patrina A. Dathorne

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Project: Inj Wells
Work Order: **0401037**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0401037-01	Inj. Wells	Water		1/6/2004 11:00	1/7/2004 09:25	☐

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT: Navajo Refining Company
Project: Inj Wells
Work Order: 0401037

Case Narrative

The analysis for Uranium was performed at American Radiation Services in Baton Rouge, LA.

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL		**SW7470**			Prep Date: **1/13/2004**	Analyst: **JCJ**
Mercury	ND	0.000200		mg/L	1	1/14/2004 4:38:03 PM
ICP METALS, TOTAL		**SW6020**			Prep Date: **1/8/2004**	Analyst: **ALR**
Aluminum	0.0929	0.0200		mg/L	2	1/9/2004 3:23:00 PM
Arsenic	0.130	0.0250		mg/L	5	1/9/2004 3:14:00 PM
Barium	0.0405	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Beryllium	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Boron	0.579	0.0400		mg/L	2	1/9/2004 3:23:00 PM
Cadmium	ND	0.00200		mg/L	2	1/9/2004 3:23:00 PM
Calcium	78.5	2.50		mg/L	5	1/9/2004 3:14:00 PM
Chromium	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Cobalt	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Copper	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Iron	0.424	0.400		mg/L	2	1/9/2004 3:23:00 PM
Lead	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Magnesium	21.2	1.00		mg/L	5	1/9/2004 3:14:00 PM
Manganese	0.0279	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Nickel	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Potassium	84.1	1.00		mg/L	5	1/9/2004 3:14:00 PM
Selenium	0.169	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Silver	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Sodium	2,280	40.0		mg/L	200	1/14/2004 1:00:00 PM
Vanadium	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Zinc	0.0357	0.0100		mg/L	2	1/9/2004 3:23:00 PM
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **1/8/2004**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Methylnaphthalene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Methylphenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Nitrophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
3-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Methylphenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Nitrophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Acenaphthene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Acenaphthylene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Aniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Anthracene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Benz(a)anthracene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Benzidine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Hexachloroethane	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Isophorone	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodimethylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Naphthalene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Nitrobenzene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Pentachlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Phenanthrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Phenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Pyrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Surr: 2,4,6-Tribromophenol	84.1	39-153		%REC	1	1/10/2004 1:04:00 AM
Surr: 2-Fluorobiphenyl	69.6	40-147		%REC	1	1/10/2004 1:04:00 AM
Surr: 2-Fluorophenol	29.1	21-100		%REC	1	1/10/2004 1:04:00 AM
Surr: 4-Terphenyl-d14	65.8	39-141		%REC	1	1/10/2004 1:04:00 AM
Surr: Nitrobenzene-d5	76.6	37-140		%REC	1	1/10/2004 1:04:00 AM
Surr: Phenol-d6	17.0	11-100		%REC	1	1/10/2004 1:04:00 AM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
2-Butanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	1/13/2004 7:54:00 PM
2-Hexanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Acetone	17	10		µg/L	1	1/13/2004 7:54:00 PM
Benzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromoform	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromomethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Carbon disulfide	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chlorobenzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Chloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chloroform	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Ethylbenzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
m,p-Xylene	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Methylene chloride	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Styrene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Toluene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Trichloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Vinyl acetate	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Vinyl chloride	ND	2.0		µg/L	1	1/13/2004 7:54:00 PM
Xylenes, Total	ND	15		µg/L	1	1/13/2004 7:54:00 PM
Surr: 1,2-Dichloroethane-d4	93.7	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: Dibromofluoromethane	93.4	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: Toluene-d8	89.3	70-130		%REC	1	1/13/2004 7:54:00 PM
FLASHPOINT		**SW1010**				Analyst: **MAG**
Ignitability	>200	50		°F	1	1/8/2004
CYANIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Cyanide	ND	0.0300		mg/L	1	1/13/2004
SULFIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Sulfide	ND	40.0		mg/L	1	1/12/2004
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **MG**
Chloride	2,440	50.0		mg/L	100	1/13/2004 12:02:00 PM
Sulfate	1,710	100		mg/L	100	1/13/2004 12:02:00 PM
Surr: Dichloroacetic acid (surr)	115	80-120		%REC	100	1/13/2004 12:02:00 PM
ALKALINITY		**E310.1**				Analyst: **LMD**
Alkalinity, Bicarbonate (As CaCO3)	290	5.00		mg/L	1	1/7/2004
Alkalinity, Carbonate (As CaCO3)	ND	5.00		mg/L	1	1/7/2004
Alkalinity, Hydroxide (As CaCO3)	ND	5.00		mg/L	1	1/7/2004
Alkalinity, Total (As CaCO3)	290	5.00		mg/L	1	1/7/2004
CONDUCTIVITY		**E120.1**				Analyst: **LMD**
Specific Conductance	9,120	1.00		µmhos/cm	1	1/13/2004

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT:	Navajo Refining Company	**Client Sample ID:**	Inj. Wells
Work Order:	0401037	**Collection Date:**	1/6/2004 11:00:00 AM
Project:	Inj Wells		
Lab ID:	0401037-01	**Matrix:**	WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **LMD**
pH	8.43	0.100		pH units	1	1/7/2004
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **JBA**
Total Dissolved Solids (Residue, Filterable)	6,070	10.0		mg/L	1	1/9/2004

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	P - Dual Column results percent difference > 40%
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Jan 26 2004*

CLIENT: Navajo Refining Company

Work Order: 0401037

Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MBLK Sample ID: **MBLKW2-010804** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 13:47**

Client ID: Run ID: **ICP4500_040109A** SeqNo: **415496** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0010								
Calcium	ND	0.50								
Chromium	ND	0.0020								
Cobalt	ND	0.0020								
Copper	ND	0.0020								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	0.001716	0.0050								J

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

LCS Sample ID: **MLCSW2-010804** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 13:51**
Client ID: Run ID: **ICP4500_040109A** SeqNo: **415497** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05256	0.010	0.05	0	105	80-120	0			
Arsenic	0.05054	0.0050	0.05	0	101	80-120	0			
Barium	0.04876	0.0050	0.05	0	97.5	80-120	0			
Beryllium	0.0475	0.0020	0.05	0	95	80-120	0			
Boron	0.4771	0.020	0.5	0	95.4	80-120	0			
Cadmium	0.0518	0.0010	0.05	0	104	80-120	0			
Calcium	4.894	0.50	5	0	97.9	80-120	0			
Chromium	0.05086	0.0020	0.05	0	102	80-120	0			
Cobalt	0.05016	0.0020	0.05	0	100	80-120	0			
Copper	0.04837	0.0020	0.05	0	96.7	80-120	0			
Iron	4.695	0.20	5	0	93.9	80-120	0			
Lead	0.04803	0.0050	0.05	0	96.1	80-120	0			
Magnesium	5.03	0.20	5	0	101	80-120	0			
Manganese	0.05203	0.0050	0.05	0	104	80-120	0			
Nickel	0.05031	0.0050	0.05	0	101	80-120	0			
Potassium	5.001	0.20	5	0	100	80-120	0			
Selenium	0.04876	0.0050	0.05	0	97.5	80-120	0			
Silver	0.04905	0.0050	0.05	0	98.1	80-120	0			
Sodium	4.934	0.20	5	0	98.7	80-120	0			
Vanadium	0.05047	0.0050	0.05	0	101	80-120	0			
Zinc	0.04962	0.0050	0.05	0	99.2	80-120	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MS Sample ID: **0401037-01CMS** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:41**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415583** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1386	0.020	0.05	0.09293	91.3	75-125	0			
Arsenic	0.1628	0.010	0.05	0.1222	81.2	75-125	0			
Barium	0.0922	0.010	0.05	0.04055	103	75-125	0			
Beryllium	0.054	0.0040	0.05	0	108	75-125	0			
Boron	1.149	0.040	0.5	0.5787	114	75-125	0			
Cadmium	0.04433	0.0020	0.05	0	88.7	75-125	0			
Calcium	76.14	1.0	5	73.6	50.8	75-125	0			SO
Chromium	0.05061	0.0040	0.05	0.002633	96	75-125	0			
Cobalt	0.04941	0.0040	0.05	0.002671	93.5	75-125	0			
Copper	0.0442	0.0040	0.05	0.003364	81.7	75-125	0			
Iron	4.765	0.40	5	0.4238	86.8	75-125	0			
Lead	0.05518	0.010	0.05	0	110	75-125	0			
Magnesium	23.02	0.40	5	19.15	77.4	75-125	0			
Manganese	0.07355	0.010	0.05	0.02789	91.3	75-125	0			
Nickel	0.05067	0.010	0.05	0.008268	84.8	75-125	0			
Potassium	85.96	0.40	5	82.03	78.6	75-125	0			O
Selenium	0.1903	0.010	0.05	0.1686	43.4	75-125	0			S
Silver	0.04085	0.010	0.05	0.0006825	80.3	75-125	0			
Sodium	400	0.40	5	400	0	75-125	0			SEO
Vanadium	0.05781	0.010	0.05	0.007067	101	75-125	0			
Zinc	0.07138	0.010	0.05	0.03574	71.3	75-125	0			S

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MSD Sample ID: **0401037-01CMSD** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:46**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415584** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1337	0.020	0.05	0.09293	81.5	75-125	0.1386	3.6	25	
Arsenic	0.1586	0.010	0.05	0.1222	72.8	75-125	0.1628	2.61	25	S
Barium	0.08998	0.010	0.05	0.04055	98.9	75-125	0.0922	2.44	25	
Beryllium	0.0523	0.0040	0.05	0	105	75-125	0.054	3.2	25	
Boron	1.11	0.040	0.5	0.5787	106	75-125	1.149	3.45	25	
Cadmium	0.0431	0.0020	0.05	0	86.2	75-125	0.04433	2.81	25	
Calcium	74.74	1.0	5	73.6	22.6	75-125	76.14	1.86	25	SO
Chromium	0.05029	0.0040	0.05	0.002633	95.3	75-125	0.05061	0.634	25	
Cobalt	0.04901	0.0040	0.05	0.002671	92.7	75-125	0.04941	0.813	25	
Copper	0.04405	0.0040	0.05	0.003364	81.4	75-125	0.0442	0.34	25	
Iron	4.732	0.40	5	0.4238	86.2	75-125	4.765	0.695	25	
Lead	0.05415	0.010	0.05	0	108	75-125	0.05518	1.88	25	
Magnesium	22.37	0.40	5	19.15	64.4	75-125	23.02	2.86	25	S
Manganese	0.07227	0.010	0.05	0.02789	68.8	75-125	0.07355	1.76	25	
Nickel	0.05102	0.010	0.05	0.008268	85.5	75-125	0.05067	0.688	25	
Potassium	81.97	0.40	5	82.03	-1.2	75-125	85.96	4.75	25	SO
Selenium	0.179	0.010	0.05	0.1686	20.8	75-125	0.1903	6.12	25	S
Silver	0.03939	0.010	0.05	0.0006825	77.4	75-125	0.04085	3.64	25	
Sodium	400	0.40	5	400	0	75-125	400	0	25	SEO
Vanadium	0.0578	0.010	0.05	0.007067	101	75-125	0.05781	0.0173	25	
Zinc	0.07034	0.010	0.05	0.03574	69.2	75-125	0.07138	1.47	25	S

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:18**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415578** Prep Date: **1/8/2004** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1275	0.025	0	0	0	0-0	0.13	1.94	25	
Calcium	73.74	2.5	0	0	0	0-0	78.49	6.24	25	
Magnesium	19.87	1.0	0	0	0	0-0	21.18	6.38	25	
Potassium	80.79	1.0	0	0	0	0-0	84.06	3.97	25	

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:37**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415582** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09187	0.020	0	0	0	0-0	0.09293	1.15	25	
Barium	0.03947	0.010	0	0	0	0-0	0.04055	2.7	25	
Beryllium	ND	0.0040	0	0	0	0-0	0	0	25	
Boron	0.5767	0.040	0	0	0	0-0	0.5787	0.346	25	
Cadmium	ND	0.0020	0	0	0	0-0	0	0	25	
Chromium	0.002171	0.0040	0	0	0	0-0	0.002633	0	25	J
Cobalt	0.002721	0.0040	0	0	0	0-0	0.002671	0	25	J
Copper	0.003462	0.0040	0	0	0	0-0	0.003364	0	25	J
Iron	0.4287	0.40	0	0	0	0-0	0.4238	1.15	25	
Lead	ND	0.010	0	0	0	0-0	0	0	25	
Manganese	0.02741	0.010	0	0	0	0-0	0.02789	1.74	25	
Nickel	0.008235	0.010	0	0	0	0-0	0.008268	0	25	J
Selenium	0.1445	0.010	0	0	0	0-0	0.1686	15.4	25	
Silver	0.0005242	0.010	0	0	0	0-0	0.0006825	0	25	J
Vanadium	0.006497	0.010	0	0	0	0-0	0.007067	0	25	J
Zinc	0.0343	0.010	0	0	0	0-0	0.03574	4.11	25	

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/14/04 13:04**
Client ID: **Inj. Wells** Run ID: **ICP4500_040114A** SeqNo: **416724** Prep Date: **1/8/2004** DF: **200**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	2229	40	0	0	0	0-0	2285	2.48	25	

The following samples were analyzed in this batch: 0401037-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7710** InstrumentID: **Mercury**

MBLK Sample ID: **GBLKW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:33**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416950** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:34**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416951** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00487	0.00020	0.005	0	97.4	83-115	0			

LCSD Sample ID: **GLCSDW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:36**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416952** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00496	0.00020	0.005	0	99.2	83-115	0.00487	1.83	20	

MS Sample ID: **0401037-01CMS** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:41**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416955** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00507	0.00020	0.005	0.000045	100	70-124	0			

MSD Sample ID: **0401037-01CMSD** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:42**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416956** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00495	0.00020	0.005	0.000045	98.1	70-124	0.00507	2.4	20	

DUP Sample ID: **0401037-01CDUP** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:39**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416954** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0.000045	0	20	

The following samples were analyzed in this batch: 0401037-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

MBLK Sample ID: **SBLKW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 16:47**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416012** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	85.07	0	100	0	85.1	39-153		0		
Surr: 2-Fluorobiphenyl	76.23	0	100	0	76.2	40-147		0		
Surr: 2-Fluorophenol	45.21	0	100	0	45.2	21-100		0		
Surr: 4-Terphenyl-d14	75.82	0	100	0	75.8	39-141		0		
Surr: Nitrobenzene-d5	86.87	0	100	0	86.9	37-140		0		
Surr: Phenol-d6	28.99	0	100	0	29	11-100		0		

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

LCS Sample ID: **SLCSW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 17:13**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416013** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.87	10	50	0	83.7	50-115	0			
2,4,5-Trichlorophenol	82.2	10	100	0	82.2	72-118	0			
2,4,6-Trichlorophenol	83.51	10	100	0	83.5	72-117	0			
2-Methylnaphthalene	42.34	10	50	0	84.7	47-122	0			
2-Methylphenol	71.03	10	100	0	71	51-115	0			
2-Nitroaniline	44.61	10	50	0	89.2	73-119	0			
2-Nitrophenol	87.53	10	100	0	87.5	60-119	0			
3-Nitroaniline	41.16	10	50	0	82.3	61-118	0			
4-Methylphenol	96.92	10	150	0	64.6	44-115	0			
4-Nitroaniline	41.84	10	50	0	83.7	61-123	0			
4-Nitrophenol	38.84	10	100	0	38.8	17-100	0			
Acenaphthene	41.32	10	50	0	82.6	68-115	0			
Acenaphthylene	41.87	10	50	0	83.7	67-116	0			
Anthracene	44.55	10	50	0	89.1	72-124	0			
Benz(a)anthracene	40.18	10	50	0	80.4	55-131	0			
Benzidine	13.03	10	50	0	26.1	10-115	0			
Hexachloroethane	38.29	10	50	0	76.6	46-115	0			
Indeno(1,2,3-cd)pyrene	41.53	10	50	0	83.1	42-123	0			
Isophorone	45.89	10	50	0	91.8	63-117	0			
N-Nitrosodi-n-propylamine	43.72	10	50	0	87.4	67-115	0			
N-Nitrosodimethylamine	25.46	10	50	0	50.9	28-115	0			
N-Nitrosodiphenylamine	50.02	10	50	0	100	72-144	0			
Naphthalene	42.08	10	50	0	84.2	52-115	0			
Nitrobenzene	45.06	10	50	0	90.1	65-115	0			
Pentachlorophenol	84.64	10	100	0	84.6	65-123	0			
Phenanthrene	43.23	10	50	0	86.5	69-119	0			
Phenol	33.5	10	100	0	33.5	16-115	0			
Pyrene	38.95	10	50	0	77.9	51-130	0			
Surr: 2,4,6-Tribromophenol	91.94	0	100	0	91.9	39-153	0			
Surr: 2-Fluorobiphenyl	80.16	0	100	0	80.2	40-147	0			
Surr: 2-Fluorophenol	50.59	0	100	0	50.6	21-100	0			
Surr: 4-Terphenyl-d14	81.09	0	100	0	81.1	39-141	0			
Surr: Nitrobenzene-d5	90.59	0	100	0	90.6	37-140	0			
Surr: Phenol-d6	33.67	0	100	0	33.7	11-100	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

LCSD Sample ID: **SLCSDW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 17:39**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416014** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	42.41	10	50	0	84.8	50-115	41.87	1.29	30	
2,4,5-Trichlorophenol	86.29	10	100	0	86.3	72-118	82.2	4.86	30	
2,4,6-Trichlorophenol	83.53	10	100	0	83.5	72-117	83.51	0.0281	30	
2-Methylnaphthalene	42.19	10	50	0	84.4	47-122	42.34	0.363	30	
2-Methylphenol	67.08	10	100	0	67.1	51-115	71.03	5.73	30	
2-Nitroaniline	46.08	10	50	0	92.2	73-119	44.61	3.24	30	
2-Nitrophenol	87.97	10	100	0	88	60-119	87.53	0.504	30	
3-Nitroaniline	41.24	10	50	0	82.5	61-118	41.16	0.186	30	
4-Methylphenol	90.96	10	150	0	60.6	44-115	96.92	6.35	30	
4-Nitroaniline	43.08	10	50	0	86.2	61-123	41.84	2.91	30	
4-Nitrophenol	34.89	10	100	0	34.9	17-100	38.84	10.7	30	
Acenaphthene	41.74	10	50	0	83.5	68-115	41.32	1.02	30	
Acenaphthylene	42.98	10	50	0	86	67-116	41.87	2.62	30	
Anthracene	45.95	10	50	0	91.9	72-124	44.55	3.09	30	
Benz(a)anthracene	40.72	10	50	0	81.4	55-131	40.18	1.34	30	
Benzidine	19.19	10	50	0	38.4	10-115	13.03	38.2	30	R
Hexachloroethane	38.69	10	50	0	77.4	46-115	38.29	1.04	30	
Indeno(1,2,3-cd)pyrene	42.3	10	50	0	84.6	42-123	41.53	1.84	30	
Isophorone	46.42	10	50	0	92.8	63-117	45.89	1.15	30	
N-Nitrosodi-n-propylamine	43.74	10	50	0	87.5	67-115	43.72	0.0428	30	
N-Nitrosodimethylamine	25.93	10	50	0	51.9	28-115	25.46	1.83	30	
N-Nitrosodiphenylamine	47.58	10	50	0	95.2	72-144	50.02	5.01	30	
Naphthalene	41.54	10	50	0	83.1	52-115	42.08	1.29	30	
Nitrobenzene	45.04	10	50	0	90.1	65-115	45.06	0.0543	30	
Pentachlorophenol	82.68	10	100	0	82.7	65-123	84.64	2.34	30	
Phenanthrene	44.72	10	50	0	89.4	69-119	43.23	3.38	30	
Phenol	33.12	10	100	0	33.1	16-115	33.5	1.13	30	
Pyrene	39.61	10	50	0	79.2	51-130	38.95	1.68	30	
Surr: 2,4,6-Tribromophenol	95.4	0	100	0	95.4	39-153	91.94	3.69	30	
Surr: 2-Fluorobiphenyl	81.18	0	100	0	81.2	40-147	80.16	1.26	30	
Surr: 2-Fluorophenol	48.13	0	100	0	48.1	21-100	50.59	4.98	30	
Surr: 4-Terphenyl-d14	80.48	0	100	0	80.5	39-141	81.09	0.752	30	
Surr: Nitrobenzene-d5	91.03	0	100	0	91	37-140	90.59	0.48	30	
Surr: Phenol-d6	30.39	0	100	0	30.4	11-100	33.67	10.3	30	

The following samples were analyzed in this batch: 0401037-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MBLK Sample ID: **VBLKW-0113** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 11:22**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416622** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	46	5.0	50	0	92	70-130		0		
Surr: 4-Bromofluorobenzene	48.08	5.0	50	0	96.2	70-130		0		
Surr: Dibromofluoromethane	47.06	5.0	50	0	94.1	70-130		0		
Surr: Toluene-d8	46.05	5.0	50	0	92.1	70-130		0		

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

LCS Sample ID: **VLCSW-0113** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 10:28**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416621** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.27	5.0	50	0	96.5	75-118	0			
1,1,2,2-Tetrachloroethane	47.46	5.0	50	0	94.9	79-120	0			
1,1,2-Trichloroethane	48.13	5.0	50	0	96.3	81-119	0			
1,1-Dichloroethane	46.83	5.0	50	0	93.7	80-120	0			
1,1-Dichloroethene	46.32	5.0	50	0	92.6	80-120	0			
1,2-Dichloroethane	53.01	5.0	50	0	106	80-120	0			
2-Butanone	98.39	10	100	0	98.4	70-130	0			
2-Chloroethyl vinyl ether	90.24	10	100	0	90.2	72-120	0			
4-Methyl-2-pentanone	93.51	10	100	0	93.5	78-120	0			
Acetone	113.7	10	100	0	114	60-135	0			
Benzene	46.07	5.0	50	0	92.1	82-119	0			
Bromodichloromethane	51.5	5.0	50	0	103	81-119	0			
Bromoform	50.25	5.0	50	0	100	80-120	0			
Bromomethane	44.31	5.0	50	0	88.6	75-130	0			
Carbon disulfide	89.23	10	100	0	89.2	78-120	0			
Carbon tetrachloride	49.21	5.0	50	0	98.4	77-120	0			
Chlorobenzene	47.05	5.0	50	0	94.1	82-118	0			
Chloroethane	46.72	5.0	50	0	93.4	78-122	0			
Chloroform	49.02	5.0	50	0	98	78-120	0			
Chloromethane	58.33	5.0	50	0	117	75-125	0			
cis-1,3-Dichloropropene	50.41	5.0	50	0	101	81-120	0			
Dibromochloromethane	52.1	5.0	50	0	104	81-118	0			
Ethylbenzene	46.77	5.0	50	0	93.5	82-120	0			
m,p-Xylene	90.81	10	100	0	90.8	82-122	0			
Methylene chloride	47.03	10	50	0	94.1	80-122	0			
Styrene	47.64	5.0	50	0	95.3	82-121	0			
Tetrachloroethene	47.51	5.0	50	0	95	79-118	0			
Toluene	45.44	5.0	50	0	90.9	81-119	0			
trans-1,3-Dichloropropene	50.2	5.0	50	0	100	82-121	0			
Trichloroethene	49.17	5.0	50	0	98.3	78-118	0			
Vinyl acetate	98.67	10	100	0	98.7	75-120	0			
Vinyl chloride	45.63	2.0	50	0	91.3	73-127	0			
Xylenes, Total	138.2	15	150	0	92.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	45.82	5.0	50	0	91.6	70-130	0			
Surr: 4-Bromofluorobenzene	48.79	5.0	50	0	97.6	70-130	0			
Surr: Dibromofluoromethane	46.9	5.0	50	0	93.8	70-130	0			
Surr: Toluene-d8	45.11	5.0	50	0	90.2	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MS Sample ID: **0401069-08AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 13:36**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416623** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.27	5.0	50	0	88.5	75-125	0			
1,1,2,2-Tetrachloroethane	43.73	5.0	50	0	87.5	75-125	0			
1,1,2-Trichloroethane	45.29	5.0	50	0	90.6	75-125	0			
1,1-Dichloroethane	71.66	5.0	50	31.2	80.9	75-125	0			
1,1-Dichloroethene	104.2	5.0	50	72.85	62.8	65-130	0			S
1,2-Dichloroethane	49.86	5.0	50	0	99.7	70-130	0			
2-Butanone	91.73	10	100	0	91.7	64-128	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	75-125	0			S
4-Methyl-2-pentanone	95.27	10	100	0	95.3	75-125	0			
Acetone	100.1	10	100	0	100	60-130	0			
Benzene	44.02	5.0	50	0	88	76-127	0			
Bromodichloromethane	48.53	5.0	50	0	97.1	75-125	0			
Bromoform	47.61	5.0	50	0	95.2	75-125	0			
Bromomethane	40.26	5.0	50	0	80.5	75-125	0			
Carbon disulfide	81.69	10	100	0	81.7	75-125	0			
Carbon tetrachloride	44.78	5.0	50	0	89.6	70-130	0			
Chlorobenzene	44.91	5.0	50	0	89.8	75-126	0			
Chloroethane	41.03	5.0	50	0	82.1	70-130	0			
Chloroform	47.25	5.0	50	0	94.5	75-125	0			
Chloromethane	53.47	5.0	50	0	107	75-125	0			
cis-1,3-Dichloropropene	47.2	5.0	50	0	94.4	75-125	0			
Dibromochloromethane	49.07	5.0	50	0	98.1	75-125	0			
Ethylbenzene	43.36	5.0	50	0	86.7	75-125	0			
m,p-Xylene	85.04	10	100	0	85	75-125	0			
Methylene chloride	45.19	10	50	0	90.4	75-125	0			
Styrene	40.66	5.0	50	0	81.3	75-125	0			
Tetrachloroethene	43.81	5.0	50	0	87.6	75-125	0			
Toluene	42.83	5.0	50	0	85.7	76-125	0			
trans-1,3-Dichloropropene	48.07	5.0	50	0	96.1	70-130	0			
Trichloroethene	47.03	5.0	50	0	94.1	71-120	0			
Vinyl acetate	88.29	10	100	0	88.3	75-125	0			
Vinyl chloride	39.74	2.0	50	0	79.5	60-135	0			
Xylenes, Total	129	15	150	0	86	75-125	0			
Surr: 1,2-Dichloroethane-d4	46.19	5.0	50	0	92.4	70-130	0			
Surr: 4-Bromofluorobenzene	49.78	5.0	50	0	99.6	70-130	0			
Surr: Dibromofluoromethane	47.52	5.0	50	0	95	70-130	0			
Surr: Toluene-d8	45.36	5.0	50	0	90.7	70-130	0			

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MSD Sample ID: **0401069-08AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 14:03**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416624** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.32	5.0	50	0	103	75-125	44.27	14.8	20	
1,1,2,2-Tetrachloroethane	47.81	5.0	50	0	95.6	75-125	43.73	8.9	20	
1,1,2-Trichloroethane	49.39	5.0	50	0	98.8	75-125	45.29	8.66	20	
1,1-Dichloroethane	77.65	5.0	50	31.2	92.9	75-125	71.66	8.03	20	
1,1-Dichloroethene	115.3	5.0	50	72.85	84.9	65-130	104.2	10.1	20	
1,2-Dichloroethane	53.62	5.0	50	0	107	70-130	49.86	7.27	20	
2-Butanone	103.2	10	100	0	103	64-128	91.73	11.8	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	75-125	0	0	20	S
4-Methyl-2-pentanone	100.9	10	100	0	101	75-125	95.27	5.77	20	
Acetone	107.4	10	100	0	107	60-130	100.1	7.09	20	
Benzene	49.06	5.0	50	0	98.1	76-127	44.02	10.8	20	
Bromodichloromethane	53.21	5.0	50	0	106	75-125	48.53	9.21	20	
Bromoform	51.56	5.0	50	0	103	75-125	47.61	7.95	20	
Bromomethane	49.35	5.0	50	0	98.7	75-125	40.26	20.3	20	R
Carbon disulfide	96.66	10	100	0	96.7	75-125	81.69	16.8	20	
Carbon tetrachloride	52.5	5.0	50	0	105	70-130	44.78	15.9	20	
Chlorobenzene	49.89	5.0	50	0	99.8	75-126	44.91	10.5	20	
Chloroethane	49.74	5.0	50	0	99.5	70-130	41.03	19.2	20	
Chloroform	51.66	5.0	50	0	103	75-125	47.25	8.93	20	
Chloromethane	59.73	5.0	50	0	119	75-125	53.47	11.1	20	
cis-1,3-Dichloropropene	52.48	5.0	50	0	105	75-125	47.2	10.6	20	
Dibromochloromethane	52.99	5.0	50	0	106	75-125	49.07	7.7	20	
Ethylbenzene	49.24	5.0	50	0	98.5	75-125	43.36	12.7	20	
m,p-Xylene	97.66	10	100	0	97.7	75-125	85.04	13.8	20	
Methylene chloride	49.52	10	50	0	99	75-125	45.19	9.15	20	
Styrene	44.29	5.0	50	0	88.6	75-125	40.66	8.54	20	
Tetrachloroethene	51.19	5.0	50	0	102	75-125	43.81	15.5	20	
Toluene	47.76	5.0	50	0	95.5	76-125	42.83	10.9	20	
trans-1,3-Dichloropropene	52.51	5.0	50	0	105	70-130	48.07	8.81	20	
Trichloroethene	52.68	5.0	50	0	105	71-120	47.03	11.3	20	
Vinyl acetate	92.99	10	100	0	93	75-125	88.29	5.19	20	
Vinyl chloride	47.65	2.0	50	0	95.3	60-135	39.74	18.1	20	
Xylenes, Total	146.6	15	150	0	97.8	75-125	129	12.8	20	
Surr: 1,2-Dichloroethane-d4	46.39	5.0	50	0	92.8	70-130	46.19	0.429	20	
Surr: 4-Bromofluorobenzene	49.42	5.0	50	0	98.8	70-130	49.78	0.719	20	
Surr: Dibromofluoromethane	47.17	5.0	50	0	94.3	70-130	47.52	0.757	20	
Surr: Toluene-d8	45.25	5.0	50	0	90.5	70-130	45.36	0.243	20	

The following samples were analyzed in this batch: 0401037-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18133** InstrumentID: **Wet Chemistry**

LCS Sample ID: **WLCSW1-010704** Test Code: **E150.1** Units: **pH units** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414646** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	85-115	0			

DUP Sample ID: **0401037-01D DUP** Test Code: **E150.1** Units: **pH units** Analysis Date: **01/07/04 0:00**
Client ID: **Inj. Wells** Run ID: **WET CHEMISTRY_0401** SeqNo: **414648** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.45	0.10	0	0	0	0-0	8.43	0.237	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18137** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WMBW1-010704** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414715** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-010704** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414716** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1000	5.0	1000	0	100	80-120	0			

DUP Sample ID: **0312297-03D DUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414723** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	675.2	5.0	0	0	0	0-0	680.2	0.738	20	
Alkalinity, Carbonate (As CaCO3)	40.01	5.0	0	0	0	0-0	40.01	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	715.2	5.0	0	0	0	0-0	720.2	0.698	20	

DUP Sample ID: **0401024-03D DUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414727** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	600.2	5.0	0	0	0	0-0	605.2	0.83	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	600.2	5.0	0	0	0	0-0	605.2	0.83	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18194** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WBLKW1-010904** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415951** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **WLCSW1-010904** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415952** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1010	10	1000	0	101	80-120	0			

DUP Sample ID: **0401020-01EDUP** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	*849*	*10*	*0*	*0*	*0*	*0-0*	*841*	*0.947*	*20*	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18217** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WMBW1-011304** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416394** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-011304** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416395** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1410	1.0	1409	0	100	80-120	0			

DUP Sample ID: **0401087-03B DUP** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416400** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	978	1.0	0	0	0	0-0	975	0.307	20	

The following samples were analyzed in this batch: 0401037-01D

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18226** InstrumentID: **IC201**

MBLK Sample ID: **WBLKW1-011204** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 15:27**
Client ID: Run ID: **IC201_040112A** SeqNo: **416579** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Dichloroacetic acid (surr)	5.31	0.10	5	0	106	80-120	0			

LCS Sample ID: **WLCSW1-011204** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 15:59**
Client ID: Run ID: **IC201_040112A** SeqNo: **416580** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.86	0.50	10	0	98.6	80-120	0			
Sulfate	9.43	1.0	10	0	94.3	80-120	0			
Surr: Dichloroacetic acid (surr)	5.43	0.10	5	0	109	80-120	0			

LCSD Sample ID: **WLCSDW1-01120** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 16:32**
Client ID: Run ID: **IC201_040112A** SeqNo: **416581** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	10	0.50	10	0	100	80-120	9.86	1.41	20	
Sulfate	9.46	1.0	10	0	94.6	80-120	9.43	0.318	20	
Surr: Dichloroacetic acid (surr)	5.45	0.10	5	0	109	80-120	5.43	0.368	20	

MS Sample ID: **0401071-02EMS** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 19:47**
Client ID: Run ID: **IC201_040112A** SeqNo: **416587** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	50.26	0.50	10	39.6	107	75-125	0			E
Sulfate	43.9	1.0	10	33.82	101	75-125	0			
Surr: Dichloroacetic acid (surr)	5.29	0.10	5	0	106	80-120	0			

MSD Sample ID: **0401071-02EMSD** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 20:19**
Client ID: Run ID: **IC201_040112A** SeqNo: **416588** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	50.1	0.50	10	39.6	105	75-125	50.26	0.319	20	E
Sulfate	43.91	1.0	10	33.82	101	75-125	43.9	0.0228	20	
Surr: Dichloroacetic acid (surr)	5.28	0.10	5	0	106	80-120	5.29	0.189	20	

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B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18226** InstrumentID: **IC201**

DUP Sample ID: **0401071-02EDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 19:14**
Client ID: Run ID: **IC201_040112A** SeqNo: **416586** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	39.6	0.50	0	0	0	0-0	39.6	0	20	
Sulfate	33.89	1.0	0	0	0	0-0	33.82	0.207	20	
Surr: Dichloroacetic acid (surr)	5.31	0.10	5	0	106	80-120	5.34	0.563	20	

DUP Sample ID: **0401071-03EDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 23:34**
Client ID: Run ID: **IC201_040112A** SeqNo: **416593** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	57.2	1.0	0	0	0	0-0	57.1	0.175	20	
Sulfate	12.82	2.0	0	0	0	0-0	12.9	0.622	20	
Surr: Dichloroacetic acid (surr)	10.68	0.20	10	0	107	80-120	10.56	1.13	20	

DUP Sample ID: **0401037-01D DUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/13/04 12:35**
Client ID: **Inj. Wells** Run ID: **IC201_040112A** SeqNo: **416601** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2451	50	0	0	0	0-0	2442	0.368	20	
Sulfate	1719	100	0	0	0	0-0	1708	0.642	20	
Surr: Dichloroacetic acid (surr)	567	10	500	0	113	80-120	573	1.05	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

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Chain of Custody Form

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e-Lab Project Manager: | e-Lab Work Order #: 0401037

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	INJ WELLS	A	Volatiles Select (8260)
Work Order		Project Number		B	Semivolatiles select (8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Tot. Metals WQCC+ Cations(6020/7000)
Send Report To	Jeff Byrd / Charlie Plymale	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions: Cl, SO4
				F	Alkalinity
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Solids: TDS
Fax	(505) 746-5421	Fax	(505) 746-5421	I	Conductivity
e-Mail Address		e-Mail Address		J	Uranium

No.	Sample Description	Date	Time	Matrix	Preserv.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. wells	1/6/04	1100			10	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Charlie Plymale

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☐ STD 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ Other ☐ 24 Hour

Results Due Date:

Relinquished by:	Date: 1/6/04	Time: 1615	Received by:	Notes:	
Relinquished by:	Date:	Time:	Received by (Laboratory): PICHARD SANCHEZ 1-7-04 0825	e-Lab Cooler ID:	Cooler Temp:
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☐ Level I Std QC ☐ TRRP CheckList
☐ Level II Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

Copyright 2003 by e-Lab, Inc.

e-Lab, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 1/7/2004 9:25:00 AM

Work Order Number 0401037 Received by: RSZ

Checklist completed by _____ (Signature) 1/7/04 (Date) Reviewed by _____ (Initials) 1/8/04 (Date)

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.9 C	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab, Inc **Date:** *January 13, 2004*

CLIENT: e-Lab, Inc
Project: 0401037
Work Order: 0401065

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0401065-01	0401037-01F	Water		1/8/2004	1/8/2004	☐

e-Lab, Inc

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

Date: *Jan 13 2004*

QC BATCH REPORT

Batch ID: R18598 **InstrumentID:** WETCHEM

LCS **Sample ID:** WLCSW1-123003 **Test Code:** ASTM D93 **Units:** °F **Analysis Date** 01/08/04 0:00
Client ID: **Run ID:** WETCHEM_040108E **SeqNo:** 270178 **Prep Date:** **DF:** 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	80.6	0	61	0	99.5	97.8-102.7	0			

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

QC BATCH REPORT

Batch ID: R18853 InstrumentID: WETCHEM

MBLK Sample ID: WBLKW1-011204 Test Code: EPA 7.3.4.2 Units: mg/Kg Analysis Date 01/12/04 0:00
Client ID: Run ID: WETCHEM_040112C SeqNo: 270845 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

QC BATCH REPORT

Batch ID: R18667 InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKR1-011204** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **01/13/04 0:00**
Client ID: Run ID: **WETCHEM_040113F** SeqNo: **271121** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	0.030								

LCS Sample ID: **WLCSR1-011204** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **01/13/04 0:00**
Client ID: Run ID: **WETCHEM_040113F** SeqNo: **271122** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	4.22	0.75	16.95	0	24.9	5-100		0		

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Page 1168 of 5828

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04/01/2004

e-Lab, Inc.
[illegible]
[illegible]
[illegible]

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Laboratories
e-Lab Inc
5352 122nd Ave.
Holland, MI 49424-8263

TEL: (616) 399-6070
FAX: (616) 399-6171

Acct #:

Jan 01, 2004

	Sample ID	Matrix	Collection Date	Requested Tests SW-846	SW-8015				
1	0401037-01F (by Wells)	Water	1/1/2004 11:33						

Comments: Please analyze for Benzene, Toluene, Ethylbenzene, and Total Xylenes only. Report by 1/9/04.

		Date/Time		Date/Time
Relinquished by:			Received by:	
Relinquished by:			Received by:	

e-Lab, Inc

Sample Receipt Checklist

Client Name ELAB-HOU

Work Order Number 2202065

Checklist completed by

Matrix:

Carrier name FedEx

Shipping container/cooler in good condition?	Yes ✔	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✔	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✔
Chain of custody present?	Yes ✔	No	
Chain of custody signed when relinquished and received?	Yes ✔	No	
Chain of custody agrees with sample labels?	Yes ✔	No	
Samples in proper container/bottle?	Yes ✔	No	
Sample containers intact?	Yes ✔	No	
Sufficient sample volume for indicated test?	Yes ✔	No	
All samples received within holding time?	Yes ✔	No	
Container/Temp Blank temperature in compliance?	Yes ✔	No	
Temperature(s)/Thermometer(s):	0.2°C		
Water - VOA vials have zero headspace?	Yes	No	No VOA vials submitted ✔
Water - pH acceptable upon receipt?	Yes ✔	No	N/A

Adjusted? Checked by

Login Notes

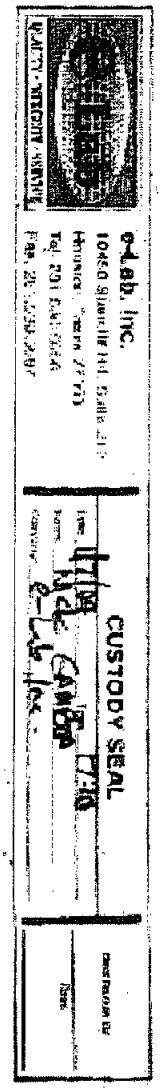
Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted Date contacted Person contacted

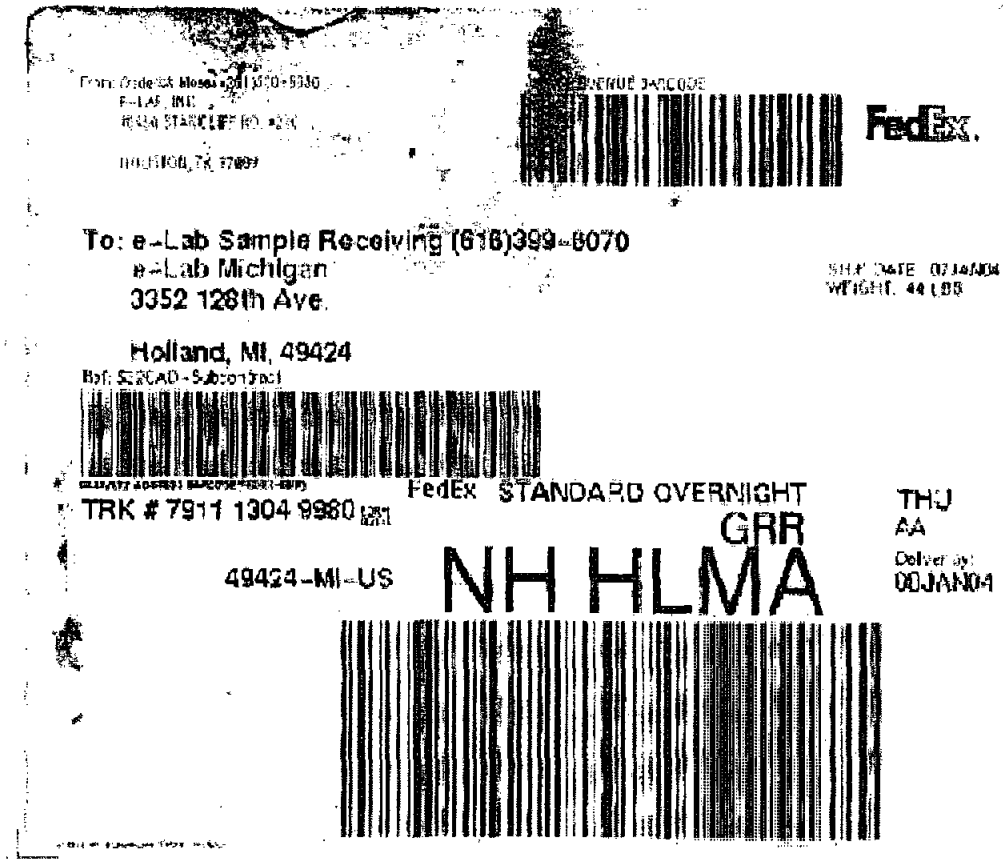
Contacted by Regarding

Comments

Corrective Action


e-Lab, Inc.
CUSTODY SEAL

Page 1171 of 5828



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ARS AMERICAN RADIATION SERVICES, INC.

2609 N. River Rd. Port Allen, Louisiana 70767

1(800) 401 - 4277 Fax: (225) 381-2996

ARS Tracking Number:	ARS040096	**P.O. Number:**	NA
Client I.D.:	0401037-01E (Inj. Wells)	**ARS Sample I.D.:**	ARS040096-218
Date Sampled:	1/6/04	**Date Received:**	1/08/04
Time Sample:	11:00	**Time Received:**	1200
Type of Sample:	Liquid	**Date of Report:**	1/23/04
NELAP Certification #:	E87558	**L. A. Agency Interest #:**	30658

Analysis Description	Analysis Result	Analysis Error ±2σ	Detection Limit	Analysis Unit	Analysis Test Method	Analysis Date & Time	Analysis Technician
Total Uranium	0.000	0.000	0.0003	mg/L	ASTM D 5174-97	1/23/04 1535	SM

Quality Assurance Review

Notes: American Radiation Services, Inc assumes no liability for the use or interpretation of any analytical results provided other than the cost of the performed analysis itself. Reproduction of this report in less than full requires the written consent of the client

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ARS
AMERICAN RADIATION SERVICES, INC.

2609 North River Road Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2998

Notes:

Comments:

1.0) Soil and Sludge analysis are reported on a wet basis or an as received basis unless otherwise indicated.
2.0) The data in this report are within the limits of uncertainty specified in the reference method unless specified.
3.0) Modified analysis procedures are procedures that are modified to meet the certain specifications. An example may be the use of a water method to analyze a solid matrix due to the lack of an officially recognized procedure for the analysis of the solid matrix.
4.0) Derived Air Concentrations and Effluent Release Concentrations are obtained from 10 CFR 20 Appendix B.
5.0) Total activity is actually total gamma activity and is determined utilizing the prominent gamma emitters from the naturally occurring radioactive decay chains and other prominent radioactive nuclides. Total activity may be lower than the actual total activity due to the extent of secular equilibrium achieved in the various decay chains at the time of analysis. The total activity is not representative of nuclides that emit solely alpha or beta particles.
6.0) Ra-226 is determined via secular equilibrium with its daughter, Actinium 228. (Gamma Spectroscopy only).
7.0) U-238 is determined via secular equilibrium with its daughter, Thorium 234. (Gamma Spectroscopy only).
8.0) All gamma spectroscopy was performed utilizing high purity germanium detectors (HPGe).

Method References:

1.0) EPA 600/4-80-032, Prescribed Procedures for the Measurements of Radioactivity in Drinking Water, August 1980.
2.0) Standard Methods for Examination of Water and Waste Water, 18th, 1992.
3.0) EPA SW-846, Test Methods for Evaluating Solid Waste, Third Edition, (9/86). (Updated through 1995).
4.0) EPA 600/4/79-020, Methods for Chemical Analysis of Water and Waste, March 1983.
5.0) HASL 300

Definitions:

1.0)	BDL	Analyte not detected because the value was below the detection limit.
2.0)	ND	Not detected above the detection limit.
3.0)	Detection Limit	The minimum amount of the analyte that ARS can detect utilizing the specific analysis.
4.0)	B	Method Blank
5.0)	D	Method Duplicate
6.0)	MS	Matrix Spike
7.0)	S	Spike
8.0)	RS	Reference Spike
9.0)	*SC	Subcontracted out to another qualified laboratory
10.0)	NR	Not Referenced
11.0)	N/A	Not Applicable

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

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REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
MAY 0 3 2004
OIL CONSERVATION DIVISION

April 30, 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2003 to December 31, 2003. We have disposed a total of 17,626,541 bbls. of fluid into the two wells as of December 31, 2003. This is broken down as follows: 12,102,707 bbls. into WDW-1 and 5,523,834 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Oct-03	196	414	75	198	311	138	260	389	156	6802	10663	4727	210,858
Nov-03	202	472	109	184	310	86	234	386	88	6317	10624	2935	195,817
Dec-03	260	458	30	184	280	93	76	258	15	6315	9610	3182	195,770
WDW-2													
Oct-03	231	431	120	157	210	123	152	159	146	5374	7190	4201	166,606
Nov-03	209	500	0	138	225	14	144	171	35	4733	7722	490	146,717
Dec-03	289	500	64	125	175	84	162	178	143	4294	6009	2864	133,110

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5

October 25, 2003

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj. Wells Work Order : **0310201**

Dear Jeff Byrd,

e-Lab, Inc. received 1 sample on 10/17/2003 8:45:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 16.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Lora Terrill

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: **0310201**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0310201-01	Inj. Wells	Wate1		10/15/2003 10:2(	10/17/2003 08:4:	☐

e-Lab, Inc. **Date:** *October 24, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: 0310201

Case Narrative

Semivolatile Batch 6980 MS/MSD was an unrelated sample.

Semivolatile sample Inj. Wells had surrogate diluted out.

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells
Lab ID: 0310201-01

Client Sample ID: Inj. Wells
Collection Date: 10/15/2003 10:20:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **10/21/2003**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Methylnaphthalene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Methylphenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Nitrophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
3-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Methylphenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Nitrophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Acenaphthene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Acenaphthylene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Aniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Anthracene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Benz(a)anthracene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Benzidine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Hexachloroethane	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Isophorone	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Naphthalene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Nitrobenzene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Pentachlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Phenanthrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Phenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Pyrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Surr: 2,4,6-Tribromophenol	74.6	39-153		%REC	1	10/22/2003 8:15:00 PM
Surr: 2-Fluorobiphenyl	78.4	40-147		%REC	1	10/22/2003 8:15:00 PM
Surr: 2-Fluorophenol	46.2	21-100		%REC	1	10/22/2003 8:15:00 PM
Surr: 4-Terphenyl-d14	89.6	39-141		%REC	1	10/22/2003 8:15:00 PM
Surr: Nitrobenzene-d5	79.1	37-140		%REC	1	10/22/2003 8:15:00 PM
Surr: Phenol-d6	11.7	11-100		%REC	1	10/22/2003 8:15:00 PM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells
Lab ID: 0310201-01

Client Sample ID: Inj. Wells
Collection Date: 10/15/2003 10:20:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
2-Butanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	10/20/2003 8:45:00 PM
2-Hexanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Acetone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Benzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromoform	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromomethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Carbon disulfide	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chlorobenzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloroform	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Ethylbenzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
m,p-Xylene	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Methylene chloride	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Styrene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Toluene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Trichloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Vinyl acetate	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Vinyl chloride	ND	2.0		µg/L	1	10/20/2003 8:45:00 PM
Xylenes, Total	ND	15		µg/L	1	10/20/2003 8:45:00 PM
Surr: 1,2-Dichloroethane-d4	93.2	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: 4-Bromofluorobenzene	97.8	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: Dibromofluoromethane	92.4	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: Toluene-d8	98.7	70-130		%REC	1	10/20/2003 8:45:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Oct 24 2003*

CLIENT: Navajo Refining Company

Work Order: 0310201

Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-031021** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 15:18**

Client ID: Run ID: **SV-2_031021A** SeqNo: **383368** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	91.19	0	100	0	91.2	39-153	0			
Surr: 2-Fluorobiphenyl	86.44	0	100	0	86.4	40-147	0			
Surr: 2-Fluorophenol	57.73	0	100	0	57.7	21-100	0			
Surr:4-Terphenyl-d14	99.11	0	100	0	99.1	39-141	0			
Surr: Nitrobenzene-d5	84.06	0	100	0	84.1	37-140	0			
Surr: Phenol-d6	37.66	0	100	0	37.7	11-100	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-031021** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 15:44**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383369** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.01	10	50	0	82	50-115	0			
2,4,5-Trichlorophenol	92.43	10	100	0	92.4	72-118	0			
2,4,6-Trichlorophenol	89.2	10	100	0	89.2	72-117	0			
2-Methylnaphthalene	41.91	10	50	0	83.8	47-122	0			
2-Methylphenol	81.69	10	100	0	81.7	51-115	0			
2-Nitroaniline	45.36	10	50	0	90.7	73-119	0			
2-Nitrophenol	87.88	10	100	0	87.9	60-119	0			
3-Nitroaniline	45.23	10	50	0	90.5	61-118	0			
4-Methylphenol	115.5	10	150	0	77	44-115	0			
4-Nitroaniline	45.56	10	50	0	91.1	61-123	0			
4-Nitrophenol	50.68	10	100	0	50.7	17-100	0			
Acenaphthene	42.5	10	50	0	85	68-115	0			
Acenaphthylene	42.55	10	50	0	85.1	67-116	0			
Anthracene	46.52	10	50	0	93	72-124	0			
Benz(a)anthracene	46.45	10	50	0	92.9	55-131	0			
Benzidine	51.57	10	50	0	103	10-115	0			
Hexachloroethane	41.88	10	50	0	83.8	46-115	0			
Indeno(1,2,3-cd)pyrene	40.36	10	50	0	80.7	42-123	0			
Isophorone	42.5	10	50	0	85	63-117	0			
N-Nitrosodi-n-propylamine	45.15	10	50	0	90.3	67-115	0			
N-Nitrosodimethylamine	33.23	10	50	0	66.5	28-115	0			
N-Nitrosodiphenylamine	49.76	10	50	0	99.5	72-144	0			
Naphthalene	40.62	10	50	0	81.2	52-115	0			
Nitrobenzene	41.76	10	50	0	83.5	65-115	0			
Pentachlorophenol	91.23	10	100	0	91.2	65-123	0			
Phenanthrene	44.56	10	50	0	89.1	69-119	0			
Phenol	45.92	10	100	0	45.9	16-115	0			
Pyrene	44.48	10	50	0	89	51-130	0			
Surr: 2,4,6-Tribromophenol	93.38	0	100	0	93.4	39-153	0			
Surr: 2-Fluorobiphenyl	85.03	0	100	0	85	40-147	0			
Surr: 2-Fluorophenol	65.69	0	100	0	65.7	21-100	0			
Surr:4-Terphenyl-d14	98.75	0	100	0	98.8	39-141	0			
Surr:Nitrobenzene-d5	83.84	0	100	0	83.8	37-140	0			
Surr: Phenol-d6	44.85	0	100	0	44.9	11-100	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MS Sample ID: **0310174-12HMS** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 19:55**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383378** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	18.97	10	50	0	37.9	45-115	0			S
2,4,5-Trichlorophenol	90.44	10	100	0	90.4	47-129	0			
2,4,6-Trichlorophenol	88.68	10	100	0	88.7	45-127	0			
2-Methylnaphthalene	33.15	10	50	11.91	42.5	30-144	0			
2-Methylphenol	2711	10	100	2579	131	42-115	0			SEO
2-Nitroaniline	48.01	10	50	0	96	48-129	0			
2-Nitrophenol	40.54	10	100	0	40.5	32-144	0			
3-Nitroaniline	26.7	10	50	0	53.4	23-122	0			
4-Methylphenol	2974	10	150	2835	92.2	35-115	0			EO
4-Nitroaniline	32.79	10	50	0	65.6	12-138	0			
4-Nitrophenol	35.6	10	100	0	35.6	10-80	0			
Acenaphthene	44.82	10	50	0	89.6	55-117	0			
Acenaphthylene	42.11	10	50	0	84.2	39-128	0			
Anthracene	49.1	10	50	0	98.2	58-129	0			
Benz(a)anthracene	48.52	10	50	0	97	42-135	0			
Benzidine	ND	10	50	0	0	10-127	0			S
Hexachloroethane	42.95	10	50	0	85.9	45-115	0			
Indeno(1,2,3-cd)pyrene	44.37	10	50	0	88.7	32-132	0			
Isophorone	17.44	10	50	0	34.9	51-122	0			S
N-Nitrosodi-n-propylamine	43.76	10	50	0	87.5	55-115	0			
N-Nitrosodimethylamine	31.94	10	50	0	63.9	30-115	0			
N-Nitrosodiphenylamine	61.5	10	50	0	123	47-146	0			
Naphthalene	36.21	10	50	16.34	39.7	46-116	0			S
Nitrobenzene	20.72	10	50	0	41.4	48-126	0			S
Pentachlorophenol	102.6	10	100	8.707	93.9	53-134	0			
Phenanthrene	45.2	10	50	0	90.4	57-123	0			
Phenol	1008	10	100	955.5	52.6	10-115	0			EO
Pyrene	45.06	10	50	0	90.1	40-130	0			
Surr: 2,4,6-Tribromophenol	95.33	0	100	0	95.3	39-153	0			
Surr: 2-Fluorobiphenyl	86.28	0	100	0	86.3	40-147	0			
Surr: 2-Fluorophenol	45.38	0	100	0	45.4	21-100	0			
Surr:4-Terphenyl-d14	97.58	0	100	0	97.6	39-141	0			
Surr: Nitrobenzene-d5	43.03	0	100	0	43	37-140	0			
Surr: Phenol-d6	31.82	0	100	0	31.8	11-100	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MSD Sample ID: **0310174-12HMSD** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 20:21**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383379** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	18.64	10	50	0	37.3	45-115	18.97	1.78	30	S
2,4,5-Trichlorophenol	86.96	10	100	0	87	47-129	90.44	3.92	30	
2,4,6-Trichlorophenol	87.88	10	100	0	87.9	45-127	88.68	0.898	30	
2-Methylnaphthalene	32.04	10	50	11.91	40.3	30-144	33.15	3.4	30	
2-Methylphenol	2801	10	100	2579	222	42-115	2711	3.27	30	SEO
2-Nitroaniline	44.91	10	50	0	89.8	48-129	48.01	6.67	30	
2-Nitrophenol	40.18	10	100	0	40.2	32-144	40.54	0.888	30	
3-Nitroaniline	24.78	10	50	0	49.6	23-122	26.7	7.47	30	
4-Methylphenol	3082	10	150	2835	164	35-115	2974	3.57	30	SEO
4-Nitroaniline	28.65	10	50	0	57.3	12-138	32.79	13.5	30	
4-Nitrophenol	32.5	10	100	0	32.5	10-80	35.6	9.11	30	
Acenaphthene	46.5	10	50	0	93	55-117	44.82	3.68	30	
Acenaphthylene	41.12	10	50	0	82.2	39-128	42.11	2.38	30	
Anthracene	48.02	10	50	0	96	58-129	49.1	2.21	30	
Benz(a)anthracene	48.14	10	50	0	96.3	42-135	48.52	0.8	30	
Benzidine	ND	10	50	0	0	10-127	0	0	30	S
Hexachloroethane	41.52	10	50	0	83	45-115	42.95	3.38	30	
Indeno(1,2,3-cd)pyrene	46.05	10	50	0	92.1	32-132	44.37	3.73	30	
Isophorone	17.42	10	50	0	34.8	51-122	17.44	0.135	30	S
N-Nitrosodi-n-propylamine	49.82	10	50	0	99.6	55-115	43.76	12.9	30	
N-Nitrosodimethylamine	30.36	10	50	0	60.7	30-115	31.94	5.08	30	
N-Nitrosodiphenylamine	58.53	10	50	0	117	47-146	61.5	4.95	30	
Naphthalene	35.8	10	50	16.34	38.9	46-116	36.21	1.13	30	S
Nitrobenzene	20.54	10	50	0	41.1	48-126	20.72	0.86	30	S
Pentachlorophenol	103.1	10	100	8.707	94.4	53-134	102.6	0.478	30	
Phenanthrene	44.85	10	50	0	89.7	57-123	45.2	0.777	30	
Phenol	1038	10	100	955.5	82.2	10-115	1008	2.89	30	EO
Pyrene	42.82	10	50	0	85.6	40-130	45.06	5.09	30	
Surr: 2,4,6-Tribromophenol	95.87	0	100	0	95.9	39-153	95.33	0.564	30	
Surr: 2-Fluorobiphenyl	85.2	0	100	0	85.2	40-147	86.28	1.26	30	
Surr: 2-Fluorophenol	46.55	0	100	0	46.6	21-100	45.38	2.55	30	
Surr:4-Terphenyl-d14	96.93	0	100	0	96.9	39-141	97.58	0.662	30	
Surr: Nitrobenzene-d5	42.33	0	100	0	42.3	37-140	43.03	1.65	30	
Surr: Phenol-d6	32.6	0	100	0	32.6	11-100	31.82	2.41	30	

Thefollowingsampleswereanalyzedinthisbatch: 0310201-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MBLK Sample ID: **VBLKW-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 11:43**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382009** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	49.28	5.0	50	0	98.6	70-130		0		
Surr: 4-Bromofluorobenzene	47.48	5.0	50	0	95	70-130		0		
Surr: Dibromofluoromethane	48.16	5.0	50	0	96.3	70-130		0		
Surr: Toluene-d8	48.14	5.0	50	0	96.3	70-130		0		

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

LCS Sample ID: **VLCSW-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 10:50**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382007** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.84	5.0	50	0	104	75-118	0			
1,1,2,2-Tetrachloroethane	42.06	5.0	50	0	84.1	79-120	0			
1,1,2-Trichloroethane	46.47	5.0	50	0	92.9	81-119	0			
1,1-Dichloroethane	51.25	5.0	50	0	103	80-120	0			
1,1-Dichloroethene	52.57	5.0	50	0	105	80-120	0			
1,2-Dichloroethane	51.23	5.0	50	0	102	80-120	0			
2-Butanone	77.82	10	100	0	77.8	70-130	0			
2-Chloroethyl vinyl ether	81.24	10	100	0	81.2	72-120	0			
2-Hexanone	74.07	10	100	0	74.1	70-130	0			
4-Methyl-2-pentanone	80.5	10	80.5	0	100	78-120	0			
Acetone	93.56	10	100	0	93.6	60-135	0			
Benzene	45.85	5.0	50	0	91.7	82-119	0			
Bromodichloromethane	50.42	5.0	50	0	101	81-119	0			
Bromoform	45.67	5.0	50	0	91.3	80-120	0			
Bromomethane	54.57	5.0	50	0	109	75-130	0			
Carbon disulfide	102.2	10	100	0	102	78-120	0			
Carbontetrachloride	51.9	5.0	50	0	104	77-120	0			
Chlorobenzene	47.42	5.0	50	0	94.8	82-118	0			
Chloroethane	52.45	5.0	50	0	105	78-122	0			
Chloroform	51.96	5.0	50	0	104	78-120	0			
Chloromethane	47.7	5.0	50	0	95.4	75-125	0			
cis-1,3-Dichloropropene	51.78	5.0	50	0	104	81-120	0			
Dibromochloromethane	49.32	5.0	50	0	98.6	81-118	0			
Ethylbenzene	48.97	5.0	50	0	97.9	82-120	0			
m,p-Xylene	96.43	10	100	0	96.4	82-122	0			
Methylene chloride	46.51	10	50	0	93	80-122	0			
Styrene	51	5.0	50	0	102	82-121	0			
Tetrachloroethene	47.65	5.0	50	0	95.3	79-118	0			
Toluene	49.89	5.0	50	0	99.8	81-119	0			
trans-1,3-Dichloropropene	55.18	5.0	50	0	110	82-121	0			
Trichloroethene	47.62	5.0	50	0	95.2	78-118	0			
Vinyl acetate	96.94	10	100	0	96.9	75-120	0			
Vinyl chloride	49.42	2.0	50	0	98.8	73-127	0			
Xylenes, Total	145.1	15	150	0	96.7	80-120	0			
Surr:1,2-Dichloroethane-d4	47.63	5.0	50	0	95.3	70-130	0			
Surr:4-Bromofluorobenzene	49.73	5.0	50	0	99.5	70-130	0			
Surr: Dibromofluoromethane	46.8	5.0	50	0	93.6	70-130	0			
Surr: Toluene-d8	48.32	5.0	50	0	96.6	70-130	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

LCSD Sample ID: **VLCSWD-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 11:17**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382008** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.43	5.0	50	0	103	75-118	51.84	0.799	20	
1,1,2,2-Tetrachloroethane	43.84	5.0	50	0	87.7	79-120	42.06	4.15	20	
1,1,2-Trichloroethane	46.47	5.0	50	0	92.9	81-119	46.47	0.0198	20	
1,1-Dichloroethane	51.55	5.0	50	0	103	80-120	51.25	0.578	20	
1,1-Dichloroethene	51.22	5.0	50	0	102	80-120	52.57	2.6	20	
1,2-Dichloroethane	51.49	5.0	50	0	103	80-120	51.23	0.509	20	
2-Butanone	81.55	10	100	0	81.5	70-130	77.82	4.68	20	
2-Chloroethyl vinyl ether	82.95	10	100	0	83	72-120	81.24	2.09	20	
2-Hexanone	74.74	10	100	0	74.7	70-130	74.07	0.894	20	
4-Methyl-2-pentanone	80.05	10	80.5	0	99.4	78-120	80.5	0.554	20	
Acetone	102.9	10	100	0	103	60-135	93.56	9.47	20	
Benzene	45.39	5.0	50	0	90.8	82-119	45.85	1	20	
Bromodichloromethane	50.57	5.0	50	0	101	81-119	50.42	0.301	20	
Bromoform	47	5.0	50	0	94	80-120	45.67	2.86	20	
Bromomethane	55.24	5.0	50	0	110	75-130	54.57	1.23	20	
Carbon disulfide	100.7	10	100	0	101	78-120	102.2	1.5	20	
Carbon tetrachloride	50.98	5.0	50	0	102	77-120	51.9	1.79	20	
Chlorobenzene	47.31	5.0	50	0	94.6	82-118	47.42	0.231	20	
Chloroethane	52.14	5.0	50	0	104	78-122	52.45	0.594	20	
Chloroform	51.97	5.0	50	0	104	78-120	51.96	0.0219	20	
Chloromethane	48.58	5.0	50	0	97.2	75-125	47.7	1.83	20	
cis-1,3-Dichloropropene	51.82	5.0	50	0	104	81-120	51.78	0.0892	20	
Dibromochloromethane	49.37	5.0	50	0	98.7	81-118	49.32	0.0895	20	
Ethylbenzene	47.29	5.0	50	0	94.6	82-120	48.97	3.47	20	
m,p-Xylene	95.49	10	100	0	95.5	82-122	96.43	0.978	20	
Methylene chloride	46.3	10	50	0	92.6	80-122	46.51	0.464	20	
Styrene	49.99	5.0	50	0	100	82-121	51	1.99	20	
Tetrachloroethene	46.33	5.0	50	0	92.7	79-118	47.65	2.8	20	
Toluene	47.25	5.0	50	0	94.5	81-119	49.89	5.43	20	
trans-1,3-Dichloropropene	54.77	5.0	50	0	110	82-121	55.18	0.75	20	
Trichloroethene	47.13	5.0	50	0	94.3	78-118	47.62	1.02	20	
Vinyl acetate	96.85	10	100	0	96.9	75-120	96.94	0.0844	20	
Vinyl chloride	49.39	2.0	50	0	98.8	73-127	49.42	0.0583	20	
Xylenes, Total	143.2	15	150	0	95.4	80-120	145.1	1.32	20	
Surr: 1,2-Dichloroethane-d4	47.7	5.0	50	0	95.4	70-130	47.63	0.151	20	
Surr: 4-Bromofluorobenzene	48.96	5.0	50	0	97.9	70-130	49.73	1.55	20	
Surr: Dibromofluoromethane	47.21	5.0	50	0	94.4	70-130	46.8	0.871	20	
Surr: Toluene-d8	47.64	5.0	50	0	95.3	70-130	48.32	1.42	20	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MS Sample ID: **0310129-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 14:54**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382249** Prep Date: DF: **10000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	514900	50,000	500000	0	103	75-125	0			
1,1,2,2-Tetrachloroethane	470600	50,000	500000	0	94.1	75-125	0			
1,1,2-Trichloroethane	495800	50,000	500000	0	99.2	75-125	0			
1,1-Dichloroethane	543300	50,000	500000	0	109	75-125	0			
1,1-Dichloroethene	505000	50,000	500000	0	101	65-130	0			
1,2-Dichloroethane	519900	50,000	500000	0	104	70-130	0			
2-Butanone	864200	100,000	1000000	0	86.4	64-128	0			
2-Chloroethyl vinyl ether	810300	100,000	1000000	0	81	75-125	0			
2-Hexanone	732000	100,000	1000000	0	73.2	72-124	0			
4-Methyl-2-pentanone	884400	100,000	805000	0	110	75-125	0			
Acetone	835700	100,000	1000000	0	83.6	60-130	0			
Benzene	479300	50,000	500000	0	95.9	76-127	0			
Bromodichloromethane	495000	50,000	500000	0	99	75-125	0			
Bromoform	481900	50,000	500000	0	96.4	75-125	0			
Bromomethane	524400	50,000	500000	0	105	75-125	0			
Carbon disulfide	1008000	100,000	1000000	0	101	75-125	0			
Carbon tetrachloride	504600	50,000	500000	0	101	70-130	0			
Chlorobenzene	487300	50,000	500000	0	97.5	75-126	0			
Chloroethane	503700	50,000	500000	0	101	70-130	0			
Chloroform	524400	50,000	500000	0	105	75-125	0			
Chloromethane	482100	50,000	500000	0	96.4	75-125	0			
cis-1,3-Dichloropropene	526400	50,000	500000	0	105	75-125	0			
Dibromochloromethane	498000	50,000	500000	0	99.6	75-125	0			
Ethylbenzene	505800	50,000	500000	0	101	75-125	0			
m,p-Xylene	1006000	100,000	1000000	0	101	75-125	0			
Methylene chloride	475700	100,000	500000	0	95.1	75-125	0			
Styrene	524400	50,000	500000	0	105	75-125	0			
Tetrachloroethene	481200	50,000	500000	0	96.2	75-125	0			
Toluene	500000	50,000	500000	0	100	76-125	0			
trans-1,3-Dichloropropene	550400	50,000	500000	0	110	70-130	0			
Trichloroethene	470200	50,000	500000	0	94	71-120	0			
Vinyl acetate	1084000	100,000	1000000	0	108	75-125	0			
Vinyl chloride	470400	20,000	500000	0	94.1	60-135	0			
Xylenes, Total	1510000	150,000	1500000	0	101	75-125	0			
Surr:1,2-Dichloroethane-d4	470000	50,000	500000	0	94	70-130	0			
Surr:4-Bromofluorobenzene	500000	50,000	500000	0	100	70-130	0			
Surr:Dibromofluoromethane	466000	50,000	500000	0	93.2	70-130	0			
Surr:Toluene-d8	495300	50,000	500000	0	99.1	70-130	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MSD Sample ID: **0310129-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 15:21**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382250** Prep Date: DF: **10000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	503400	50,000	500000	0	101	75-125	514900	2.25	20	
1,1,2,2-Tetrachloroethane	457100	50,000	500000	0	91.4	75-125	470600	2.9	20	
1,1,2-Trichloroethane	485300	50,000	500000	0	97.1	75-125	495800	2.13	20	
1,1-Dichloroethane	535400	50,000	500000	0	107	75-125	543300	1.47	20	
1,1-Dichloroethene	496900	50,000	500000	0	99.4	65-130	505000	1.63	20	
1,2-Dichloroethane	504100	50,000	500000	0	101	70-130	519900	3.08	20	
2-Butanone	833400	100,000	1000000	0	83.3	64-128	864200	3.63	20	
2-Chloroethyl vinyl ether	839400	100,000	1000000	0	83.9	75-125	810300	3.52	20	
2-Hexanone	721800	100,000	1000000	0	72.2	72-124	732000	1.4	20	
4-Methyl-2-pentanone	851400	100,000	805000	0	106	75-125	884400	3.81	20	
Acetone	804100	100,000	1000000	0	80.4	60-130	835700	3.85	20	
Benzene	478800	50,000	500000	0	95.8	76-127	479300	0.12	20	
Bromodichloromethane	494200	50,000	500000	0	98.8	75-125	495000	0.148	20	
Bromoform	466100	50,000	500000	0	93.2	75-125	481900	3.34	20	
Bromomethane	503900	50,000	500000	0	101	75-125	524400	3.99	20	
Carbon disulfide	994300	100,000	1000000	0	99.4	75-125	1008000	1.39	20	
Carbon tetrachloride	494300	50,000	500000	0	98.9	70-130	504600	2.07	20	
Chlorobenzene	478200	50,000	500000	0	95.6	75-126	487300	1.89	20	
Chloroethane	494300	50,000	500000	0	98.9	70-130	503700	1.88	20	
Chloroform	517000	50,000	500000	0	103	75-125	524400	1.42	20	
Chloromethane	476900	50,000	500000	0	95.4	75-125	482100	1.08	20	
cis-1,3-Dichloropropene	524200	50,000	500000	0	105	75-125	526400	0.431	20	
Dibromochloromethane	484000	50,000	500000	0	96.8	75-125	498000	2.85	20	
Ethylbenzene	496400	50,000	500000	0	99.3	75-125	505800	1.87	20	
m,p-Xylene	980500	100,000	1000000	0	98	75-125	1006000	2.61	20	
Methylene chloride	463800	100,000	500000	0	92.8	75-125	475700	2.53	20	
Styrene	514600	50,000	500000	0	103	75-125	524400	1.89	20	
Tetrachloroethene	470400	50,000	500000	0	94.1	75-125	481200	2.27	20	
Toluene	492200	50,000	500000	0	98.4	76-125	500000	1.57	20	
trans-1,3-Dichloropropene	534100	50,000	500000	0	107	70-130	550400	3.01	20	
Trichloroethene	460100	50,000	500000	0	92	71-120	470200	2.17	20	
Vinyl acetate	1059000	100,000	1000000	0	106	75-125	1084000	2.32	20	
Vinyl chloride	458000	20,000	500000	0	91.6	60-135	470400	2.66	20	
Xylenes, Total	1471000	150,000	1500000	0	98.1	75-125	1510000	2.6	20	
Surr: 1,2-Dichloroethane-d4	464700	50,000	500000	0	92.9	70-130	470000	1.14	20	
Surr: 4-Bromofluorobenzene	501900	50,000	500000	0	100	70-130	500000	0.37	20	
Surr: Dibromofluoromethane	462700	50,000	500000	0	92.5	70-130	466000	0.712	20	
Surr: Toluene-d8	491000	50,000	500000	0	98.2	70-130	495300	0.873	20	

Thefollowingsampleswereanalyzedinthisbatch: 0310201-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2022 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab
QUALITY • INTEGRITY • SERVICE

☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager:		e-Lab Work Order #:	13102

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Wells	A	See List
Work Order		Project Number		B	
Company Name	Navajo	Bill To Company		C	
Send Report To	Charlie Plymale / Darrell Moore	Invoice Attn.	Charlie Plymale	D	
Address	501 E. Main	Address		E	
				F	
City/State/Zip	Artesia NM 88210	City/State/Zip		G	
Phone	505 748 3311	Phone		H	
Fax	505 746 5421	Fax		I	
e-Mail Address				J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Wells	10/15/03	1020			5	X										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign: Charlie Plymale

Shipment Method: FedEx

Required Turnaround Time: ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
	10/16/03	1615		
Relinquished by:	Date:	Time:	Received by (Laboratory): 10/16 10/17/03 08:45	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

QC Package: (Check Box Below)

- ☐ Level II: Standard QC
- ☐ Level III: Standard QC + Raw Data
- ☐ Level IV: SW846 Methods/CLP
- ☐ Other: _____

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 10/17/2003 8:45:00 AM

Work Order Number 0310201 Received by: RNG

Checklist completed by [signature] 10/17/03 (Signature / Date) Reviewed by LT 10/17/03 (Initials / Date)

Matrix: W Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.5c	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

October 9, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2003 to September 30, 2003. We have disposed a total of 16,577,663 bbls. of fluid into the two wells as of September 30, 2003. This is broken down as follows: 11,500,262 bbls. into WDW-1 and 5,077,401 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jul-03	191	274	94	181	215	143	477	500	417	6204	7387	4901	192,336
Aug-03	155	251	52	186	245	102	378	497	203	6361	8386	3486	197,176
Sep-03	190	353	113	198	284	110	364	500	249	6802	9737	3775	210,853
WDW-2													
Jul-03	195	285	59	142	164	83	138	144	132	4868	5630	2847	150,906
Aug-03	175	261	72	137	172	80	151	193	142	4707	5909	2759	145,913
Sep-03	216	389	57	152	203	43	152	161	148	5220	6958	1486	161,810

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5887

September 08, 2003

Darrell Moore
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5281
Fax: (505) 746-5421

Re: Inj. Wells Work Order : **0308325**

Dear Darrell Moore,

e-Lab, Inc. received 1 sample on 8/29/2003 9:30:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 14. If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Georgia Jones

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: **0308325**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0308325-01	Injection Wells	Wate1		8/28/2003 10:0C	8/29/2003 09:3C	☐

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells
Lab ID: 0308325-01

Client Sample ID: Injection Wells
Collection Date: 8/28/2003 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **8/29/2003**		Analyst: **HV**
1,2,4-Trichlorobenzene	U	0.83	10		µg/L	1	9/3/2003
2,4,5-Trichlorophenol	U	2.4	10		µg/L	1	9/3/2003
2,4,6-Trichlorophenol	U	2.7	10		µg/L	1	9/3/2003
2-Methylnaphthalene	U	0.86	10		µg/L	1	9/3/2003
2-Methylphenol	U	2.8	10		µg/L	1	9/3/2003
2-Nitroaniline	U	1.1	10		µg/L	1	9/3/2003
2-Nitrophenol	U	2.6	10		µg/L	1	9/3/2003
3-Nitroaniline	U	1.2	10		µg/L	1	9/3/2003
4-Methylphenol	U	4.6	10		µg/L	1	9/3/2003
4-Nitroaniline	U	0.95	10		µg/L	1	9/3/2003
4-Nitrophenol	U	2.7	10		µg/L	1	9/3/2003
Acenaphthene	U	1.1	10		µg/L	1	9/3/2003
Acenaphthylene	U	1.0	10		µg/L	1	9/3/2003
Aniline	U	10	10		µg/L	1	9/3/2003
Anthracene	U	0.36	10		µg/L	1	9/3/2003
Benz(a)anthracene	U	0.77	10		µg/L	1	9/3/2003
Benzidine	U	0.34	10		µg/L	1	9/3/2003
Hexachloroethane	U	0.64	10		µg/L	1	9/3/2003
Indeno(1,2,3-cd)pyrene	U	0.77	10		µg/L	1	9/3/2003
Isophorone	U	1.2	10		µg/L	1	9/3/2003
N-Nitrosodi-n-propylamine	U	1.5	10		µg/L	1	9/3/2003
N-Nitrosodimethylamine	U	1.1	10		µg/L	1	9/3/2003
N-Nitrosodiphenylamine	U	1.3	10		µg/L	1	9/3/2003
Naphthalene	U	1.0	10		µg/L	1	9/3/2003
Nitrobenzene	U	1.7	10		µg/L	1	9/3/2003
Pentachlorophenol	U	1.5	10		µg/L	1	9/3/2003
Phenanthrene	U	1.2	10		µg/L	1	9/3/2003
Phenol	U	3.5	10		µg/L	1	9/3/2003
Pyrene	U	0.92	10		µg/L	1	9/3/2003
Surr: 2,4,6-Tribromophenol	103	0	10-123		%REC	1	9/3/2003
Surr: 2-Fluorobiphenyl	92.9	0	43-116		%REC	1	9/3/2003
Surr: 2-Fluorophenol	37.2	0	21-100		%REC	1	9/3/2003
Surr: 4-Terphenyl-d14	99.3	0	33-141		%REC	1	9/3/2003
Surr: Nitrobenzene-d5	88.4	0	35-114		%REC	1	9/3/2003
Surr: Phenol-d6	23.9	0	10-94		%REC	1	9/3/2003
VOLATILES BY GC/MS		**SW8260**			Prep Date:		Analyst: **HLBW**
1,1,1-Trichloroethane	U	0.62	5.0		µg/L	1	9/4/2003
1,1,2,2-Tetrachloroethane	U	0.58	5.0		µg/L	1	9/4/2003
1,1,2-Trichloroethane	U	0.41	5.0		µg/L	1	9/4/2003

Qualifiers

U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells
Lab ID: 0308325-01

Client Sample ID: Injection Wells
Collection Date: 8/28/2003 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	U	0.43	5.0		µg/L	1	9/4/2003
1,1-Dichloroethene	U	0.53	5.0		µg/L	1	9/4/2003
1,2-Dichloroethane	U	0.38	5.0		µg/L	1	9/4/2003
2-Butanone	3.5	0.70	10	J	µg/L	1	9/4/2003
2-Chloroethyl vinyl ether	U	0.63	10		µg/L	1	9/4/2003
2-Hexanone	U	1.1	10		µg/L	1	9/4/2003
4-Methyl-2-pentanone	U	0.64	10		µg/L	1	9/4/2003
Acetone	41	1.2	10		µg/L	1	9/4/2003
Benzene	U	0.66	5.0		µg/L	1	9/4/2003
Bromodichloromethane	U	0.45	5.0		µg/L	1	9/4/2003
Bromoform	U	0.40	5.0		µg/L	1	9/4/2003
Bromomethane	U	0.70	5.0		µg/L	1	9/4/2003
Carbon disulfide	U	0.76	10		µg/L	1	9/4/2003
Carbon tetrachloride	U	0.65	5.0		µg/L	1	9/4/2003
Chlorobenzene	U	0.43	5.0		µg/L	1	9/4/2003
Chloroethane	U	0.56	5.0		µg/L	1	9/4/2003
Chloroform	U	0.52	5.0		µg/L	1	9/4/2003
Chloromethane	U	1.1	5.0		µg/L	1	9/4/2003
cis-1,3-Dichloropropene	U	0.47	5.0		µg/L	1	9/4/2003
Dibromochloromethane	U	0.53	5.0		µg/L	1	9/4/2003
Ethylbenzene	1.8	0.77	5.0	J	µg/L	1	9/4/2003
m,p-Xylene	3.0	1.3	10	J	µg/L	1	9/4/2003
Methyl tert-butyl ether	1.9	0.30	5.0	J	µg/L	1	9/4/2003
Methylene chloride	U	0.60	10		µg/L	1	9/4/2003
Styrene	U	0.56	5.0		µg/L	1	9/4/2003
Tetrachloroethene	U	0.43	5.0		µg/L	1	9/4/2003
Toluene	U	0.69	5.0		µg/L	1	9/4/2003
trans-1,3-Dichloropropene	U	0.44	5.0		µg/L	1	9/4/2003
Trichloroethene	U	0.70	5.0		µg/L	1	9/4/2003
Vinyl acetate	U	0.92	10		µg/L	1	9/4/2003
Vinyl chloride	U	0.79	2.0		µg/L	1	9/4/2003
Xylenes, Total	3.0	1.8	15	J	µg/L	1	9/4/2003
Surr: 1,2-Dichloroethane-d4	84.2	0	70-130		%REC	1	9/4/2003
Surr: 4-Bromofluorobenzene	92.1	0	70-130		%REC	1	9/4/2003
Surr: Dibromofluoromethane	93.3	0	70-130		%REC	1	9/4/2003
Surr: Toluene-d8	97.8	0	70-130		%REC	1	9/4/2003

Qualifiers

U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Sep 05 2003*

CLIENT: Navajo Refining Company

QC BATCH REPORT

Work Order: 0308325

Project: Inj. Wells

Batch ID: **6544** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 20:27**

Client ID: Run ID: **SV-2_030902A** SeqNo: **363914** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	U	10								
2,4,5-Trichlorophenol	U	10								
2,4,6-Trichlorophenol	U	10								
2-Methylnaphthalene	U	10								
2-Methylphenol	U	10								
2-Nitroaniline	U	10								
2-Nitrophenol	U	10								
3-Nitroaniline	U	10								
4-Methylphenol	U	10								
4-Nitroaniline	U	10								
4-Nitrophenol	U	10								
Acenaphthene	U	10								
Acenaphthylene	U	10								
Aniline	U	10								
Anthracene	U	10								
Benz(a)anthracene	U	10								
Benzidine	U	10								
Hexachloroethane	U	10								
Indeno(1,2,3-cd)pyrene	U	10								
Isophorone	U	10								
N-Nitrosodi-n-propylamine	U	10								
N-Nitrosodimethylamine	U	10								
N-Nitrosodiphenylamine	U	10								
Naphthalene	U	10								
Nitrobenzene	U	10								
Pentachlorophenol	U	10								
Phenanthrene	U	10								
Phenol	U	10								
Pyrene	U	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	94.95	0	100	0	94.9	10-123	0			
Surr: 2-Fluorobiphenyl	83.93	0	100	0	83.9	43-116	0			
Surr: 2-Fluorophenol	47.33	0	100	0	47.3	21-100	0			
Surr:4-Terphenyl-d14	96.76	0	100	0	96.8	33-141	0			
Surr: Nitrobenzene-d5	83.45	0	100	0	83.5	35-114	0			
Surr: Phenol-d6	29.37	0	100	0	29.4	10-94	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6544** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 20:52**
Client ID: Run ID: **SV-2_030902A** SeqNo: **363915** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	36.24	10	50	0	72.5	51-110	0			
2,4,5-Trichlorophenol	99.21	10	100	0	99.2	55-130	0			
2,4,6-Trichlorophenol	96.5	10	100	0	96.5	55-130	0			
2-Methylnaphthalene	37.11	10	50	0	74.2	50-125	0			
2-Methylphenol	75.67	10	100	0	75.7	45-120	0			
2-Nitroaniline	48.86	10	50	0	97.7	55-130	0			
2-Nitrophenol	92.95	10	100	0	92.9	55-125	0			
3-Nitroaniline	50.32	10	50	0	101	55-120	0			
4-Methylphenol	102.9	10	150	0	68.6	40-120	0			
4-Nitroaniline	49.51	10	50	0	99	60-130	0			
4-Nitrophenol	56.88	10	100	0	56.9	25-100	0			
Acenaphthene	44.06	10	50	0	88.1	50-120	0			
Acenaphthylene	44.04	10	50	0	88.1	55-130	0			
Anthracene	49.51	10	50	0	99	60-130	0			
Benz(a)anthracene	47.1	10	50	0	94.2	60-130	0			
Benzidine	18.48	10	50	0	37	10-85	0			
Hexachloroethane	33.99	10	50	0	68	40-120	0			
Indeno(1,2,3-cd)pyrene	48.89	10	50	0	97.8	60-130	0			
Isophorone	47.07	10	50	0	94.1	60-130	0			
N-Nitrosodi-n-propylamine	46.01	10	50	0	92	55-120	0			
N-Nitrosodimethylamine	25.79	10	50	0	51.6	35-110	0			
N-Nitrosodiphenylamine	53.89	10	50	0	108	60-130	0			
Naphthalene	38.88	10	50	0	77.8	55-130	0			
Nitrobenzene	45.5	10	50	0	91	60-130	0			
Pentachlorophenol	92.37	10	100	0	92.4	45-125	0			
Phenanthrene	47.78	10	50	0	95.6	60-130	0			
Phenol	35.14	10	100	0	35.1	20-100	0			
Pyrene	45.89	10	50	0	91.8	45-120	0			
Surr: 2,4,6-Tribromophenol	104.1	0	100	0	104	10-123	0			
Surr: 2-Fluorobiphenyl	90.54	0	100	0	90.5	43-116	0			
Surr: 2-Fluorophenol	54.46	0	100	0	54.5	21-100	0			
Surr:4-Terphenyl-d14	99.22	0	100	0	99.2	33-141	0			
Surr: Nitrobenzene-d5	90.28	0	100	0	90.3	35-114	0			
Surr: Phenol-d6	34.99	0	100	0	35	10-94	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6544** InstrumentID: **SV-2**

LCSD Sample ID: **SLCSDW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 21:18**
Client ID: Run ID: **SV-2_030902A** SeqNo: **363917** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	36.57	10	50	0	73.1	51-110	36.24	0.907	30	
2,4,5-Trichlorophenol	100.9	10	100	0	101	55-130	99.21	1.73	30	
2,4,6-Trichlorophenol	96.17	10	100	0	96.2	55-130	96.5	0.35	30	
2-Methylnaphthalene	37.8	10	50	0	75.6	50-125	37.11	1.85	30	
2-Methylphenol	76.54	10	100	0	76.5	45-120	75.67	1.14	30	
2-Nitroaniline	50.36	10	50	0	101	55-130	48.86	3.03	30	
2-Nitrophenol	93.07	10	100	0	93.1	55-125	92.95	0.131	30	
3-Nitroaniline	52.17	10	50	0	104	55-120	50.32	3.61	30	
4-Methylphenol	105.4	10	150	0	70.2	40-120	102.9	2.41	30	
4-Nitroaniline	51.7	10	50	0	103	60-130	49.51	4.33	30	
4-Nitrophenol	58.66	10	100	0	58.7	25-100	56.88	3.09	30	
Acenaphthene	43.86	10	50	0	87.7	50-120	44.06	0.443	30	
Acenaphthylene	44.01	10	50	0	88	55-130	44.04	0.0744	30	
Anthracene	49.66	10	50	0	99.3	60-130	49.51	0.298	30	
Benz(a)anthracene	46.45	10	50	0	92.9	60-130	47.1	1.39	30	
Benzidine	30.71	10	50	0	61.4	10-85	18.48	49.7	30	R
Hexachloroethane	34.69	10	50	0	69.4	40-120	33.99	2.05	30	
Indeno(1,2,3-cd)pyrene	45.54	10	50	0	91.1	60-130	48.89	7.11	30	
Isophorone	47.79	10	50	0	95.6	60-130	47.07	1.52	30	
N-Nitrosodi-n-propylamine	46.64	10	50	0	93.3	55-120	46.01	1.35	30	
N-Nitrosodimethylamine	26.37	10	50	0	52.7	35-110	25.79	2.2	30	
N-Nitrosodiphenylamine	53.46	10	50	0	107	60-130	53.89	0.802	30	
Naphthalene	39.15	10	50	0	78.3	55-130	38.88	0.703	30	
Nitrobenzene	45.91	10	50	0	91.8	60-130	45.5	0.893	30	
Pentachlorophenol	87.99	10	100	0	88	45-125	92.37	4.86	30	
Phenanthrene	47.34	10	50	0	94.7	60-130	47.78	0.921	30	
Phenol	36.53	10	100	0	36.5	20-100	35.14	3.9	30	
Pyrene	46.24	10	50	0	92.5	45-120	45.89	0.777	30	
Surr: 2,4,6-Tribromophenol	101.1	0	100	0	101	10-123	104.1	2.89	30	
Surr: 2-Fluorobiphenyl	90.67	0	100	0	90.7	43-116	90.54	0.141	30	
Surr: 2-Fluorophenol	54.74	0	100	0	54.7	21-100	54.46	0.517	30	
Surr:4-Terphenyl-d14	100.8	0	100	0	101	33-141	99.22	1.55	30	
Surr: Nitrobenzene-d5	91.28	0	100	0	91.3	35-114	90.28	1.1	30	
Surr: Phenol-d6	35.67	0	100	0	35.7	10-94	34.99	1.94	30	

Thefollowingsampleswereanalyzedinthisbatch: 0308325-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MBLK Sample ID: **VBLKW-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 11:19**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364169** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2-Dichloroethane	U	5.0								
2-Butanone	U	10								
2-Chloroethyl vinyl ether	U	10								
2-Hexanone	U	10								
4-Methyl-2-pentanone	U	10								
Acetone	U	10								
Benzene	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	5.0								
Carbon disulfide	U	10								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Dibromochloromethane	U	5.0								
Ethylbenzene	U	5.0								
m,p-Xylene	U	10								
Methyl tert-butyl ether	U	5.0								
Methylene chloride	U	10								
Styrene	U	5.0								
Tetrachloroethene	U	5.0								
Toluene	U	5.0								
trans-1,3-Dichloropropene	U	5.0								
Trichloroethene	U	5.0								
Vinyl acetate	U	10								
Vinyl chloride	U	2.0								
Xylenes, Total	U	15								
Surr:1,2-Dichloroethane-d4	44.69	5.0	50	0	89.4	70-130	0			
Surr:4-Bromofluorobenzene	46.1	5.0	50	0	92.2	70-130	0			
Surr: Dibromofluoromethane	48.14	5.0	50	0	96.3	70-130	0			
Surr: Toluene-d8	47.88	5.0	50	0	95.8	70-130	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

LCS Sample ID: **VLCSW-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 9:51**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364167** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	50.1	5.0	50	0	100	75-118	0			
1,1,2,2-Tetrachloroethane	51.87	5.0	50	0	104	79-120	0			
1,1,2-Trichloroethane	52.32	5.0	50	0	105	81-119	0			
1,1-Dichloroethane	52.71	5.0	50	0	105	80-120	0			
1,1-Dichloroethene	55.71	5.0	50	0	111	80-120	0			
1,2-Dichloroethane	52.78	5.0	50	0	106	80-120	0			
2-Butanone	98.7	10	100	0	98.7	70-130	0			
2-Chloroethyl vinyl ether	93.51	10	100	0	93.5	72-120	0			
2-Hexanone	101.5	10	100	0	102	70-130	0			
4-Methyl-2-pentanone	99.44	10	100	0	99.4	78-120	0			
Acetone	92.2	10	100	0	92.2	60-135	0			
Benzene	53.97	5.0	50	0	108	82-119	0			
Bromodichloromethane	52.6	5.0	50	0	105	81-119	0			
Bromoform	52.48	5.0	50	0	105	80-120	0			
Bromomethane	44.47	5.0	50	0	88.9	75-130	0			
Carbon disulfide	103.7	10	100	0	104	78-120	0			
Carbon tetrachloride	52.38	5.0	50	0	105	77-120	0			
Chlorobenzene	51.44	5.0	50	0	103	82-118	0			
Chloroethane	49.51	5.0	50	0	99	78-122	0			
Chloroform	51.9	5.0	50	0	104	78-120	0			
Chloromethane	45.43	5.0	50	0	90.9	75-125	0			
cis-1,3-Dichloropropene	53.12	5.0	50	0	106	81-120	0			
Dibromochloromethane	52.07	5.0	50	0	104	81-118	0			
Ethylbenzene	51.27	5.0	50	0	103	82-120	0			
m,p-Xylene	103.4	10	100	0	103	82-122	0			
Methyl tert-butyl ether	51.57	5.0	50	0	103	79-120	0			
Methylene chloride	51.14	10	50	0	102	80-122	0			
Styrene	52.77	5.0	50	0	106	82-121	0			
Tetrachloroethene	40.92	5.0	50	0	81.8	79-118	0			
Toluene	52.09	5.0	50	0	104	81-119	0			
trans-1,3-Dichloropropene	53.38	5.0	50	0	107	82-121	0			
Trichloroethene	53.57	5.0	50	0	107	78-118	0			
Vinyl acetate	108.7	10	100	0	109	75-120	0			
Vinyl chloride	49.29	2.0	50	0	98.6	73-127	0			
Xylenes, Total	155	15	150	0	103	80-120	0			
Surr:1,2-Dichloroethane-d4	43.49	5.0	50	0	87	70-130	0			
Surr:4-Bromofluorobenzene	47.03	5.0	50	0	94.1	70-130	0			
Surr:Dibromofluoromethane	46.93	5.0	50	0	93.9	70-130	0			
Surr: Toluene-d8	47.28	5.0	50	0	94.6	70-130	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

LCSD Sample ID: **VLCSWD-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 10:20**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364168** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.77	5.0	50	0	104	75-118	50.1	3.29	20	
1,1,2,2-Tetrachloroethane	54.18	5.0	50	0	108	79-120	51.87	4.35	20	
1,1,2-Trichloroethane	53.26	5.0	50	0	107	81-119	52.32	1.79	20	
1,1-Dichloroethane	53.86	5.0	50	0	108	80-120	52.71	2.14	20	
1,1-Dichloroethene	57.86	5.0	50	0	116	80-120	55.71	3.78	20	
1,2-Dichloroethane	53.38	5.0	50	0	107	80-120	52.78	1.14	20	
2-Butanone	99.95	10	100	0	100	70-130	98.7	1.26	20	
2-Chloroethyl vinyl ether	93.68	10	100	0	93.7	72-120	93.51	0.182	20	
2-Hexanone	104.3	10	100	0	104	70-130	101.5	2.63	20	
4-Methyl-2-pentanone	103	10	100	0	103	78-120	99.44	3.49	20	
Acetone	104.1	10	100	0	104	60-135	92.2	12.1	20	
Benzene	55.75	5.0	50	0	112	82-119	53.97	3.25	20	
Bromodichloromethane	53.22	5.0	50	0	106	81-119	52.6	1.17	20	
Bromoform	53.44	5.0	50	0	107	80-120	52.48	1.81	20	
Bromomethane	45.67	5.0	50	0	91.3	75-130	44.47	2.65	20	
Carbon disulfide	108.4	10	100	0	108	78-120	103.7	4.43	20	
Carbon tetrachloride	55.55	5.0	50	0	111	77-120	52.38	5.87	20	
Chlorobenzene	52.68	5.0	50	0	105	82-118	51.44	2.38	20	
Chloroethane	50.08	5.0	50	0	100	78-122	49.51	1.14	20	
Chloroform	52.38	5.0	50	0	105	78-120	51.9	0.912	20	
Chloromethane	45.93	5.0	50	0	91.9	75-125	45.43	1.09	20	
cis-1,3-Dichloropropene	53.98	5.0	50	0	108	81-120	53.12	1.6	20	
Dibromochloromethane	52.74	5.0	50	0	105	81-118	52.07	1.28	20	
Ethylbenzene	53.86	5.0	50	0	108	82-120	51.27	4.92	20	
m,p-Xylene	106.1	10	100	0	106	82-122	103.4	2.63	20	
Methyl tert-butyl ether	53.01	5.0	50	0	106	79-120	51.57	2.74	20	
Methylene chloride	54.25	10	50	0	108	80-122	51.14	5.89	20	
Styrene	53.8	5.0	50	0	108	82-121	52.77	1.93	20	
Tetrachloroethene	49.07	5.0	50	0	98.1	79-118	40.92	18.1	20	
Toluene	53.44	5.0	50	0	107	81-119	52.09	2.57	20	
trans-1,3-Dichloropropene	53.15	5.0	50	0	106	82-121	53.38	0.431	20	
Trichloroethene	54.67	5.0	50	0	109	78-118	53.57	2.02	20	
Vinyl acetate	106.9	10	100	0	107	75-120	108.7	1.69	20	
Vinyl chloride	48.41	2.0	50	0	96.8	73-127	49.29	1.8	20	
Xylenes, Total	159.1	15	150	0	106	80-120	155	2.57	20	
Surr: 1,2-Dichloroethane-d4	45.22	5.0	50	0	90.4	70-130	43.49	3.89	20	
Surr: 4-Bromofluorobenzene	46.99	5.0	50	0	94	70-130	47.03	0.0948	20	
Surr: Dibromofluoromethane	47.99	5.0	50	0	96	70-130	46.93	2.23	20	
Surr: Toluene-d8	47.65	5.0	50	0	95.3	70-130	47.28	0.774	20	

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MS Sample ID: **0309018-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 15:47**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364394** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	515	50	500	0	103	75-125	0			
1,1,2,2-Tetrachloroethane	543.4	50	500	0	109	75-125	0			
1,1,2-Trichloroethane	532.2	50	500	0	106	75-125	0			
1,1-Dichloroethane	567.7	50	500	11.67	111	75-125	0			
1,1-Dichloroethene	603.4	50	500	0	121	65-130	0			
1,2-Dichloroethane	482.3	50	500	0	96.5	70-130	0			
2-Butanone	1033	100	1000	0	103	64-128	0			
2-Chloroethyl vinyl ether	81.14	100	1000	0	8.11	75-125	0			JS
2-Hexanone	1050	100	1000	0	105	72-124	0			
4-Methyl-2-pentanone	1042	100	1000	0	104	75-125	0			
Acetone	772.7	100	1000	53.14	72	60-130	0			
Benzene	558.9	50	500	0	112	76-127	0			
Bromodichloromethane	501.3	50	500	0	100	75-125	0			
Bromoform	517.9	50	500	0	104	75-125	0			
Bromomethane	472.4	50	500	0	94.5	75-125	0			
Carbon disulfide	1120	100	1000	0	112	75-125	0			
Carbontetrachloride	2713	50	500	1890	165	70-130	0			SE
Chlorobenzene	510	50	500	0	102	75-126	0			
Chloroethane	486.6	50	500	0	97.3	70-130	0			
Chloroform	854.1	50	500	288.6	113	75-125	0			
Chloromethane	471	50	500	0	94.2	75-125	0			
cis-1,3-Dichloropropene	526.1	50	500	0	105	75-125	0			
Dibromochloromethane	499.6	50	500	0	99.9	75-125	0			
Ethylbenzene	522.2	50	500	0	104	75-125	0			
m,p-Xylene	1040	100	1000	0	104	75-125	0			
Methyl tert-butyl ether	529	50	500	0	106	75-125	0			
Methylene chloride	620.2	100	500	50.99	114	75-125	0			
Styrene	525.3	50	500	0	105	75-125	0			
Tetrachloroethene	406.4	50	500	20.72	77.1	75-125	0			
Toluene	533.9	50	500	0	107	76-125	0			
trans-1,3-Dichloropropene	506.8	50	500	0	101	70-130	0			
Trichloroethene	1042	50	500	447.3	119	71-120	0			
Vinyl acetate	1178	100	1000	0	118	75-125	0			
Vinyl chloride	502.1	20	500	0	100	60-135	0			
Xylenes, Total	1560	150	1500	0	104	75-125	0			
Surr:1,2-Dichloroethane-d4	428.6	50	500	0	85.7	70-130	0			
Surr:4-Bromofluorobenzene	444.2	50	500	0	88.8	70-130	0			
Surr: Dibromofluoromethane	477.1	50	500	0	95.4	70-130	0			
Surr: Toluene-d8	487.1	50	500	0	97.4	70-130	0			

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P - Dual Column results percent difference > 40%
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MSD Sample ID: **0309018-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 16:17**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364553** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	536.2	50	500	0	107	75-125	515	4.05	20	
1,1,2,2-Tetrachloroethane	572.7	50	500	0	115	75-125	543.4	5.25	20	
1,1,2-Trichloroethane	562.9	50	500	0	113	75-125	532.2	5.61	20	
1,1-Dichloroethane	589.5	50	500	11.67	116	75-125	567.7	3.77	20	
1,1-Dichloroethene	627.1	50	500	0	125	65-130	603.4	3.86	20	
1,2-Dichloroethane	498	50	500	0	99.6	70-130	482.3	3.19	20	
2-Butanone	1103	100	1000	0	110	64-128	1033	6.56	20	
2-Chloroethyl vinyl ether	16.9	100	1000	0	1.69	75-125	81.14	0	20	JS
2-Hexanone	1106	100	1000	0	111	72-124	1050	5.16	20	
4-Methyl-2-pentanone	1115	100	1000	0	112	75-125	1042	6.8	20	
Acetone	861.8	100	1000	53.14	80.9	60-130	772.7	10.9	20	
Benzene	608.7	50	500	0	122	76-127	558.9	8.54	20	
Bromodichloromethane	530.8	50	500	0	106	75-125	501.3	5.71	20	
Bromoform	548.7	50	500	0	110	75-125	517.9	5.77	20	
Bromomethane	471.8	50	500	0	94.4	75-125	472.4	0.119	20	
Carbon disulfide	1171	100	1000	0	117	75-125	1120	4.44	20	
Carbontetrachloride	2764	50	500	1890	175	70-130	2713	1.85	20	SE
Chlorobenzene	545.2	50	500	0	109	75-126	510	6.67	20	
Chloroethane	551.8	50	500	0	110	70-130	486.6	12.6	20	
Chloroform	882.7	50	500	288.6	119	75-125	854.1	3.29	20	
Chloromethane	514	50	500	0	103	75-125	471	8.73	20	
cis-1,3-Dichloropropene	554.8	50	500	0	111	75-125	526.1	5.3	20	
Dibromochloromethane	528.8	50	500	0	106	75-125	499.6	5.68	20	
Ethylbenzene	556.5	50	500	0	111	75-125	522.2	6.35	20	
m,p-Xylene	1106	100	1000	0	111	75-125	1040	6.09	20	
Methyl tert-butyl ether	549.4	50	500	0	110	75-125	529	3.78	20	
Methylene chloride	621.1	100	500	50.99	114	75-125	620.2	0.148	20	
Styrene	558.2	50	500	0	112	75-125	525.3	6.09	20	
Tetrachloroethene	426.8	50	500	20.72	81.2	75-125	406.4	4.9	20	
Toluene	568.6	50	500	0	114	76-125	533.9	6.29	20	
trans-1,3-Dichloropropene	525.6	50	500	0	105	70-130	506.8	3.65	20	
Trichloroethene	1083	50	500	447.3	127	71-120	1042	3.87	20	S
Vinyl acetate	1204	100	1000	0	120	75-125	1178	2.22	20	
Vinyl chloride	543.7	20	500	0	109	60-135	502.1	7.96	20	
Xylenes, Total	1665	150	1500	0	111	75-125	1560	6.53	20	
Surr:1,2-Dichloroethane-d4	426	50	500	0	85.2	70-130	428.6	0.621	20	
Surr:4-Bromofluorobenzene	459.3	50	500	0	91.9	70-130	444.2	3.34	20	
Surr:Dibromofluoromethane	465.5	50	500	0	93.1	70-130	477.1	2.45	20	
Surr:Toluene-d8	490.6	50	500	0	98.1	70-130	487.1	0.705	20	

Thefollowingsampleswereanalyzedinthisbatch: 0308325-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2022 11:49:15 AM

Received by OCD: 5/16/2022 2:12:41 PM

e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager:

e-Lab Work Order #: 0308325

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Wells	A	TCLP VOCs (1311/8260)
Work Order		Project Number		B	TCLP SVOCs (1311/8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	TCLP Metals (1311/6020/7470)
Send Report To	Darrell Moore/Charlie Plymale	Invoice Attn	Charlie Plymale	D	Semi volatiles
Address	P.O. Box 159	Address	P.O. Box 159	E	Volatiles
				F	
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	
Phone	(505) 748-3311	Phone	(505) 748-3311	H	
Fax	(505) 746-5421	Fax	(505) 746-5421	I	
e-Mail Address				J	

No	Sample Description	Date	Time	Matrix	Pres	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. wells	8/28/03	1000			5				X	X						
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign: Charles Plymale

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
	8/28/03 1615	1615		
Relinquished by:	Date:	Time:	Received by (Laboratory): RICHARD SANDOVAL 8/29/03	0930
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

e-Lab Cooler ID	Cooler Temp.

QC Package: (Check Box Below)

Level II: Standard QC	X
Level III: Standard QC + Raw Data	
Level IV: SW846 Methods/CLP	
Other:	

Preservative Key: 1- HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING COMPAN Date/Time Received: 8/29/2003 9:30:00 AM

Work Order Number 0308325 Received by: RSZ

Checklist completed by RICHARD SANCHEZ 8.29.03 (Signature / Date) Reviewed by LT 9/2/03 (Initials / Date)

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.2c	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
JUL 14 2003
OIL CONSERVATION DIVISION

July 11, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2003 to March 31, 2003. We have disposed a total of 13,448,129 bbls. of fluid into the two wells as of March 31 2003. This is broken down as follows: 9,732,076 bbls. into WDW-1 and 3,715,473 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 2 of 15
N/A | Injection Wells | N/A

Analytical Report

Sample: 215473 - Inj Wells

Analysis: Alkalinity | Analytical Method: E 310.1 | QC Batch: QC25706 | Date Analyzed: 12/17/02
Analyst: MS | Preparation Method: N/A | Prep Batch: PB23811 | Date Prepared: 12/17/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		146	mg/L as CaCo3	1	4
Total Alkalinity		146	mg/L as CaCo3	1	4

Sample: 215473 - Inj Wells

Analysis: Conductivity | Analytical Method: SM 2510B | QC Batch: QC25592 | Date Analyzed: 12/16/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB23722 | Date Prepared: 12/16/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5070	µMHOS/cm	1	

Sample: 215473 - Inj Wells

Analysis: Corrosivity | Analytical Method: S 1110 | QC Batch: QC25828 | Date Analyzed: 12/26/02
Analyst: JH | Preparation Method: N/A | Prep Batch: PB23933 | Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non-corrosive	mm/yr	1	
pH		8.2	s.u.	1	

Sample: 215473 - Inj Wells

Analysis: Hg, Total | Analytical Method: S 7470A | QC Batch: QC25555 | Date Analyzed: 12/12/02
Analyst: BC | Preparation Method: N/A | Prep Batch: PB23652 | Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		0.00022	mg/L	1	0.0002

Sample: 215473 - Inj Wells

Analysis: Ignitability | Analytical Method: SW-846 Ch. 7.1 | QC Batch: QC25826 | Date Analyzed: 12/26/02
Analyst: JH | Preparation Method: N/A | Prep Batch: PB23931 | Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 215473 - Inj Wells

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC25539 | Date Analyzed: 12/11/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB23675 | Date Prepared: 12/11/02

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 15
N/A Injection Wells N/A

Param	Flag	Result	Units	Dilution	RDL
Chloride		1000	mg/L	100	1
Fluoride		66.05	mg/L	5	0.20
Nitrate-N		<1.0	mg/L	5	0.20
Sulfate		663	mg/L	100	1

Sample: 215473 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC25829 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23934 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 215473 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC25566 Date Analyzed: 12/12/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB23664 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		158	mg/L	1	0.50
Dissolved Magnesium		31.5	mg/L	1	0.50
Dissolved Potassium		17.2	mg/L	1	0.50
Dissolved Sodium		698	mg/L	1	0.50

Sample: 215473 - Inj Wells

Analysis: TDS Analytical Method: E 160.1 QC Batch: QC25540 Date Analyzed: 12/12/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23674 Date Prepared: 12/10/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		3005	mg/L	5	10

Sample: 215473 - Inj Wells

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC25543 Date Analyzed: 12/12/02
Analyst: RR Preparation Method: N/A Prep Batch: PB23651 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.411	mg/L	1	0.05
Total Arsenic		0.135	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.158	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		0.950	mg/L	1	0.05

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Page 212 of 5828

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 4 of 15
N/A Injection Wells N/A

... *Continued* Sample: 215473 Analysis: Total Metals

Param	Flag	Result	Units	Dilution	RDL
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.0672	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.122	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.0586	mg/L	1	0.02

Sample: 215473 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC25623	Date Analyzed:	12/14/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB23747	Date Prepared:	12/14/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 5 of 15
N/A Injection Wells N/A

... *Continued* Sample: 215473 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.6	µg/L	5	50	99	70 - 130
Toluene-d8		50.1	µg/L	5	50	100	70 - 130
4-Bromofluorobenzene		45.6	µg/L	5	50	91	70 - 130

Sample: 215473 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC25527	Date Analyzed:	12/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB23667	Date Prepared:	12/10/02

Param	Flag	Result	Units	Dilution	RDL
pH	[2]	7.5	s.u.	1	1

[1] elevated reporting limit due to matrix difficulty.
[2] The sample was received out of holding time

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 6 of 15
N/A | Injection Wells | N/A

Quality Control Report
Method Blank

Method Blank QCBatch: QC25539

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC25540

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC25543

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.05
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		0.0166	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC25555

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 7 of 15
N/A | Injection Wells | N/A

Method Blank QCBatch: QC25566

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank QCBatch: QC25592

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		9.25	µMHOS/cm	

Method Blank QCBatch: QC25623

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene	3	<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1

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[3]estimated concentration=0.16 µg/L. Reported between MDL (.054 µg/L) and reporting limit.

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 8 of 15
N/A Injection Wells N/A

... *Continued*

Param	Flag	Results	Units	Reporting Limit
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene	4	<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene	5	<1.00	µg/L	1
m,p-Xylene	6	<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene	7	<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	70 - 130
Toluene-d8		52.8	µg/L	1	50	106	70 - 130
4-Bromofluorobenzene		47.7	µg/L	1	50	95	70 - 130

[4]estimated concentration=0.19 µg/L. Reported between MDL (.042 µg/L) and reporting limit.
[5]estimated concentration=0.04 µg/L. Reported between MDL (.018 µg/L) and reporting limit.
[6]estimated concentration=0.09 µg/L. Reported between MDL (.051 µg/L) and reporting limit.
[7]estimated concentration=0.05 µg/L. Reported between MDL (.028 µg/L) and reporting limit.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 9 of 15
N/A | Injection Wells | N/A

Method Blank QCBatch: QC25706

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	4
Total Alkalinity		<4.0	mg/L as CaCo3	4

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC25527

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.8	8.8	s.u.	1	0	0

Duplicate QCBatch: QC25540

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1270	1234	mg/L	1	2	9.7

Duplicate QCBatch: QC25592

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4130	4040	µMHOS/cm	1	2	20

Duplicate QCBatch: QC25706

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		690	684	mg/L as CaCo3	1	0	9.2
Total Alkalinity		690	684	mg/L as CaCo3	1	0	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC25539

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 10 of 15
N/A Injection Wells N/A

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.63	13.13	mg/L	1	12.50	<1.0	93	12	90 - 110	20
Fluoride	2.36	2.38	mg/L	1	2.50	<0.2	94	0	90 - 110	20
Nitrate-N	2.45	2.45	mg/L	1	2.50	<0.2	98	0	90 - 110	20
Sulfate	12.12	12.26	mg/L	1	12.50	<1.0	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25543

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Calcium	99.4	98.8	mg/L	1	100	<0.5	99	0	75 - 125	20
Total Iron	0.512	0.515	mg/L	1	0.50	<0.050	102	0	75 - 125	20
Total Magnesium	103	99.8	mg/L	1	100	<0.5	103	3	75 - 125	20
Total Potassium	105	105	mg/L	1	100	<0.5	105	0	75 - 125	20
Total Sodium	106	104	mg/L	1	100	<0.5	106	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25555

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00113	0.00116	mg/L	1	0.001	<0.0002	113	2	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25623

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	91.7	91.7	µg/L	1	100	<1.00	92	0	70 - 130	20
Benzene	98.7	100	µg/L	1	100	<1.00	99	1	70 - 130	20
Trichloroethene (TCE)	89.8	89.8	µg/L	1	100	<1.00	90	0	70 - 130	20
Toluene	98.8	99.6	µg/L	1	100	<1.00	99	1	70 - 130	20
Chlorobenzene	96.5	96.6	µg/L	1	100	<1.00	96	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	47.7	47.6	µg/L	1	50	95	95	70 - 130
Toluene-d8	50.5	50.0	µg/L	1	50	101	100	70 - 130
4-Bromofluorobenzene	47.2	45.4	µg/L	1	50	94	91	70 - 130

Quality Control Report
Matrix Spikes and Duplicate Spikes

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Matrix Spikes

QCBatch: QC25539

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	1300	1270	mg/L	1	1250	225	86	2	48 - 127	20
Fluoride	235	236	mg/L	1	250	4.10	92	0	82 - 101	20
Nitrate-N	260	258	mg/L	1	250	2.34	103	0	87 - 100	20
Sulfate	3030	3040	mg/L	1	1250	1840	95	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25543

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	0.971	0.965	mg/L	1	1		97	0	75 - 125	20
Total Arsenic	0.495	0.490	mg/L	1	0.50		99	1	75 - 125	20
Total Barium	1.06	1.05	mg/L	1	1		106	0	75 - 125	20
Total Beryllium	0.0233	0.023	mg/L	1	0.02		93	1	75 - 125	20
Total Boron	0.127	0.128	mg/L	1	0.05		95	2	75 - 125	20
Total Cadmium	0.218	0.216	mg/L	1	0.25		87	0	75 - 125	20
Total Chromium	0.0878	0.087	mg/L	1	0.10		87	0	75 - 125	20
Total Iron	0.855	0.843	mg/L	1	0.50	0.0801	98	2	75 - 125	20
Total Lead	0.453	0.455	mg/L	1	0.50		90	0	75 - 125	20
Total Molybdenum	0.537	0.533	mg/L	1	0.50		107	0	75 - 125	20
Total Selenium	0.458	0.455	mg/L	1	0.50		91	0	75 - 125	20
Total Silver	0.126	0.125	mg/L	1	0.12		100	0	75 - 125	20
Total Uranium	0.991	0.981	mg/L	1	1		99	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25555

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00110	0.00116	mg/L	1	0.001	<0.0002	110	5	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

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ICV (1) QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

CCV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.83	94	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.38	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.46	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.32	98	90 - 110	12/11/02

ICV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	12.01	96	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.39	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.47	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.59	100	90 - 110	12/11/02

CCV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1013	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	995	99	90 - 110	12/12/02

CCV (1) QCBatch: QC25543

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Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 13 of 15
N/A | Injection Wells | N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	23.6	94	90 - 110	12/12/02
Total Iron		mg/L	1	1.028	103	90 - 110	12/12/02
Total Magnesium		mg/L	25	23.8	95	90 - 110	12/12/02
Total Potassium		mg/L	25	26.1	104	90 - 110	12/12/02
Total Sodium		mg/L	25	26.4	105	90 - 110	12/12/02

ICV (1) QCBatch: QC25543

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	25.1	100	90 - 110	12/12/02
Total Iron		mg/L	1	1.04	104	90 - 110	12/12/02
Total Magnesium		mg/L	25	24.4	97	90 - 110	12/12/02
Total Potassium		mg/L	25	25	100	90 - 110	12/12/02
Total Sodium		mg/L	25	24.3	97	90 - 110	12/12/02

CCV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00098	98	80 - 120	12/12/02

ICV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	12/12/02

CCV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	24.6	98	90 - 110	12/12/02
Dissolved Magnesium		mg/L	25	24.8	99	90 - 110	12/12/02
Dissolved Potassium		mg/L	25	25.6	102	90 - 110	12/12/02
Dissolved Sodium		mg/L	25	25.3	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25566

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 14 of 15
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.1	100	95 - 105	12/12/02
Dissolved Magnesium		mg/L	25	24.4	97	95 - 105	12/12/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	12/12/02
Dissolved Sodium		mg/L	25	24.3	97	95 - 105	12/12/02

CCV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1414	100	90 - 110	12/16/02

ICV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1437	101	90 - 110	12/16/02

CCV (1) QCBatch: QC25623

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	49.0	98	80 - 120	12/14/02
1,1-Dichloroethene		µg/L	50	49.0	98	80 - 120	12/14/02
Chloroform		µg/L	50	54.0	108	80 - 120	12/14/02
1,2-Dichloropropane		µg/L	50	53.0	106	80 - 120	12/14/02
Toluene		µg/L	50	55.0	110	80 - 120	12/14/02
Chlorobenzene		µg/L	50	53.0	106	80 - 120	12/14/02
Ethylbenzene		µg/L	50	55.0	110	80 - 120	12/14/02
Dibromofluoromethane		µg/L	50	50.2	100	80 - 120	12/14/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	12/14/02
4-Bromofluorobenzene		µg/L	50	50.2	100	80 - 120	12/14/02

CCV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	16	0	-	12/17/02

Continued ...

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 15 of 15
N/A | Injection Wells | N/A

... Continued

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

ICV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	20	0	-	12/17/02
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215473 - Inj Wells

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		146	mg/L as CaCo3
Total Alkalinity		146	mg/L as CaCo3
Specific Conductance		5070	µMHOS/cm
Corrosivity		Non-corrosive	mm/yr
pH		8.2	s.u.
Total Mercury		0.00022	mg/L
Ignitability		non-ignitable	
Chloride		1000	mg/L
Fluoride		66.05	mg/L
Nitrate-N		<1.0	mg/L
Sulfate		663	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		158	mg/L
Dissolved Magnesium		31.5	mg/L
Dissolved Potassium		17.2	mg/L
Dissolved Sodium		698	mg/L
Total Dissolved Solids		3005	mg/L
Total Aluminum		0.411	mg/L
Total Arsenic		0.135	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.158	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

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Report Date: December 31, 2002 Order Number: A02121013 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215479 continued ...

Param	Flag	Result	Units
Total Copper		<0.0125	mg/L
Total Iron		0.950	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.0672	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.122	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.0586	mg/L
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<25.0	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone		<50.0	µg/L
Iodomethane (methyl iodide)		<25.0	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

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Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215479 continued ...

Param	Flag	Result	Units
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroethene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene (meta)		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortho)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Test Comments	1	note:	µg/L
pH	2	7.5	s.u.

[1]elevated reporting limit due to matrix difficulty.
[2]The sample was received out of holding time

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Page ____ of ____

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Lubbock, Texas 79424
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1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A02121013

mpany Name: NAVAJO — Phone #: 505 748 3311

dress: (Street, City, Zip) 501 E Main — Fax #: 505 746 5421

ntact Person: Darrell Moore

oice to: (different from above)

ject #: — Project Name: Inj. wells

ject Location: Artesia — Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
15473	Inj. wells	4	40ml	X				X				X		12/9/02	940
	" "	1	500ml	X					X			X		12/9/02	940
	" "	2	1L	X								X	X	12/9/02	940

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	8240, 8260	anions, cations, TDS, cond, pH	Al, As, Ba, B, Cd, Ca, Co, Cr, Mn, Pb	Hg, Ni, Se, Ag, V, Zn, U, Mo	Turn Around Time if different from standard	Hold
					See list										X	X	X	X		

Relinquished by: — Date: 12/9/02 — Time: 1615 — Received by: — Date: — Time:

Relinquished by: — Date: — Time: — Received by: — Date: — Time:

Relinquished by: — Date: — Time: — Received at Laboratory by: Vicki Crosby — Date: 12-10-02 — Time: 1000

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact (Y) / N
Headspace Y (N)
Temp -1° C
Log-in Review MH

REMARKS:
8270 will be re-sampled per Charlie 12/10
12/31 CP
☐ Check if Special Reporting Limits Are Needed

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TRACEANALYSIS

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 2, 2003

Order ID Number: A02121224

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215707	Inj Well	Water	12/11/02	14:30	12/12/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.
Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 8 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 2 of 8
N/A Injection Wells N/A

Analytical Report

Sample: 215707 - Inj Well

Analysis: Semivolatiles Analytical Method: S 8270C QC Batch: QC25941 Date Analyzed: 12/16/02
Analyst: RC Preparation Method: E 3510C Prep Batch: PB23757 Date Prepared: 12/12/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 3 of 8
N/A Injection Wells N/A

... *Continued* Sample: 215707 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		14.66	mg/L	1	80	18	0 - 66
Phenol-d5		11.44	mg/L	1	80	14	0 - 70

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 4 of 8
N/A Injection Wells N/A

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		33.80	mg/L	1	80	42	23 - 99
2-Fluorobiphenyl		39.19	mg/L	1	80	48	27 - 95
2,4,6-Tribromophenol		22.97	mg/L	1	80	28	0 - 199
Terphenyl-d14		25.21	mg/L	1	80	31	20 - 96

Received by OCD: 5/16/2022 2:32:41 PM

Page 1232 of 5828

Report Date: January 2, 2003 | Order Number: A02121224 | Page Number: 5 of 8
N/A | Injection Wells | N/A

Quality Control Report
Method Blank

Method Blank QCBatch: QC25941

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005

Continued ...

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Report Date: January 2, 2003 | Order Number: A02121224 | Page Number: 6 of 8
N/A | Injection Wells | N/A

... *Continued*

Param	Flag	Results	Units	Reporting Limit
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		44.87	mg/L	1	80	56	0 - 66

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 7 of 8
N/A Injection Wells N/A

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Phenol-d5		43.42	mg/L	1	80	54	0 - 70
Nitrobenzene-d5		78.46	mg/L	1	80	98	23 - 99
2-Fluorobiphenyl		71.61	mg/L	1	80	89	27 - 95
2,4,6-Tribromophenol		53.86	mg/L	1	80	67	0 - 199
Terphenyl-d14		79.78	mg/L	1	80	99	20 - 96

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC25941

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	26.07	26.38	mg/L	1	80	<0.005	32	1	0 - 81	20
2-Chlorophenol	54.17	54.37	mg/L	1	80	<0.005	67	0	12 - 83	20
1,4-Dichlorobenzene	55.34	55.94	mg/L	1	80	<0.005	69	1	13 - 88	20
n-Nitrosodi-n-propylamine	64.45	63.76	mg/L	1	80	<0.005	80	1	9 - 101	20
1,2,4-Trichlorobenzene	57.51	57.66	mg/L	1	80	<0.005	71	0	21 - 87	20
4-Chloro-3-methylphenol	61.52	57.96	mg/L	1	80	<0.005	76	5	14 - 92	20
Acenaphthene	59.82	60.39	mg/L	1	80	<0.005	74	0	26 - 86	20
4-Nitrophenol	27.77	29.00	mg/L	1	80	<0.005	34	4	0 - 104	20
2,4-Dinitrotoluene	75.52	76.08	mg/L	1	80	<0.005	94	0	29 - 94	20
Pentachlorophenol	46.25	47.91	mg/L	1	80	<0.005	57	3	1 - 97	20
Pyrene	62.21	61.37	mg/L	1	80	<0.005	77	1	25 - 90	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	44.68	44.6	mg/L	1	80	55	55	0 - 66
Phenol-d5	33.33	37.22	mg/L	1	80	41	46	0 - 70
Nitrobenzene-d5	66.47	66.99	mg/L	1	80	83	83	23 - 99
2-Fluorobiphenyl	60.84	65.5	mg/L	1	80	76	81	27 - 95
2,4,6-Tribromophenol	67.69	68.69	mg/L	1	80	84	85	0 - 199
Terphenyl-d14	70.81	68.74	mg/L	1	80	88	85	20 - 96

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25941

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	63.89	106	80 - 120	12/16/02
1,4-Dichlorobenzene		mg/L	60	62.2	103	80 - 120	12/16/02
2-Nitrophenol		mg/L	60	66.21	110	80 - 120	12/16/02
2,4-Dichlorophenol		mg/L	60	67.75	112	80 - 120	12/16/02
Hexachlorobutadiene		mg/L	60	54.23	90	80 - 120	12/16/02

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 8 of 8
N/A Injection Wells N/A

... *Continued*

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
4-Chloro-3-methylphenol		mg/L	60	69.15	115	80 - 120	12/16/02
2,4,6-Trichlorophenol		mg/L	60	58.89	98	80 - 120	12/16/02
Acenaphthene		mg/L	60	60.52	100	80 - 120	12/16/02
Diphenylamine		mg/L	60	58.92	98	80 - 120	12/16/02
Pentachlorophenol		mg/L	60	58.79	97	80 - 120	12/16/02
Fluoranthene		mg/L	60	55.22	92	80 - 120	12/16/02
Di-n-octylphthalate		mg/L	60	59.71	99	80 - 120	12/16/02
Benzo(a)pyrene		mg/L	60	64.45	107	80 - 120	12/16/02
2-Fluorophenol		mg/L	60	63.66	106	80 - 120	12/16/02
Phenol-d5		mg/L	60	71.01	118	80 - 120	12/16/02
Nitrobenzene-d5		mg/L	60	60.76	101	80 - 120	12/16/02
2-Fluorobiphenyl		mg/L	60	57.7	96	80 - 120	12/16/02
2,4,6-Tribromophenol		mg/L	60	52.2	87	80 - 120	12/16/02
Terphenyl-d14		mg/L	60	49.65	82	80 - 120	12/16/02

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 2, 2003

Order ID Number: A02121224

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215707	Inj Well	Water	12/11/02	14:30	12/12/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215707 - Inj Well

Param	Flag	Result	Units
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene (meta)		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L

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This is only a summary. Please, refer to the complete report package for quality control data.

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Page 1237 of 5828

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Report Date: January 2, 2003 Order Number: A02121224 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215707 continued ...

Param	Flag	Result	Units
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene*		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L

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Report Date: January 2, 2003 Order Number: A02121224 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215707 continued ...

Param	Flag	Result	Units
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L

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15707

Page ____ of ____

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Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # AD212122-4

Company Name: Navajo
Phone #: 505748-3311
Address: (Street, City, Zip) 501 E. Main
Fax #: 505746-5421
Contact Person: Darrell Moore
Invoice to: (if different from above)
Project #:
Project Name: Inj. wells
Project Location: Artesia
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
15707	Inj. Wells	1	1L	X								X	X	12/1/02	1430

ANALYSIS REQUEST (Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Turn Around Time if different from standard	Hold
						Att				Nelt						

Relinquished by: Date: 12/1/02 Time: 1615
Received by: Date: Time:
Relinquished by: Date: Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received at Laboratory by: Dick Dung Date: 12-2-02 Time: 10:10

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp -2°
Log-in Review MA

REMARKS:
Svol only
P+F
12/03

☐ Check if Special Reporting Limits Are Needed

Carrier # Fed Ex 7912 5997 1447

Received by OCD: 5/16/2022 2:12:29 PM
TRACEANALYSIS
Page 23 of 58

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

January 15, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2002 to December 31, 2003. We have disposed a total of 12,330,037 bbls. of fluid into the two wells as of December 31 2002. This is broken down as follows: 9,100,909 bbls. into WDW-1 and 3,229,128 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215473 - Inj Wells

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		146	mg/L as CaCo3
Total Alkalinity		146	mg/L as CaCo3
Specific Conductance		5070	μMHOS/cm
Corrosivity		Non-corrosive	mm/yr
pH		8.2	s.u.
Total Mercury		0.00022	mg/L
Ignitability		non-ignitable	
Chloride		1000	mg/L
Fluoride		66.05	mg/L
Nitrate-N		<1.0	mg/L
Sulfate		663	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		158	mg/L
Dissolved Magnesium		31.5	mg/L
Dissolved Potassium		17.2	mg/L
Dissolved Sodium		698	mg/L
Total Dissolved Solids		3005	mg/L
Total Aluminum		0.411	mg/L
Total Arsenic		0.135	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.158	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215473 continued ...

Param	Flag	Result	Units
Total Copper		<0.0125	mg/L
Total Iron		0.950	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.0672	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.122	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.0586	mg/L
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<25.0	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone		<50.0	µg/L
Iodomethane (methyl iodide)		<25.0	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215473 continued ...

Param	Flag	Result	Units
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroetbene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene (meta)		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortbo)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Test Comments	[1]	note:	µg/L
pH	[2]	7.5	s.u.

[1]elevated reporting limit due to matrix difficulty.
[2]The sample was received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report

Sample: 215473 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC25706	Date Analyzed:	12/17/02
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB23811	Date Prepared:	12/17/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		146	mg/L as CaCo3	1	4
Total Alkalinity		146	mg/L as CaCo3	1	4

Sample: 215473 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC25592	Date Analyzed:	12/16/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB23722	Date Prepared:	12/16/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5070	μMHOS/cm	1	

Sample: 215473 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC25828	Date Analyzed:	12/26/02
Analyst:	JH	Preparation Method:	N/A	Prep Batch:	PB23933	Date Prepared:	12/26/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non-corrosive	mm/yr	1	
pH		8.2	s.u.	1	

Sample: 215473 - Inj Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC25555	Date Analyzed:	12/12/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB23652	Date Prepared:	12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		0.00022	mg/L	1	0.0002

Sample: 215473 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC25826	Date Analyzed:	12/26/02
Analyst:	JH	Preparation Method:	N/A	Prep Batch:	PB23931	Date Prepared:	12/26/02

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 215473 - Inj Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC25539	Date Analyzed:	12/11/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB23675	Date Prepared:	12/11/02

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Result	Units	Dilution	RDL
Chloride		1000	mg/L	100	1
Fluoride		66.05	mg/L	5	0.20
Nitrate-N		<1.0	mg/L	5	0.20
Sulfate		663	mg/L	100	1

Sample: 215473 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC25829 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23934 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 215473 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC25566 Date Analyzed: 12/12/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB23664 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		158	mg/L	1	0.50
Dissolved Magnesium		31.5	mg/L	1	0.50
Dissolved Potassium		17.2	mg/L	1	0.50
Dissolved Sodium		698	mg/L	1	0.50

Sample: 215473 - Inj Wells

Analysis: TDS Analytical Method: E 160.1 QC Batch: QC25540 Date Analyzed: 12/12/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23674 Date Prepared: 12/10/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		3005	mg/L	5	10

Sample: 215473 - Inj Wells

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC25543 Date Analyzed: 12/12/02
Analyst: RR Preparation Method: N/A Prep Batch: PB23651 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.411	mg/L	1	0.05
Total Arsenic		0.135	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.158	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		0.950	mg/L	1	0.05

Continued ...

... *Continued* Sample: 215473 Analysis: Total Metals

Param	Flag	Result	Units	Dilution	RDL
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.0672	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.122	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.0586	mg/L	1	0.02

Sample: 215473 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC25623	Date Analyzed:	12/14/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB23747	Date Prepared:	12/14/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1

Continued ...

... *Continued* Sample: 215473 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.6	µg/L	5	50	99	70 - 130
Toluene-d8		50.1	µg/L	5	50	100	70 - 130
4-Bromofluorobenzene		45.6	µg/L	5	50	91	70 - 130

Sample: 215473 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC25527	Date Analyzed:	12/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB23667	Date Prepared:	12/10/02

Param	Flag	Result	Units	Dilution	RDL
pH	[2]	7.5	s.u.	1	1

[1] elevated reporting limit due to matrix difficulty.
[2] The sample was received out of holding time

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Method Blank

QCBatch: QC25539

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank

QCBatch: QC25540

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank

QCBatch: QC25543

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.05
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		0.0166	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank

QCBatch: QC25555

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Method Blank

QCBatch: QC25566

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank

QCBatch: QC25592

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		9.25	μMHOS/cm	

Method Blank

QCBatch: QC25623

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene	[3]	<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1

Continued ...

[3]estimated concentration=0.16 μg/L. Reported between MDL (.054 μg/L) and reporting limit.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued*

Param	Flag	Results	Units	Reporting Limit
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene	[4]	<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene	[5]	<1.00	µg/L	1
m,p-Xylene	[6]	<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene	[7]	<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	70 - 130
Toluene-d8		52.8	µg/L	1	50	106	70 - 130
4-Bromofluorobenzene		47.7	µg/L	1	50	95	70 - 130

[4]estimated concentration=0.19 µg/L. Reported between MDL (.042 µg/L) and reporting limit.
[5]estimated concentration=0.04 µg/L. Reported between MDL (.018 µg/L) and reporting limit.
[6]estimated concentration=0.09 µg/L. Reported between MDL (.051 µg/L) and reporting limit.
[7]estimated concentration=0.05 µg/L. Reported between MDL (.028 µg/L) and reporting limit.

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Received by OCD: 5/16/2022 2:12:41 PM

Method Blank QCBatch: QC25706

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	4
Total Alkalinity		<4.0	mg/L as CaCo3	4

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC25527

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.8	8.8	s.u.	1	0	0

Duplicate QCBatch: QC25540

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1270	1234	mg/L	1	2	9.7

Duplicate QCBatch: QC25592

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4130	4040	µMHOS/cm	1	2	20

Duplicate QCBatch: QC25706

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		690	684	mg/L as CaCo3	1	0	9.2
Total Alkalinity		690	684	mg/L as CaCo3	1	0	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC25539

Released to Imaging: 7/12/2024 10:49:45 AM

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.63	13.13	mg/L	1	12.50	<1.0	93	12	90 - 110	20
Fluoride	2.36	2.38	mg/L	1	2.50	<0.2	94	0	90 - 110	20
Nitrate-N	2.45	2.45	mg/L	1	2.50	<0.2	98	0	90 - 110	20
Sulfate	12.12	12.26	mg/L	1	12.50	<1.0	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25543

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Calcium	99.4	98.8	mg/L	1	100	<0.5	99	0	75 - 125	20
Total Iron	0.512	0.515	mg/L	1	0.50	<0.050	102	0	75 - 125	20
Total Magnesium	103	99.8	mg/L	1	100	<0.5	103	3	75 - 125	20
Total Potassium	105	105	mg/L	1	100	<0.5	105	0	75 - 125	20
Total Sodium	106	104	mg/L	1	100	<0.5	106	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25555

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00113	0.00116	mg/L	1	0.001	<0.0002	113	2	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25623

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	91.7	91.7	µg/L	1	100	<1.00	92	0	70 - 130	20
Benzene	98.7	100	µg/L	1	100	<1.00	99	1	70 - 130	20
Trichloroethene (TCE)	89.8	89.8	µg/L	1	100	<1.00	90	0	70 - 130	20
Toluene	98.8	99.6	µg/L	1	100	<1.00	99	1	70 - 130	20
Chlorobenzene	96.5	96.6	µg/L	1	100	<1.00	96	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	47.7	47.6	µg/L	1	50	95	95	70 - 130
Toluene-d8	50.5	50.0	µg/L	1	50	101	100	70 - 130
4-Bromofluorobenzene	47.2	45.4	µg/L	1	50	94	91	70 - 130

Quality Control Report
Matrix Spikes and Duplicate Spikes

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Matrix Spikes

QCBatch: QC25539

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	1300	1270	mg/L	1	1250	225	86	2	48 - 127	20
Fluoride	235	236	mg/L	1	250	4.10	92	0	82 - 101	20
Nitrate-N	260	258	mg/L	1	250	2.34	103	0	87 - 100	20
Sulfate	3030	3040	mg/L	1	1250	1840	95	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25543

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	0.971	0.965	mg/L	1	1		97	0	75 - 125	20
Total Arsenic	0.495	0.490	mg/L	1	0.50		99	1	75 - 125	20
Total Barium	1.06	1.05	mg/L	1	1		106	0	75 - 125	20
Total Beryllium	0.0233	0.023	mg/L	1	0.02		93	1	75 - 125	20
Total Boron	0.127	0.128	mg/L	1	0.05		95	2	75 - 125	20
Total Cadmium	0.218	0.216	mg/L	1	0.25		87	0	75 - 125	20
Total Chromium	0.0878	0.087	mg/L	1	0.10		87	0	75 - 125	20
Total Iron	0.855	0.843	mg/L	1	0.50	0.0801	98	2	75 - 125	20
Total Lead	0.453	0.455	mg/L	1	0.50		90	0	75 - 125	20
Total Molybdenum	0.537	0.533	mg/L	1	0.50		107	0	75 - 125	20
Total Selenium	0.458	0.455	mg/L	1	0.50		91	0	75 - 125	20
Total Silver	0.126	0.125	mg/L	1	0.12		100	0	75 - 125	20
Total Uranium	0.991	0.981	mg/L	1	1		99	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25555

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00110	0.00116	mg/L	1	0.001	<0.0002	110	5	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

Released to Imaging: 7/12/2024 10:49:45 AM

ICV (1) QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

CCV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.83	94	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.38	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.46	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.32	98	90 - 110	12/11/02

ICV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	12.01	96	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.39	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.47	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.59	100	90 - 110	12/11/02

CCV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1013	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	995	99	90 - 110	12/12/02

CCV (1) QCBatch: QC25543

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	23.6	94	90 - 110	12/12/02
Total Iron		mg/L	1	1.028	103	90 - 110	12/12/02
Total Magnesium		mg/L	25	23.8	95	90 - 110	12/12/02
Total Potassium		mg/L	25	26.1	104	90 - 110	12/12/02
Total Sodium		mg/L	25	26.4	105	90 - 110	12/12/02

ICV (1) QCBatch: QC25543

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	25.1	100	90 - 110	12/12/02
Total Iron		mg/L	1	1.04	104	90 - 110	12/12/02
Total Magnesium		mg/L	25	24.4	97	90 - 110	12/12/02
Total Potassium		mg/L	25	25	100	90 - 110	12/12/02
Total Sodium		mg/L	25	24.3	97	90 - 110	12/12/02

CCV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00098	98	80 - 120	12/12/02

ICV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	12/12/02

CCV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	24.6	98	90 - 110	12/12/02
Dissolved Magnesium		mg/L	25	24.8	99	90 - 110	12/12/02
Dissolved Potassium		mg/L	25	25.6	102	90 - 110	12/12/02
Dissolved Sodium		mg/L	25	25.3	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.1	100	95 - 105	12/12/02
Dissolved Magnesium		mg/L	25	24.4	97	95 - 105	12/12/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	12/12/02
Dissolved Sodium		mg/L	25	24.3	97	95 - 105	12/12/02

CCV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1414	100	90 - 110	12/16/02

ICV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1437	101	90 - 110	12/16/02

CCV (1) QCBatch: QC25623

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	49.0	98	80 - 120	12/14/02
1,1-Dichloroethene		µg/L	50	49.0	98	80 - 120	12/14/02
Chloroform		µg/L	50	54.0	108	80 - 120	12/14/02
1,2-Dichloropropane		µg/L	50	53.0	106	80 - 120	12/14/02
Toluene		µg/L	50	55.0	110	80 - 120	12/14/02
Chlorobenzene		µg/L	50	53.0	106	80 - 120	12/14/02
Ethylbenzene		µg/L	50	55.0	110	80 - 120	12/14/02
Dibromofluoromethane		µg/L	50	50.2	100	80 - 120	12/14/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	12/14/02
4-Bromofluorobenzene		µg/L	50	50.2	100	80 - 120	12/14/02

CCV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	16	0	-	12/17/02

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

ICV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	20	0	-	12/17/02
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

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215473

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 402121013

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 746 5421
Contact Person: Darrell Moore
Invoice to: (if different from above)
Project #:
Project Name: Inj. wells
Project Location: Artesia
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
215473	Inj. wells	4 2	40ml	X				X				X		12/9/02	940
	" "	1	500ml	X					X			X		12/9/02	940
	" "	2	1L	X								X	X	12/9/02	940

ANALYSIS REQUEST (Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	8240, 8260	anions, cations, TDS, cond, pH	Al, As, Be, B, Cd, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, Se, Ag, V, Zn, U	Turn Around Time if different from standard	Hold
				See List											X	X	X		

Relinquished by: Date: 12/9/02 Time: 1615
Received by: Date: Time:
Relinquished by: Date: Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received at Laboratory by: Vicki Crowley Date: 12-10-02 Time: 10:00

LAB USE ONLY
Intact (Y) / N
Headspace Y (N)
Temp -1.° C
Log-in Review mm

REMARKS:
8270 will be re-sampled per Charlie 12/10
12/31 FIP
☐ Check If Special Reporting Limits Are Needed

Carrier # FedEx 7906-4982-1807

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Page 1259 of 5828

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FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Oct-02	217	386	115	184	240	113	196	495	140	6325	8240	3882	196,066
Nov-02	158	279	70	197	266	141	128	210	1	6747	9118	4840	209,162
Dec-02	145	197	1	177	218	78	143	342	0	6084	7472	2667	188,597
WDW-2													
Oct-02	218	420	21	121	178	10	189	344	116	4161	6100	357	128,994
Nov-02	92	197	0	79	150	0	375	500	22	2699	5141	4	83,655
Dec-02	189	233	129	136	151	117	129	145	34	4676	5185	4011	144,963

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

October 15, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2002 to September 30, 2002. We have disposed a total of 11,378,600 bbls. of fluid into the two wells as of September 30 2002. This is broken down as follows: 8,507,084 bbls. into WDW-1 and 2,871,516 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Received by OCD: 5/16/2022 2:12:41 PM

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Summary Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: September 20, 2002

Order ID Number: A02091009

Project Number: N/A
Project Name: ABT Inlet/RO Reject
Project Location: Artesia

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
207619	ABT Inlet Tk 836	Water	9/9/02	14:45	9/10/02
207620	RO Reject	Water	9/9/02	15:30	9/10/02

0 This report consists of a total of 2 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 207619 - ABT Inlet Tk 836

Param	Flag	Result	Units
Biological Oxygen Demand		1440	mg/L
Chemical Oxygen Demand		2820	mg/L
Phenolics		114	mg/L
Total Kjeldahl Nitrogen - N		166	mg/L

Sample: 207620 - RO Reject

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		618	mg/L as CaCo3
Total Alkalinity		618	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
Chloride		166	mg/L
Fluoride	[1]	3.46	mg/L
Nitrate-N	[2]	2.21	mg/L
Sulfate		1760	mg/L
Dissolved Calcium		609	mg/L
Dissolved Magnesium		205	mg/L
Dissolved Potassium		7.21	mg/L
Dissolved Sodium		114	mg/L
Total Aluminum		<0.100	mg/L
Total Arsenic		<0.050	mg/L

Continued on next page ...

[1]Reran on IC091602-2: LCS = 90 RPD = 4; ICV = 90 and CCV = 94.
[2]Reran on IC091602-2: LCS = 92 RPD = 0; ICV = 92 and CCV = 92.

This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: September 20, 2002 Order Number: A02091009 Page Number: 2 of 2
N/A ABT Inlet/RO Reject Artesia

Sample 207620 continued ...

Param	Flag	Result	Units
Total Barium		0.110	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.0713	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		<0.0125	mg/L
Total Iron		<0.050	mg/L
Total Lead		<0.010	mg/L
Total Manganese		<0.025	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		<0.050	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		<0.025	mg/L

This is only a summary. Please, refer to the complete report package for quality control data.

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TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: September 20, 2002

Order ID Number: A02091009

Project Number: N/A
Project Name: ABT Inlet/RO Reject
Project Location: Artesia

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
207619	ABT Inlet Tk 836	Water	9/9/02	14:45	9/10/02
207620	RO Reject	Water	9/9/02	15:30	9/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 13 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

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Analytical Report

Sample: 207619 - ABT Inlet Tk 836

Analysis:	BOD5	Analytical Method:	SM 5210B	QC Batch:	QC23572	Date Analyzed:	9/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22068	Date Prepared:	9/11/02

Param	Flag	Result	Units	Dilution	RDL
Biological Oxygen Demand		1440	mg/L	1	1

Sample: 207619 - ABT Inlet Tk 836

Analysis:	COD	Analytical Method:	E 410.4	QC Batch:	QC23573	Date Analyzed:	9/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22067	Date Prepared:	9/16/02

Param	Flag	Result	Units	Dilution	RDL
Chemical Oxygen Demand		2820	mg/L	10	20

Sample: 207619 - ABT Inlet Tk 836

Analysis:	Phenolics	Analytical Method:	SM 5530D	QC Batch:	QC23594	Date Analyzed:	9/17/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB22084	Date Prepared:	9/17/02

Param	Flag	Result	Units	Dilution	RDL
Phenolics		114	mg/L	200	0.12

Sample: 207619 - ABT Inlet Tk 836

Analysis:	TKN	Analytical Method:	E 351.3	QC Batch:	QC23460	Date Analyzed:	9/11/02
Analyst:	MW	Preparation Method:	N/A	Prep Batch:	PB21990	Date Prepared:	9/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Kjeldahl Nitrogen - N		166	mg/L	1	4

Sample: 207620 - RO Reject

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC23490	Date Analyzed:	9/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22006	Date Prepared:	9/10/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		618	mg/L as CaCo3	1	1
Total Alkalinity		618	mg/L as CaCo3	1	1

Sample: 207620 - RO Reject

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC23549	Date Analyzed:	9/16/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB22048	Date Prepared:	9/16/02

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Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 207620 - RO Reject

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC23557 Date Analyzed: 9/11/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB22050 Date Prepared: 9/11/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		166	mg/L	5	1
Fluoride	[1]	3.46	mg/L	5	0.20
Nitrate-N	[2]	2.21	mg/L	5	0.20
Sulfate		1760	mg/L	50	1

Sample: 207620 - RO Reject

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC23525 Date Analyzed: 9/14/02
Analyst: RR Preparation Method: S 3005A Prep Batch: PB21982 Date Prepared: 9/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		609	mg/L	1.10	0.50
Dissolved Magnesium		205	mg/L	1.10	0.50
Dissolved Potassium		7.21	mg/L	1.10	0.50
Dissolved Sodium		114	mg/L	1.10	0.50

Sample: 207620 - RO Reject

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC23583 Date Analyzed: 9/17/02
Analyst: RR Preparation Method: S 3010A Prep Batch: PB22031 Date Prepared: 9/13/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		<0.050	mg/L	1	0.05
Total Barium		0.110	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.0713	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		<0.050	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		<0.025	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		<0.050	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		<0.025	mg/L	1	0.02

[1]Reran on IC091602-2: LCS = 90 RPD = 4; ICV = 90 and CCV = 94.
[2]Reran on IC091602-2: LCS = 92 RPD = 0; ICV = 92 and CCV = 92.

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Quality Control Report
Method Blank

Method Blank QCBatch: QC23460

Param	Flag	Results	Units	Reporting Limit
Total Kjeldahl Nitrogen - N		<4.0	mg/L	4

Method Blank QCBatch: QC23490

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank QCBatch: QC23525

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.550	mg/L	0.50
Dissolved Magnesium		<0.550	mg/L	0.50
Dissolved Potassium		<0.550	mg/L	0.50
Dissolved Sodium		<0.550	mg/L	0.50

Method Blank QCBatch: QC23549

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank QCBatch: QC23557

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC23572

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Param	Flag	Results	Units	Reporting Limit
Biological Oxygen Demand		< 1	mg/L	1

Method Blank QCBatch: QC23573

Param	Flag	Results	Units	Reporting Limit
Chemical Oxygen Demand		<20	mg/L	20

Method Blank QCBatch: QC23583

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.10
Total Arsenic		<0.050	mg/L	0.05
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		<0.0125	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.02	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC23594

Param	Flag	Results	Units	Reporting Limit
Phenolics		<0.12	mg/L	0.12

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC23490

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Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		50	49	mg/L as CaCo3	1	2	9.2
Total Alkalinity		50	49	mg/L as CaCo3	1	2	9.2

Duplicate

QCBatch: QC23572

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Biological Oxygen Demand		295	277	mg/L	1	6	25

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC23460

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Kjeldahl Nitrogen - N	45.1	44.0	mg/L	1	50	<4.0	90	2	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23525

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	98.2	99.9	mg/L	1.12	100	<0.550	98	1	75 - 125	20
Dissolved Magnesium	97.4	99.5	mg/L	1.12	100	<0.550	97	2	75 - 125	20
Dissolved Potassium	92.1	93.2	mg/L	1.12	100	<0.550	92	1	75 - 125	20
Dissolved Sodium	94.3	94.4	mg/L	1.12	100	<0.550	94	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23549

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00106	0.00107	mg/L	1	0.001	<0.0002	106	0	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23557

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.23	11.19	mg/L	1	12.50	<1.0	89	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23572

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Biological Oxygen Demand	206	196	mg/L	1	198	0.24	104	4	76 - 132	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23573

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chemical Oxygen Demand	246	251	mg/L	1	250	<20	98	2	95 - 105	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23583

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	1.01	1.00	mg/L	1	1	<0.100	101	1	75 - 125	20
Total Arsenic	0.569	0.585	mg/L	1	0.50	<0.050	114	3	75 - 125	20
Total Barium	1.06	1.06	mg/L	1	1	<0.100	106	0	75 - 125	20
Total Beryllium	0.0257	0.0257	mg/L	1	0.02	<0.0025	103	0	75 - 125	20
Total Boron	0.0479	0.0465	mg/L	1	0.05	<0.005	96	3	75 - 125	20
Total Cadmium	0.263	0.263	mg/L	1	0.25	<0.005	100	0	75 - 125	20
Total Chromium	0.105	0.105	mg/L	1	0.10	<0.010	105	0	75 - 125	20
Total Cobalt	0.262	0.262	mg/L	1	0.25	<0.025	105	0	75 - 125	20
Total Copper	0.133	0.132	mg/L	1	0.12	<0.0125	106	0	75 - 125	20
Total Iron	0.521	0.518	mg/L	1	0.50	<0.050	104	0	75 - 125	20
Total Lead	0.515	0.522	mg/L	1	0.50	<0.01	98	1	75 - 125	20
Total Manganese	0.265	0.263	mg/L	1	0.25	<0.025	106	1	75 - 125	20
Total Molybdenum	0.545	0.548	mg/L	1	0.50	<0.050	109	0	75 - 125	20
Total Nickel	0.265	0.265	mg/L	1	0.25	<0.025	106	0	75 - 125	20
Total Selenium	0.449	0.444	mg/L	1	0.50	<0.050	90	1	75 - 125	20
Total Silver	0.129	0.129	mg/L	1	0.12	<0.0125	103	0	75 - 125	20
Total Uranium	0.522	0.529	mg/L	1	0.50	<0.02	99	1	75 - 125	20
Total Vanadium	0.266	0.265	mg/L	1	0.25	<0.025	106	0	75 - 125	20
Total Zinc	0.268	0.268	mg/L	1	0.25	<0.025	107	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23594

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenolics	0.829	0.850	mg/L	1	0.80	<0.12	103	2	95 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC23460

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Kjeldahl Nitrogen - N	[3] 23.8	[4] 24.6	mg/L	1	50	<4.0	47	3	18 - 158	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23525

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	118	116	mg/L	1.12	100	23.1	94	2	75 - 125	20
Dissolved Magnesium	128	126	mg/L	1.12	100	38.4	89	2	75 - 125	20
Dissolved Potassium	105	104	mg/L	1.12	100	14.6	90	1	75 - 125	20
Dissolved Sodium	195	195	mg/L	1.12	100	86.6	108	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23549

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00140	0.00141	mg/L	1	0.001	0.00021	119	0	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23557

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	2131	2135	mg/L	1	1250	974	92	0	48 - 127	20
Sulfate	2402	2387	mg/L	1	1250	1190	96	1	59 - 121	20

[3]Matrix spike difficulties.
[4]Matrix spike difficulties.

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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23573

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chemical Oxygen Demand	291	287	mg/L	1	250	61.4	91	1	75 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23583

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	1.16	1.18	mg/L	1	1	<0.100	116	2	75 - 125	20
Total Arsenic	0.552	0.542	mg/L	1	0.50	<0.050	110	2	75 - 125	20
Total Barium	1.05	1.06	mg/L	1	1	0.110	93	1	75 - 125	20
Total Beryllium	0.0233	0.0237	mg/L	1	0.02	<0.0025	93	2	75 - 125	20
Total Boron	0.119	0.120	mg/L	1	0.05	0.0713	95	2	75 - 125	20
Total Cadmium	0.233	0.234	mg/L	1	0.25	<0.005	93	0	75 - 125	20
Total Chromium	0.0979	0.0979	mg/L	1	0.10	<0.010	98	0	75 - 125	20
Total Cobalt	0.247	0.250	mg/L	1	0.25	<0.025	99	1	75 - 125	20
Total Copper	0.141	0.144	mg/L	1	0.12	<0.0125	112	2	75 - 125	20
Total Iron	0.495	0.494	mg/L	1	0.50	<0.050	99	0	75 - 125	20
Total Lead	0.510	0.513	mg/L	1	0.50	<0.010	102	0	75 - 125	20
Total Manganese	0.249	0.253	mg/L	1	0.25	<0.025	100	2	75 - 125	20
Total Molybdenum	0.513	0.518	mg/L	1	0.50	<0.050	103	1	75 - 125	20
Total Nickel	0.238	0.240	mg/L	1	0.25	<0.025	95	1	75 - 125	20
Total Selenium	0.460	0.474	mg/L	1	0.50	<0.050	92	3	75 - 125	20
Total Silver	0.125	0.128	mg/L	1	0.12	<0.0125	100	2	75 - 125	20
Total Uranium	0.528	0.542	mg/L	1	0.50	<0.020	106	3	75 - 125	20
Total Vanadium	0.254	0.259	mg/L	1	0.25	<0.025	102	2	75 - 125	20
Total Zinc	0.238	0.240	mg/L	1	0.25	<0.025	95	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23594

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenolics	0.801	0.818	mg/L	1	0.80	<0.10	100	2	68 - 154	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC23460

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5	4.48	89	85 - 115	9/11/02

ICV (1) QCBatch: QC23460

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5	4.82	96	85 - 115	9/11/02

CCV (1) QCBatch: QC23490

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	9/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	240	0	90 - 110	9/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	9/10/02
Total Alkalinity		mg/L as CaCo3	250	246	98	90 - 110	9/10/02

ICV (1) QCBatch: QC23490

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	9/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	90 - 110	9/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	11	0	90 - 110	9/10/02
Total Alkalinity		mg/L as CaCo3	250	243	97	90 - 110	9/10/02

CCV (1) QCBatch: QC23525

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.0	100	90 - 110	9/14/02
Dissolved Magnesium		mg/L	25	24.7	99	90 - 110	9/14/02
Dissolved Potassium		mg/L	25	25.1	100	90 - 110	9/14/02
Dissolved Sodium		mg/L	25	25.0	100	90 - 110	9/14/02

ICV (1) QCBatch: QC23525

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.2	101	95 - 105	9/14/02
Dissolved Magnesium		mg/L	25	25.0	100	95 - 105	9/14/02
Dissolved Potassium		mg/L	25	25.4	102	95 - 105	9/14/02
Dissolved Sodium		mg/L	25	25.3	101	95 - 105	9/14/02

CCV (1) QCBatch: QC23549

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00099	99	80 - 120	9/16/02

ICV (1) QCBatch: QC23549

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	9/16/02

CCV (1) QCBatch: QC23557

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.19	89	90 - 110	9/11/02

ICV (1) QCBatch: QC23557

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.51	92	90 - 110	9/11/02

CCV (1) QCBatch: QC23573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chemical Oxygen Demand		mg/L	250	246	98	95 - 105	9/16/02

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ICV (1) QCBatch: QC23573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chemical Oxygen Demand		mg/L	250	242	96	95 - 105	9/16/02

CCV (1) QCBatch: QC23583

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.98	99	90 - 110	9/17/02
Total Arsenic		mg/L	1	0.987	99	90 - 110	9/17/02
Total Barium		mg/L	2	2.00	100	90 - 110	9/17/02
Total Beryllium		mg/L	0.05	0.0499	100	90 - 110	9/17/02
Total Boron		mg/L	0.10	0.105	105	90 - 110	9/17/02
Total Cadmium		mg/L	0.50	0.496	97	90 - 110	9/17/02
Total Chromium		mg/L	0.20	0.200	100	90 - 110	9/17/02
Total Cobalt		mg/L	0.50	0.498	100	90 - 110	9/17/02
Total Copper		mg/L	0.25	0.250	100	90 - 110	9/17/02
Total Iron		mg/L	1	0.983	98	90 - 110	9/17/02
Total Lead		mg/L	1	0.989	96	90 - 110	9/17/02
Total Manganese		mg/L	0.50	0.501	100	90 - 110	9/17/02
Total Molybdenum		mg/L	1	1.00	100	90 - 110	9/17/02
Total Nickel		mg/L	0.50	0.502	100	90 - 110	9/17/02
Total Selenium		mg/L	1	0.993	99	90 - 110	9/17/02
Total Silver		mg/L	0.25	0.249	100	90 - 110	9/17/02
Total Uranium		mg/L	1	0.990	96	90 - 110	9/17/02
Total Vanadium		mg/L	0.50	0.501	100	90 - 110	9/17/02
Total Zinc		mg/L	0.50	0.499	100	90 - 110	9/17/02

ICV (1) QCBatch: QC23583

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	2.02	101	95 - 105	9/17/02
Total Arsenic		mg/L	1	1.03	103	95 - 105	9/17/02
Total Barium		mg/L	2	2.06	103	95 - 105	9/17/02
Total Beryllium		mg/L	0.05	0.0513	103	95 - 105	9/17/02
Total Boron		mg/L	0.10	0.109	109	95 - 105	9/17/02
Total Cadmium		mg/L	0.50	0.512	100	95 - 105	9/17/02
Total Chromium		mg/L	0.20	0.206	103	95 - 105	9/17/02
Total Cobalt		mg/L	0.50	0.513	103	95 - 105	9/17/02
Total Copper		mg/L	0.25	0.255	102	95 - 105	9/17/02
Total Iron		mg/L	1	1.03	103	95 - 105	9/17/02
Total Lead		mg/L	1	1.02	100	95 - 105	9/17/02
Total Manganese		mg/L	0.50	0.515	103	95 - 105	9/17/02
Total Molybdenum		mg/L	1	1.03	103	95 - 105	9/17/02
Total Nickel		mg/L	0.50	0.515	103	95 - 105	9/17/02

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

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... Continued

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1	1.02	102	95 - 105	9/17/02
Total Silver		mg/L	0.25	0.256	102	95 - 105	9/17/02
Total Uranium		mg/L	1	1.01	98	95 - 105	9/17/02
Total Vanadium		mg/L	0.50	0.514	103	95 - 105	9/17/02
Total Zinc		mg/L	0.50	0.515	103	95 - 105	9/17/02

CCV (1)

QCBatch: QC23594

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenolics		mg/L	0.80	0.801	100	85 - 115	9/17/02

ICV (1)

QCBatch: QC23594

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenolics		mg/L	0.80	0.822	102	85 - 115	9/17/02

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Page_____of_____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 1D0291009

Company Name: NAVAJO
Phone #: 5057483311
Address: (Street, City, Zip) 501 E Main
Fax #: 5057465421
Contact Person: Charlie Plymale
Invoice to: (If different from above)
Project #:
Project Name: ABT Inlet / RO Reject
Project Location: Artesia
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
207619	ABT Inlet JK836	1	1L	X						X		X		9/9/02	1445
	" "	1	1L	X								X	X	9/9/02	1445
	" "	1	500ml	X						X		X		9/9/02	1445
207620	RO Reject	1	1L	X								X	X	9/9/02	1530
	" "	1	1L	X					X			X		9/9/02	1530

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

Sealed

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	9/9/02	1615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
				9-10-02	10am

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp -1 °
Log-in Review MS

REMARKS:

☐ Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

Carrier # FedEx 7900-5576-0049

Page 1277 of 5828

Released to Imaging: 7/12/2024 10:49:45 AM
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MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo refining Company

WDW-1	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
Jul-02	443	500	0	205	232	0	213	240	0	7037	7939	0	218,136
Aug-02	279	500	157	197	232	149	169	240	146	6744	7949	5112	209,077
Sep-02	198	261	97	167	199	117	145	152	142	5737	6809	3999	177,855
WDW-2													
Jul-02	172	268	0	113	160	0	99	152	0	3887	5485	0	120,499
Aug-02	219	303	104	130	160	58	187	311	112	4448	5472	1976	137,893
Sep-02	228	287	128	130	154	94	180	257	128	4473	5271	3223	138,649

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NAVAJO REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

October 30, 2001

RECEIVED
NOV 13 2001
Environmental Bureau
Oil Conservation Division

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2001 to September 30, 2001. We have disposed a total of 8,443,165 bbls. of fluid down the two wells as of September 30, 2001. This is broken down as follows: 6,446,668 bbls. down WDW-1 and 1,996,497 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 17, 2001

Order ID Number: A01100310

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
180928	Inj Well	Water	10/2/01	14:00	10/3/01

This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 180928 - Inj Well

Param	Flag	Result	Units
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L

Continued on next page ...

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 180928 continued ...

Param	Flag	Result	Units
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L

Continued on next page ...

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 180928 continued ...

Param	Flag	Result	Units
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L

TRACEANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 17, 2001

Order ID Number: A01100310

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
180928	Inj Well	Water	10/2/01	14:00	10/3/01

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

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Dr. Blair Leftwich, Director

Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report

Sample: 180928 - Inj Well

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC14881	Date Analyzed:	10/11/01
Analyst:	RC	Preparation Method:	E 3510C	Prep Batch:	PB12651	Date Prepared:	10/4/01

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 180928 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		16.26	mg/L	1	80	20	21 - 100
Phenol-d5		9.68	mg/L	1	80	12	11 - 94
Nitrobenzene-d5		47.77	mg/L	1	80	59	35 - 114
2-Fluorobiphenyl		47.08	mg/L	1	80	58	43 - 116
2,4,6-Tribromophenol		53.59	mg/L	1	80	66	10 - 123
Terphenyl-d14		28.71	mg/L	1	80	35	33 - 141

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Quality Control Report
Method Blank

Method Blank QCBatch: QC14881

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2.6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005

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... Continued

Param	Flag	Results	Units	Reporting Limit
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		14.24	mg/L	1	80	17	21 - 100
Phenol-d5		11.8	mg/L	1	80	14	11 - 94
Nitrobenzene-d5		68.41	mg/L	1	80	85	35 - 114
2-Fluorobiphenyl		63.26	mg/L	1	80	79	43 - 116
2,4,6-Tribromophenol		41.79	mg/L	1	80	52	10 - 123

Continued ...

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Terphenyl-d14		45.95	mg/L	1	80	57	33 - 141

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC14881

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	11.26	12.83	mg/L	1	80	<0.005	14	13	5 - 112	20
2-Chlorophenol	38.17	38.8	mg/L	1	80	<0.005	47	1	23 - 134	20
1,4-Dichlorobenzene	43.6	40.39	mg/L	1	80	<0.005	54	7	20 - 124	20
n-Nitrosodi-n-propylamine	46.61	48.78	mg/L	1	80	<0.005	58	4	0 - 230	20
1,2,4-Trichlorobenzene	53.13	55.74	mg/L	1	80	<0.005	66	4	44 - 142	20
4-Chloro-3-methylphenol	53.26	56.33	mg/L	1	80	<0.005	66	5	22 - 147	20
Acenaphthene	52.05	56.45	mg/L	1	80	<0.005	65	8	47 - 145	20
4-Nitrophenol	42.19	43.08	mg/L	1	80	<0.005	52	2	0 - 132	20
2,4-Dinitrotoluene	66.19	63.9	mg/L	1	80	<0.005	82	3	39 - 139	20
Pentachlorophenol	40.55	40.31	mg/L	1	80	<0.005	50	0	14 - 176	20
Pyrene	45.78	43.03	mg/L	1	80	<0.005	57	6	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	18.4	17.84	mg/L	1	80	23	22	21 - 100
Phenol-d5	10.42	10.48	mg/L	1	80	13	13	11 - 94
Nitrobenzene-d5	52.8	55.69	mg/L	1	80	66	69	35 - 114
2-Fluorobiphenyl	53.81	58.92	mg/L	1	80	67	73	43 - 116
2,4,6-Tribromophenol	71.61	67.1	mg/L	1	80	89	83	10 - 123
Terphenyl-d14	52.04	46.76	mg/L	1	80	65	58	33 - 141

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC14881

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	48.43	35.14	mg/L	1	80	<0.005	60	31	5 - 112	20
2-Chlorophenol	61.18	45.54	mg/L	1	80	<0.005	76	29	23 - 134	20
1,4-Dichlorobenzene	63.47	46.48	mg/L	1	80	<0.005	79	30	20 - 124	20
n-Nitrosodi-n-propylamine	63.08	47.76	mg/L	1	80	<0.005	78	27	0 - 230	20
1,2,4-Trichlorobenzene	77.67	60.88	mg/L	1	80	<0.005	97	24	44 - 142	20
4-Chloro-3-methylphenol	77.4	65.29	mg/L	1	80	<0.005	96	16	22 - 147	20
Acenaphthene	65.07	59.15	mg/L	1	80	<0.005	81	9	47 - 145	20
4-Nitrophenol	58.12	51.88	mg/L	1	80	<0.005	72	11	0 - 132	20
2,4-Dinitrotoluene	70.23	64.91	mg/L	1	80	<0.005	87	7	39 - 139	20
Pentachlorophenol	50.86	40.63	mg/L	1	80	<0.005	63	22	14 - 176	20
Pyrene	44.83	43.46	mg/L	1	80	<0.005	56	3	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dilution	Spike Amount	MS % Rec	MSD % Rec	Recovery Limits
2-Fluorophenol	51.96	38.64	mg/L	1	80	64	48	21 - 100
Phenol-d5	48.84	35.33	mg/L	1	80	61	44	11 - 94
Nitrobenzene-d5	71.74	57.13	mg/L	1	80	89	71	35 - 114
2-Fluorobiphenyl	70.11	60.74	mg/L	1	80	87	75	43 - 116
2,4,6-Tribromophenol	76.72	67.75	mg/L	1	80	95	84	10 - 123
Terphenyl-d14	45.3	41.26	mg/L	1	80	56	51	33 - 141

Quality Control Report
Continuing Calibration Verification Standards

CCV (1) QCBatch: QC14881

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	61.43	102	80 - 120	10/11/01
1,4-Dichlorobenzene		mg/L	60	62.38	103	80 - 120	10/11/01
2-Nitrophenol		mg/L	60	65.94	109	80 - 120	10/11/01
2,4-Dichlorophenol		mg/L	60	63.42	105	80 - 120	10/11/01
Hexachlorobutadiene		mg/L	60	66.39	110	80 - 120	10/11/01
4-Chloro-3-methylphenol		mg/L	60	60.2	100	80 - 120	10/11/01
2,4,6-Trichlorophenol		mg/L	60	65.44	109	80 - 120	10/11/01
Acenaphthene		mg/L	60	63.64	106	80 - 120	10/11/01
Diphenylamine		mg/L	60	60.27	100	80 - 120	10/11/01
Pentachlorophenol		mg/L	60	50.96	84	80 - 120	10/11/01
Fluoranthene		mg/L	60	68.23	113	80 - 120	10/11/01
Di-n-octylphthalate		mg/L	60	55.81	93	80 - 120	10/11/01
Benzo(a)pyrene		mg/L	60	60.73	101	80 - 120	10/11/01
2-Fluorophenol		mg/L	60	61.9	103	80 - 120	10/11/01
Phenol-d5		mg/L	60	61.44	102	80 - 120	10/11/01
Nitrobenzene-d5		mg/L	60	62.82	104	80 - 120	10/11/01
2-Fluorobiphenyl		mg/L	60	66.48	110	80 - 120	10/11/01
2,4,6-Tribromophenol		mg/L	60	67.15	111	80 - 120	10/11/01
Terphenyl-d14		mg/L	60	46.12	76	80 - 120	10/11/01

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180928

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Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A0110031O

Company Name: Navajo
Phone #: 505 7483311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 7465421
Contact Person: Darrell Moore or Charlie Bynum
Invoice to: (if different from above)
Project #:
Project Name: Inj well
Project Location:
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
180928	Inj well	1	1L	X								X	X	10/2/01	200

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See List

Extra bottle requested by Vicki

	Date:	Time:		Date:	Time:
Relinquished by:	10/2/01	1615	Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received at Laboratory by: Vicki Gusley	10-3-01	10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact Y / N
Headspace Y / N
Temp 4 °
Log-in Review MF

REMARKS:

10/8

☐ Check If Special Reporting Limits Are Needed

Carrier # UPS 1Z 762 46 6 03 452 3845

Page 1291 of 5828

Quarterly Injection Pressures, Rates, and Volumes

NAVAJO REFINING COMPANY

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max Pressure (psig)	Monthly Min Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max Flow Volume (bpd)	Monthly Min Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min Annular Pressure (psig)	Total Volume (bbls)
July 2001	258	412	0	200	393	0	6850	8267	5608	259	360	120	212,543
August 2001	262	500	0	195	482	0	6773	8857	1782	255	372	118	207,732
September 2001	201	326	0	259	381	0	8876	10148	5044	188	328	113	266,295
WDW-2	**Monthly Avg. Pressure (psig)**	**Monthly Max Pressure (psig)**	**Monthly Min Pressure (psig)**	**Monthly Avg. Flow Rate (gpm)**	**Monthly Max Flow Rate (gpm)**	**Monthly Min. Flow Rate (gpm)**	**Monthly Avg. Flow Volume (bpd)**	**Monthly Max Flow Volume (bpd)**	**Monthly Min Flow Volume (bpd)**	**Monthly Avg. Annular Pressure (psig)**	**Monthly Max Annular Pressure (psig)**	**Monthly Min Annular Pressure (psig)**	**Total Volume (bbls)**
July 2001	143	341	0	28	178	0	3281	5913	25	161	500	17	98,443
August 2001	183	500	0	106	520	0	3529	7171	6	213	495	25	108,769
September 2001	48	277	0	94	206	0	1101	6097	4	132	500	22	33,040

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Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

February 12, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2001 to December 31, 2001. We have disposed a total of 9,429,075 bbls. of fluid down the two wells as of December 31, 2001. This is broken down as follows: 7,171,582 bbls. down WDW-1 and 2,257,493 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 1 of 5
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 30, 2002

Order ID Number: A02010402

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
188362	Inj. Wells	Water	1/3/01	9:00	1/4/02

0 This report consists of a total of 5 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 188362 - Inj. Wells

Param	Flag	Result	Units
Bromochloromethane		<1.00	µg/L
Dichlorodifluoromethane		<1.00	µg/L
Chloromethane (methyl chloride)		<1.00	µg/L
Vinyl Chloride		<1.00	µg/L
Bromomethane (methyl bromide)		<5.00	µg/L
Chloroethane		<1.00	µg/L
Trichlorofluoromethane		<1.00	µg/L
Acetone		17.4	µg/L
Iodomethane (methyl iodide)		<5.00	µg/L
Carbon Disulfide		<1.00	µg/L
Acrylonitrile		<1.00	µg/L
2-Butanone (MEK)		<5.00	µg/L
4-methyl-2-pentanone (MIBK)		<5.00	µg/L
2-hexanone		<5.00	µg/L
trans 1,4-Dichloro-2-butene		<10.0	µg/L
1,1-Dichloroethene		<1.00	µg/L
Methylene chloride		<5.00	µg/L
MTBE		<1.00	µg/L
trans-1,2-Dichloroethene		<1.00	µg/L
1,1-Dichloroethane		<1.00	µg/L
cis-1,2-Dichloroethene		<1.00	µg/L
2,2-Dichloropropane		<1.00	µg/L
1,2-Dichloroethane (EDC)		<1.00	µg/L
Chloroform		<1.00	µg/L
1,1,1-Trichloroethane		<1.00	µg/L
1,1-Dichloropropene		<1.00	µg/L
Benzene		<1.00	µg/L
Carbon Tetrachloride		<1.00	µg/L
1,2-Dichloropropane		<1.00	µg/L
Trichloroethene (TCE)		<1.00	µg/L
Dibromomethane (methylene bromide)		<1.00	µg/L
Bromodichloromethane		<1.00	µg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 2 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
2-Chloroethyl vinyl ether		<5.00	µg/L
cis-1,3-Dichloropropene		<1.00	µg/L
trans-1,3-Dichloropropene		<1.00	µg/L
Toluene		<1.00	µg/L
1,1,2-Trichloroethane		<1.00	µg/L
1,3-Dichloropropane		<1.00	µg/L
Dibromochloromethane		<1.00	µg/L
1,2-Dibromoethane (EDB)		<1.00	µg/L
Tetrachloroethene (PCE)		<1.00	µg/L
Chlorobenzene		<1.00	µg/L
1,1,1,2-Tetrachloroethane		<1.00	µg/L
Ethylbenzene		2.20	µg/L
m,p-Xylene		3.72	µg/L
Bromoform		<1.00	µg/L
Styrene		<1.00	µg/L
o-Xylene		1.19	µg/L
1,1,2,2-Tetrachloroethane		<1.00	µg/L
2-Chlorotoluene		<1.00	µg/L
1,2,3-Trichloropropane		<1.00	µg/L
Isopropylbenzene		<1.00	µg/L
Bromobenzene		<1.00	µg/L
n-Propylbenzene		<1.00	µg/L
1,3,5-Trimethylbenzene		<1.00	µg/L
tert-Butylbenzene		<1.00	µg/L
1,2,4-Trimethylbenzene		1.08	µg/L
1,4-Dichlorobenzene (para)		<1.00	µg/L
sec-Butylbenzene		<1.00	µg/L
1,3-Dichlorobenzene		<1.00	µg/L
p-Isopropyltoluene		<1.00	µg/L
4-Chlorotoluene		<1.00	µg/L
1,2-Dichlorobenzene (ortho)		<1.00	µg/L
n-Butylbenzene		<1.00	µg/L
1,2-Dibromo-3-chloropropane		<5.00	µg/L
1,2,3-Trichlorobenzene		<5.00	µg/L
1,2,4-Trichlorobenzene		<5.00	µg/L
Naphthalene		<5.00	µg/L
Hexachlorobutadiene		<5.00	µg/L
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 3 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 4 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		12	mg/L as CaCo3
Bicarbonate Alkalinity		282	mg/L as CaCo3
Total Alkalinity		294	mg/L as CaCo3
Specific Conductance		4150	μMHOS/cm
Corrosivity		non-corrosive	mm/yr
pH		8.5	s.u.
Flashpoint	[1]	>150	F
Total Mercury		<0.0002	mg/L
Chloride		718	mg/L
Sulfate	[2]	500	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		157	mg/L
Dissolved Magnesium		25.3	mg/L
Dissolved Potassium		38.3	mg/L
Dissolved Sodium		452	mg/L
Total Dissolved Solids		1990	mg/L
Total Aluminum		0.842	mg/L
Total Arsenic		0.181	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.207	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L

Continued on next page ...

[1]There was not enough sample to duplicate.
[2]Sulfate re-ran on IC011002-1.sch (PB17016; QC17285). ICV %IA = 94; CCV %IA = 93; matrix spikes RPD = 0, %EA = 85; LCS spikes RPD = 1, %EA = 93.

This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 5 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Total Cobalt		<0.025	mg/L
Total Copper		0.0129	mg/L
Total Iron		1.77	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.080	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.292	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		0.0759	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.182	mg/L
pH	[3]	8.5	s.u.

[3] received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 30, 2002

Order ID Number: A02010402

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
188362	Inj. Wells	Water	1/3/01	9:00	1/4/02

0
These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.

This report consists of a total of 19 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

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Analytical Report

Sample: 188362 - Inj. Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC17387	Date Analyzed:	1/7/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB17091	Date Prepared:	1/7/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<1.00	µg/L	1	1
Dichlorodifluoromethane		<1.00	µg/L	1	1
Chloromethane (methyl chloride)		<1.00	µg/L	1	1
Vinyl Chloride		<1.00	µg/L	1	1
Bromomethane (methyl bromide)		<5.00	µg/L	1	5
Chloroethane		<1.00	µg/L	1	1
Trichlorofluoromethane		<1.00	µg/L	1	1
Acetone		17.4	µg/L	1	10
Iodomethane (methyl iodide)		<5.00	µg/L	1	5
Carbon Disulfide		<1.00	µg/L	1	1
Acrylonitrile		<1.00	µg/L	1	1
2-Butanone (MEK)		<5.00	µg/L	1	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	1	5
2-hexanone		<5.00	µg/L	1	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	1	10
1,1-Dichloroethene		<1.00	µg/L	1	1
Methylene chloride		<5.00	µg/L	1	5
MTBE		<1.00	µg/L	1	1
trans-1,2-Dichloroethene		<1.00	µg/L	1	1
1,1-Dichloroethane		<1.00	µg/L	1	1
cis-1,2-Dichloroethene		<1.00	µg/L	1	1
2,2-Dichloropropane		<1.00	µg/L	1	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1
Chloroform		<1.00	µg/L	1	1
1,1,1-Trichloroethane		<1.00	µg/L	1	1
1,1-Dichloropropene		<1.00	µg/L	1	1
Benzene		<1.00	µg/L	1	1
Carbon Tetrachloride		<1.00	µg/L	1	1
1,2-Dichloropropane		<1.00	µg/L	1	1
Trichloroethene (TCE)		<1.00	µg/L	1	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1
Bromodichloromethane		<1.00	µg/L	1	1
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5
cis-1,3-Dichloropropene		<1.00	µg/L	1	1
trans-1,3-Dichloropropene		<1.00	µg/L	1	1
Toluene		<1.00	µg/L	1	1
1,1,2-Trichloroethane		<1.00	µg/L	1	1
1,3-Dichloropropane		<1.00	µg/L	1	1
Dibromochloromethane		<1.00	µg/L	1	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1
Tetrachloroethene (PCE)		<1.00	µg/L	1	1
Chlorobenzene		<1.00	µg/L	1	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1
Ethylbenzene		2.20	µg/L	1	1
m,p-Xylene		3.72	µg/L	1	1
Bromoform		<1.00	µg/L	1	1
Styrene		<1.00	µg/L	1	1
o-Xylene		1.19	µg/L	1	1

Continued ...

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... *Continued* Sample: 188362 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1
2-Chlorotoluene		<1.00	µg/L	1	1
1,2,3-Trichloropropane		<1.00	µg/L	1	1
Isopropylbenzene		<1.00	µg/L	1	1
Bromobenzene		<1.00	µg/L	1	1
n-Propylbenzene		<1.00	µg/L	1	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1
tert-Butylbenzene		<1.00	µg/L	1	1
1,2,4-Trimethylbenzene		1.08	µg/L	1	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1
sec-Butylbenzene		<1.00	µg/L	1	1
1,3-Dichlorobenzene		<1.00	µg/L	1	1
p-Isopropyltoluene		<1.00	µg/L	1	1
4-Chlorotoluene		<1.00	µg/L	1	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1	1
n-Butylbenzene		<1.00	µg/L	1	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	1	5
1,2,3-Trichlorobenzene		<5.00	µg/L	1	5
1,2,4-Trichlorobenzene		<5.00	µg/L	1	5
Naphthalene		<5.00	µg/L	1	5
Hexachlorobutadiene		<5.00	µg/L	1	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	84 - 122
Toluene-d8		48.5	µg/L	1	50	97	95 - 105
4-Bromofluorobenzene		50	µg/L	1	50	100	91 - 108

Sample: 188362 - Inj. Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC17449	Date Analyzed:	1/10/02
Analyst:	RC	Preparation Method:	E 3510C	Prep Batch:	PB17140	Date Prepared:	1/7/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 188362 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 188362 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		11.27	mg/L	1	80	14	21 - 100
Phenol-d5	[1]	6.21	mg/L	1	80	7	11 - 94
Nitrobenzene-d5		33.48	mg/L	1	80	41	35 - 114
2-Fluorobiphenyl		31.91	mg/L	1	80	39	43 - 116
2,4,6-Tribromophenol		55.66	mg/L	1	80	69	10 - 123
Terphenyl-d14		33.05	mg/L	1	80	41	33 - 141

Sample: 188362 - Inj. Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC17283	Date Analyzed:	1/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB17018	Date Prepared:	1/10/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		12	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		282	mg/L as CaCo3	1	1
Total Alkalinity		294	mg/L as CaCo3	1	1

Sample: 188362 - Inj. Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC17280	Date Analyzed:	1/9/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17013	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		4150	μMHOS/cm	1	

[1] Sample surrogate out of limits due to sample matrix.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 188362 - Inj. Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC17689	Date Analyzed:	1/24/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17318	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		non-corrosive	mm/yr	1	
pH		8.5	s.u.	1	

Sample: 188362 - Inj. Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC17688	Date Analyzed:	1/23/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17317	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Flashpoint	[2]	>150	F	1	

Sample: 188362 - Inj. Wells

Analysis:	Hg, Total	Analytical Method:	E 245.2	QC Batch:	QC17473	Date Analyzed:	1/17/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB17163	Date Prepared:	1/16/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 188362 - Inj. Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC17284	Date Analyzed:	1/8/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17015	Date Prepared:	1/8/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		718	mg/L	50	0.50
Sulfate	[3]	500	mg/L	50	0.50

Sample: 188362 - Inj. Wells

Analysis:	Reactivity	Analytical Method:	ASTM D 5049-90/4978-95	QC Batch:	QC17690	Date Analyzed:	1/23/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17319	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 188362 - Inj. Wells

Analysis:	Salts	Analytical Method:	E 200.7	QC Batch:	QC17367	Date Analyzed:	1/14/02
Analyst:	BC	Preparation Method:	S 3005A	Prep Batch:	PB16960	Date Prepared:	1/10/02

[2]There was not enough sample to duplicate.
[3]Sulfate re-ran on IC011002-1.sch (PB17016; QC17285). ICV %IA = 94; CCV %IA = 93; matrix spikes RPD = 0, %EA = 85; LCS spikes RPD = 1, %EA = 93.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		157	mg/L	1	0.50
Dissolved Magnesium		25.3	mg/L	1	0.50
Dissolved Potassium		38.3	mg/L	1	0.50
Dissolved Sodium		452	mg/L	1	0.50

Sample: 188362 - Inj. Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC17251	Date Analyzed:	1/10/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB16995	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		1990	mg/L	5	10

Sample: 188362 - Inj. Wells

Analysis:	Total Metals	Analytical Method:	E 200.7	QC Batch:	QC17264	Date Analyzed:	1/11/01
Analyst:	RR	Preparation Method:	N/A	Prep Batch:	PB16946	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.842	mg/L	1	0.10
Total Arsenic		0.181	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.207	mg/L	1	0.01
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		0.0129	mg/L	1	0.01
Total Iron		1.77	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.080	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.292	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		0.0759	mg/L	1	0.05
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.182	mg/L	1	0.02

Sample: 188362 - Inj. Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC17324	Date Analyzed:	1/8/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB17046	Date Prepared:	1/8/02

Param	Flag	Result	Units	Dilution	RDL
pH	[4]	8.5	s.u.	1	1

[4] received out of holding time

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Method Blank QCBatch: QC17251

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC17280

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		10.3	µMHOS/cm	

Method Blank QCBatch: QC17283

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank QCBatch: QC17284

Param	Flag	Results	Units	Reporting Limit
Chloride		<2.0	mg/L	0.50

Method Blank QCBatch: QC17367

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank QCBatch: QC17387

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

... Continued

Param	Flag	Results	Units	Reporting Limit
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		48.6	µg/L	1	50	97	84 - 122
Toluene-d8		48.6	µg/L	1	50	97	95 - 105
4-Bromofluorobenzene		48.1	µg/L	1	50	96	91 - 108

Method Blank

QCBatch: QC17449

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Results	Units	Reporting Limit
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		34.33	mg/L	1	80	42	21 - 100
Phenol-d5		15.74	mg/L	1	80	19	11 - 94
Nitrobenzene-d5		88.13	mg/L	1	80	110	35 - 114
2-Fluorobiphenyl		90.46	mg/L	1	80	113	43 - 116
2,4,6-Tribromophenol		50.64	mg/L	1	80	63	10 - 123
Terphenyl-d14		101.21	mg/L	1	80	126	33 - 141

Method Blank

QCBatch: QC17473

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Quality Control Report
Duplicate Samples

Duplicate

QCBatch: QC17251

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		2035	1990	mg/L	1	2	8.9

Duplicate

QCBatch: QC17280

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4494	4490	µMHOS/cm	1	0	5.9

Received by OCD: 5/16/2022 2:12:41 PM

Duplicate QCBatch: QC17283

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	7
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	7
Bicarbonate Alkalinity		528	532	mg/L as CaCo3	1	0	7
Total Alkalinity		528	532	mg/L as CaCo3	1	0	7

Duplicate QCBatch: QC17324

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	0.99

Duplicate QCBatch: QC17689

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		non-corrosive	non-corrosive	mm/yr	1	0	20
pH		8.5	8.5	s.u.	1	0	20

Duplicate QCBatch: QC17690

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		non-reactive	Non-reactive		1	0	20

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC17284

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.40	11.43	mg/L	1	12.50	<2.0	91	0	90 - 110	20
Nitrate-N	2.39	2.40	mg/L	1	2.50	<0.2	95	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes QCBatch: QC17387

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	105	107	µg/L	1	100	<1.00	105	1	92 - 129	20
Benzene	100	102	µg/L	1	100	<1.00	100	1	94 - 112	20
Trichloroethene (TCE)	105	107	µg/L	1	100	<1.00	105	1	90 - 113	20
Toluene	98	99	µg/L	1	100	<1.00	98	1	89 - 109	20
Chlorobenzene	101	104	µg/L	1	100	<1.00	101	2	93 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	48.8	48.5	µg/L	1	50	97	97	84 - 122
Toluene-d8	48.2	48.4	µg/L	1	50	96	96	95 - 105
4-Bromofluorobenzene	49.6	48.9	µg/L	1	50	99	97	91 - 108

Laboratory Control Spikes

QCBatch: QC17449

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	18.67	15.7	mg/L	1	80	<0.005	23	17	5 - 112	20
2-Chlorophenol	54.98	48.68	mg/L	1	80	<0.005	68	12	23 - 134	20
1,4-Dichlorobenzene	77.53	73.98	mg/L	1	80	<0.005	96	4	20 - 124	20
n-Nitrosodi-n-propylamine	69.29	53.43	mg/L	1	80	<0.005	86	25	0 - 230	20
1,2,4-Trichlorobenzene	88.58	87.4	mg/L	1	80	<0.005	110	1	44 - 142	20
4-Chloro-3-methylphenol	50.17	41.2	mg/L	1	80	<0.005	62	19	22 - 147	20
Acenaphthene	89.13	92.62	mg/L	1	80	<0.005	111	3	47 - 145	20
4-Nitrophenol	7.99	7.97	mg/L	1	80	<0.005	9	0	0 - 132	20
2,4-Dinitrotoluene	84.12	78.26	mg/L	1	80	<0.005	105	7	39 - 139	20
Pentachlorophenol	44.65	27.62	mg/L	1	80	<0.005	55	47	14 - 176	20
Pyrene	79.77	70.62	mg/L	1	80	<0.005	99	12	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	27.55	24.99	mg/L	1	80	34	31	21 - 100
Phenol-d5	14.57	11.59	mg/L	1	80	18	14	11 - 94
Nitrobenzene-d5	84.82	79.23	mg/L	1	80	106	99	35 - 114
2-Fluorobiphenyl	84.29	78.19	mg/L	1	80	105	97	43 - 116
2,4,6-Tribromophenol	70.76	62.61	mg/L	1	80	88	78	10 - 123
Terphenyl-d14	82.84	67.84	mg/L	1	80	103	84	33 - 141

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC17284

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	187.73	188.76	mg/L	1	125	72.0	90	0	52 - 131	20

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1) QCBatch: QC17251

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1014	101	90 - 110	1/10/02

ICV (1) QCBatch: QC17251

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	998	99	90 - 110	1/10/02

CCV (1) QCBatch: QC17264

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.97	98	90 - 110	1/11/01
Total Arsenic		mg/L	1	1.01	101	90 - 110	1/11/01
Total Barium		mg/L	2	2.00	100	90 - 110	1/11/01
Total Beryllium		mg/L	0.05	0.0495	99	90 - 110	1/11/01
Total Boron		mg/L	0.10	0.102	102	90 - 110	1/11/01
Total Cadmium		mg/L	0.50	0.502	100	90 - 110	1/11/01
Total Chromium		mg/L	0.20	0.200	100	90 - 110	1/11/01
Total Cobalt		mg/L	0.50	0.501	100	90 - 110	1/11/01
Total Copper		mg/L	0.25	0.249	100	90 - 110	1/11/01
Total Iron		mg/L	1	1.01	101	90 - 110	1/11/01
Total Lead		mg/L	1	0.995	100	90 - 110	1/11/01
Total Manganese		mg/L	0.50	0.498	100	90 - 110	1/11/01
Total Molybdenum		mg/L	1	0.995	100	90 - 110	1/11/01
Total Nickel		mg/L	0.50	0.500	100	90 - 110	1/11/01
Total Selenium		mg/L	1	0.991	99	90 - 110	1/11/01
Total Silver		mg/L	0.25	0.247	99	90 - 110	1/11/01
Total Uranium		mg/L	1	1.03	103	90 - 110	1/11/01
Total Vanadium		mg/L	0.50	0.493	99	90 - 110	1/11/01
Total Zinc		mg/L	0.50	0.508	102	90 - 110	1/11/01

ICV (1) QCBatch: QC17264

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.97	98	90 - 110	1/11/01
Total Arsenic		mg/L	1	1.02	102	90 - 110	1/11/01
Total Barium		mg/L	2	2.01	100	90 - 110	1/11/01
Total Beryllium		mg/L	0.05	0.050	100	90 - 110	1/11/01
Total Boron		mg/L	0.10	0.104	104	90 - 110	1/11/01
Total Cadmium		mg/L	0.50	0.504	101	90 - 110	1/11/01
Total Chromium		mg/L	0.20	0.202	101	90 - 110	1/11/01
Total Cobalt		mg/L	0.50	0.507	101	90 - 110	1/11/01
Total Copper		mg/L	0.25	0.250	100	90 - 110	1/11/01
Total Iron		mg/L	1	1.01	101	90 - 110	1/11/01
Total Lead		mg/L	1	1.01	101	90 - 110	1/11/01
Total Manganese		mg/L	0.50	0.503	101	90 - 110	1/11/01
Total Molybdenum		mg/L	1	1.01	101	90 - 110	1/11/01
Total Nickel		mg/L	0.50	0.504	101	90 - 110	1/11/01
Total Selenium		mg/L	1	1.01	101	90 - 110	1/11/01
Total Silver		mg/L	0.25	0.250	100	90 - 110	1/11/01
Total Uranium		mg/L	1	1.01	101	90 - 110	1/11/01
Total Vanadium		mg/L	0.50	0.500	100	90 - 110	1/11/01
Total Zinc		mg/L	0.50	0.502	100	90 - 110	1/11/01

CCV (1) QCBatch: QC17280

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1447	102	90 - 110	1/9/02

ICV (1) QCBatch: QC17280

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1400	1449	103	90 - 110	1/9/02

CCV (1) QCBatch: QC17283

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	1/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	90 - 110	1/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	12	0	90 - 110	1/10/02
Total Alkalinity		mg/L as CaCo3	250	236	94	90 - 110	1/10/02

ICV (1) QCBatch: QC17283

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	1/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	236	0	90 - 110	1/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	1/10/02
Total Alkalinity		mg/L as CaCo3	250	242	96	90 - 110	1/10/02

CCV (1) QCBatch: QC17284

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.44	91	90 - 110	1/8/02
Nitrate-N		mg/L	2.50	2.39	95	90 - 110	1/8/02

ICV (1) QCBatch: QC17284

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.31	90	90 - 110	1/8/02
Nitrate-N		mg/L	2.50	2.37	94	90 - 110	1/8/02

CCV (1) QCBatch: QC17324

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	1/8/02

ICV (1) QCBatch: QC17324

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	1/8/02

CCV (1) QCBatch: QC17367

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	27.2	108	90 - 110	1/14/02
Dissolved Magnesium		mg/L	25	27.5	110	90 - 110	1/14/02
Dissolved Potassium		mg/L	25	23.5	94	90 - 110	1/14/02

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Sodium		mg/L	25	26.1	104	90 - 110	1/14/02

ICV (1)

QCBatch: QC17367

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.6	102	95 - 105	1/14/02
Dissolved Magnesium		mg/L	25	25.4	101	95 - 105	1/14/02
Dissolved Potassium		mg/L	25	25.7	102	95 - 105	1/14/02
Dissolved Sodium		mg/L	25	25.8	103	95 - 105	1/14/02

CCV (1)

QCBatch: QC17387

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	86	86	80 - 120	1/7/02
1,1-Dichloroethene		µg/L	100	100	100	80 - 120	1/7/02
Chloroform		µg/L	100	96	96	80 - 120	1/7/02
1,2-Dichloropropane		µg/L	100	96	96	80 - 120	1/7/02
Toluene		µg/L	100	98	98	80 - 120	1/7/02
Chlorobenzene		µg/L	100	100	100	80 - 120	1/7/02
Ethylbenzene		µg/L	100	99	99	80 - 120	1/7/02
Dibromofluoromethane		µg/L	50	48.8	97	80 - 120	1/7/02
Toluene-d8		µg/L	50	47.9	95	80 - 120	1/7/02
4-Bromofluorobenzene		µg/L	50	51.7	103	80 - 120	1/7/02

CCV (1)

QCBatch: QC17449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	58.4	97	80 - 120	1/10/02
1,4-Dichlorobenzene		mg/L	60	61.28	102	80 - 120	1/10/02
2-Nitrophenol		mg/L	60	50.66	84	80 - 120	1/10/02
2,4-Dichlorophenol		mg/L	60	59.77	99	80 - 120	1/10/02
Hexachlorobutadiene		mg/L	60	67.23	112	80 - 120	1/10/02
4-Chloro-3-methylphenol		mg/L	60	57.54	95	80 - 120	1/10/02
2,4,6-Trichlorophenol		mg/L	60	63.18	105	80 - 120	1/10/02
Acenaphthene		mg/L	60	63.72	106	80 - 120	1/10/02
Diphenylamine		mg/L	60	60.31	100	80 - 120	1/10/02
Pentachlorophenol		mg/L	60	64.31	107	80 - 120	1/10/02
Fluoranthene		mg/L	60	63.95	106	80 - 120	1/10/02
Di-n-octylphthalate		mg/L	60	57.07	95	80 - 120	1/10/02
Benzo(a)pyrene		mg/L	60	53.49	89	80 - 120	1/10/02

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
2-Fluorophenol		mg/L	60	62.05	103	80 - 120	1/10/02
Phenol-d5		mg/L	60	59.75	99	80 - 120	1/10/02
Nitrobenzene-d5		mg/L	60	65.33	108	80 - 120	1/10/02
2-Fluorobiphenyl		mg/L	60	71.3	118	80 - 120	1/10/02
2,4,6-Tribromophenol		mg/L	60	66.34	110	80 - 120	1/10/02
Terphenyl-d14		mg/L	60	71.42	119	80 - 120	1/10/02

CCV (1)

QCBatch: QC17473

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00091	91	80 - 120	1/17/02

ICV (1)

QCBatch: QC17473

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00099	99	80 - 120	1/17/02

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Page_____of_____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon,Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 102010402

Company Name: NAVASO Phone #:

Address: (Street, City, Zip) Fax #:

Contact Person: Darrell Moore

Invoice to: (If different from above)

Project #: Project Name: Inj. wells

Project Location: Artesia Sampler Signature:

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
188362	Inj. Wells	2	1L	X								X	X	1/3/02	900
	" "	1	500ml	X					X			X		1/3/02	900
	" "	2	40ml	X				X				X		1/3/02	900

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See L-57

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	1/3/02	615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Beasley	Date: 1-4-01	Time: 10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact Y N

Headspace Y / N

Temp 1 °

Log-in Review MS

REMARKS:

1/3 1P

☐ Check If Special Reporting Limits Are Needed

Carrier # Fed Ex 3462642211

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Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max. Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max. Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Oct-01	236	350	0	262	393	0	8982	13474	0	197	269	140	278,442
Nov-01	223	363	0	214	649	0	7337	22251	0	192	414	110	220,110
Dec-01	500	500	111	219	647	0	7508	22182	0	239	499	108	232,748

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max. Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max. Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Oct-01	71	299	0	45	647	0	1542	22182	0	161	466	22	47,802
Nov-01	93	336	0	52	647	0	1782	22182	0	146	448	15	53,460
Dec-01	462	500	44	155	647	0	5314	22182	0	225	339	160	164,734

NAVAJO REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

September 3, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 2nd quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from April 1, 2002 to June 30, 2002. We have disposed a total of 10,376,491 bbls. of fluid into the two wells as of December 31, 2001. This is broken down as follows: 7,902,016 bbls. into WDW-1 and 2,474,475 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: August 29, 2002

Order ID Number: A02071026

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
201170	Inj Wells	Water	7/9/02	9:00	7/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 20 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

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Analytical Report

Sample: 201170 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC21973	Date Analyzed:	7/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20783	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		90	mg/L as CaCo3	1	1
Total Alkalinity		90	mg/L as CaCo3	1	1

Sample: 201170 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC21780	Date Analyzed:	7/11/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB20631	Date Prepared:	7/11/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5830	μMHOS/cm	1	

Sample: 201170 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC21915	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:		Prep Batch:	PB20741	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		0.4970 non-corrosive	mm/yr	1	
pH		7.57	s.u.	1	

Sample: 201170 - Inj Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC21917	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB20743	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Flashpoint		>140	F	1	

Sample: 201170 - Inj Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC22023	Date Analyzed:	7/19/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB20842	Date Prepared:	7/19/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 201170 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC21914	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:		Prep Batch:	PB20740	Date Prepared:	7/16/02

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Param	Flag	Result	Units	Dilution	RDL

Sample: 201170 - Inj Wells

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC21805 Date Analyzed: 7/10/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB20648 Date Prepared: 7/10/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		1090	mg/L	100	1
Nitrate-N		<0.2	mg/L	5	0.20
Sulfate		934	mg/L	100	1

Sample: 201170 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC21916 Date Analyzed: 7/16/02
Analyst: BC Preparation Method: Prep Batch: PB20742 Date Prepared: 7/16/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 201170 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC22163 Date Analyzed: 7/22/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB20704 Date Prepared: 7/15/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		170	mg/L	1	0.50
Dissolved Magnesium		31.7	mg/L	1	0.50
Dissolved Potassium		19.3	mg/L	1	0.50
Dissolved Sodium		691	mg/L	1	0.50

Sample: 201170 - Inj Wells

Analysis: Semivolatiles Analytical Method: S 8270C QC Batch: QC22072 Date Analyzed: 7/16/02
Analyst: RC Preparation Method: E 3510C Prep Batch: PB20791 Date Prepared: 7/15/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.017	mg/L	3.33	0.005
n-Nitrosodimethylamine		<0.017	mg/L	3.33	0.005
2-Picoline		<0.017	mg/L	3.33	0.005
Methyl methanesulfonate		<0.017	mg/L	3.33	0.005
Ethyl methanesulfonate		<0.017	mg/L	3.33	0.005
Phenol		<0.017	mg/L	3.33	0.005
Aniline		<0.017	mg/L	3.33	0.005
bis (2-chloroethyl) ether		<0.017	mg/L	3.33	0.005
2-Chlorophenol		<0.017	mg/L	3.33	0.005
1,3-Dichlorobenzene (meta)		<0.017	mg/L	3.33	0.005
1,4-Dichlorobenzene		<0.017	mg/L	3.33	0.005
Benzyl alcohol		<0.017	mg/L	3.33	0.005

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Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 201170 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
1,2-Dichlorobenzene		<0.017	mg/L	3.33	0.005
2-Methylphenol		<0.017	mg/L	3.33	0.005
bis (2-chloroisopropyl) ether		<0.017	mg/L	3.33	0.005
4-Methylphenol/3-Methylphenol		<0.017	mg/L	3.33	0.005
Acetophenone		<0.017	mg/L	3.33	0.005
n-Nitrosodi-n-propylamine		<0.017	mg/L	3.33	0.005
Hexachloroethane		<0.017	mg/L	3.33	0.005
Nitrobenzene		<0.017	mg/L	3.33	0.005
n-Nitrosopiperidine		<0.017	mg/L	3.33	0.005
Isophorone		<0.017	mg/L	3.33	0.005
2-Nitrophenol		<0.017	mg/L	3.33	0.005
2,4-Dimethylphenol		<0.017	mg/L	3.33	0.005
bis (2-chloroethoxy) methane		<0.017	mg/L	3.33	0.005
Benzoic acid		<0.017	mg/L	3.33	0.005
2,4-Dichlorophenol		<0.017	mg/L	3.33	0.005
1,2,4-Trichlorobenzene		<0.017	mg/L	3.33	0.005
a,a-Dimethylphenethylamine		<0.017	mg/L	3.33	0.005
Naphthalene		<0.017	mg/L	3.33	0.005
4-Chloroaniline		<0.017	mg/L	3.33	0.005
2,6-Dichlorophenol		<0.017	mg/L	3.33	0.005
Hexachlorobutadiene		<0.017	mg/L	3.33	0.005
n-Nitroso-di-n-butylamine		<0.017	mg/L	3.33	0.005
4-Chloro-3-methylphenol		<0.017	mg/L	3.33	0.005
1-Methylnaphthalene		<0.017	mg/L	3.33	0.005
2-Methylnaphthalene		<0.017	mg/L	3.33	0.005
1,2,4,5-Tetrachlorobenzene		<0.017	mg/L	3.33	0.005
Hexachlorocyclopentadiene		<0.017	mg/L	3.33	0.005
2,4,6-Trichlorophenol		<0.017	mg/L	3.33	0.005
2,4,5-Trichlorophenol		<0.017	mg/L	3.33	0.005
2-Chloronaphthalene		<0.017	mg/L	3.33	0.005
1-Chloronaphthalene		<0.017	mg/L	3.33	0.005
2-Nitroaniline		<0.017	mg/L	3.33	0.005
Dimethylphthalate		<0.017	mg/L	3.33	0.005
Acenaphthylene		<0.017	mg/L	3.33	0.005
2,6-Dinitrotoluene		<0.017	mg/L	3.33	0.005
3-Nitroaniline		<0.017	mg/L	3.33	0.005
Acenaphthene		<0.017	mg/L	3.33	0.005
2,4-Dinitrophenol		<0.017	mg/L	3.33	0.005
Dibenzofuran		<0.017	mg/L	3.33	0.005
Pentachlorobenzene		<0.017	mg/L	3.33	0.005
4-Nitrophenol		<0.017	mg/L	3.33	0.005
1-Naphthylamine		<0.017	mg/L	3.33	0.005
2,4-Dinitrotoluene		<0.017	mg/L	3.33	0.005
2-Naphthylamine		<0.017	mg/L	3.33	0.005
2,3,4,6-Tetrachlorophenol		<0.017	mg/L	3.33	0.005
Fluorene		<0.017	mg/L	3.33	0.005
Diethylphthalate		<0.017	mg/L	3.33	0.005
4-Chlorophenyl-phenylether		<0.017	mg/L	3.33	0.005
4-Nitroaniline		<0.017	mg/L	3.33	0.005
4,6-Dinitro-2-methylphenol		<0.017	mg/L	3.33	0.005
Diphenylamine		<0.017	mg/L	3.33	0.005
Diphenylhydrazine		<0.017	mg/L	3.33	0.005
4-Bromophenyl-phenylether		<0.017	mg/L	3.33	0.005

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... *Continued* Sample: 201170 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
Phenacetin		<0.017	mg/L	3.33	0.005
Hexachlorobenzene		<0.017	mg/L	3.33	0.005
4-Aminobiphenyl		<0.017	mg/L	3.33	0.005
Pentachlorophenol		<0.017	mg/L	3.33	0.005
Pentachloronitrobenzene		<0.017	mg/L	3.33	0.005
Pronamide		<0.017	mg/L	3.33	0.005
Phenanthrene		<0.017	mg/L	3.33	0.005
Anthracene		<0.017	mg/L	3.33	0.005
Di-n-butylphthalate		<0.017	mg/L	3.33	0.005
Fluoranthene		<0.017	mg/L	3.33	0.005
Benzidine		<0.017	mg/L	3.33	0.005
Pyrene		<0.017	mg/L	3.33	0.005
p-Dimethylaminoazobenzene		<0.017	mg/L	3.33	0.005
Butylbenzylphthalate		<0.017	mg/L	3.33	0.005
Benzo(a)anthracene		<0.017	mg/L	3.33	0.005
3,3-Dichlorobenzidine		<0.017	mg/L	3.33	0.005
Chrysene		<0.017	mg/L	3.33	0.005
Bis (2-ethylhexyl) phthalate		<0.017	mg/L	3.33	0.005
Di-n-octylphthalate		<0.017	mg/L	3.33	0.005
Benzo(b)fluoranthene		<0.017	mg/L	3.33	0.005
7,12-Dimethylbenz(a)anthracene		<0.017	mg/L	3.33	0.005
Benzo(k)fluoranthene		<0.017	mg/L	3.33	0.005
Benzo(a)pyrene		<0.017	mg/L	3.33	0.005
3-Methylcholanthrene		<0.017	mg/L	3.33	0.005
Dibenzo(a,j)acridine		<0.017	mg/L	3.33	0.005
Indeno(1,2,3-cd)pyrene		<0.017	mg/L	3.33	0.005
Dibenzo(a,h)anthracene		<0.017	mg/L	3.33	0.005
Benzo(g,h,i)perylene		<0.017	mg/L	3.33	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		26.51	mg/L	3.33	80	33	0 - 66
Phenol-d5		25.68	mg/L	3.33	80	32	0 - 70
Nitrobenzene-d5		63.42	mg/L	3.33	80	79	23 - 99
2-Fluorobiphenyl		52.98	mg/L	3.33	80	66	27 - 95
2,4,6-Tribromophenol		47.99	mg/L	3.33	80	59	0 - 199
Terphenyl-d14		57.69	mg/L	3.33	80	72	20 - 96

Sample: 201170 - Inj Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC21968	Date Analyzed:	7/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20788	Date Prepared:	7/15/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2920	mg/L	5	10

Sample: 201170 - Inj Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC21824	Date Analyzed:	7/12/02
Analyst:	RR	Preparation Method:	S 3010A	Prep Batch:	PB20632	Date Prepared:	7/11/02

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Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.347	mg/L	1	0.10
Total Arsenic		0.142	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.285	mg/L	10	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		4.08	mg/L	10	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.124	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.422	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.316	mg/L	1	0.02

Sample: 201170 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC22002	Date Analyzed:	7/17/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB20818	Date Prepared:	7/17/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1

Continued ...

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... *Continued* Sample: 201170 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		51.6	µg/L	5	50	103	77 - 122
Toluene-d8		54.9	µg/L	5	50	109	96 - 111
4-Bromofluorobenzene		45.9	µg/L	5	50	91	87 - 113

[1] elevated reporting limits due to matrix problems.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 201170 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC21883	Date Analyzed:	7/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20720	Date Prepared:	7/10/02

Param	Flag	Result	Units	Dilution	RDL
pH		7.2	s.u.	1	1

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Method Blank

QCBatch: QC21780

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		3.32	µMHOS/cm	

Method Blank

QCBatch: QC21805

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank

QCBatch: QC21824

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.10
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		<0.0125	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank

QCBatch: QC21968

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Method Blank

QCBatch: QC21973

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank

QCBatch: QC22002

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.7	µg/L	1	50	101	77 - 122
Toluene-d8		54.7	µg/L	1	50	109	96 - 111
4-Bromofluorobenzene		43.4	µg/L	1	50	86	87 - 113

Method Blank

QCBatch: QC22023

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank

QCBatch: QC22072

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		26.07	mg/L	1	80	32	0 - 66
Phenol-d5		25.47	mg/L	1	80	31	0 - 70
Nitrobenzene-d5		67.96	mg/L	1	80	84	23 - 99
2-Fluorobiphenyl		65.91	mg/L	1	80	82	27 - 95
2,4,6-Tribromophenol		38.44	mg/L	1	80	48	0 - 199
Terphenyl-d14		74.16	mg/L	1	80	92	20 - 96

Released to Imaging: 7/12/2024 10:49:45 AM

Method Blank QCBatch: QC22163

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC21780

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		5830	5830	µMHOS/cm	1	0	20

Duplicate QCBatch: QC21883

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		9.2	9.2	s.u.	1	0	0

Duplicate QCBatch: QC21915

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		0.7441 non-corrosive	0.4970 non-corrosive	mm/yr	1	39	20
pH		7.57	7.57	s.u.	1	0	0

Duplicate QCBatch: QC21916

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Reactivity		non-reactive	Non-reactive		1	0	20

Duplicate QCBatch: QC21917

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Flashpoint		>140	>140	F	1	0	20

Received by OCD: 5/16/2022 2:12:41 PM

Duplicate QCBatch: QC21968

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		3230	2920	mg/L	1	10	9.7

Duplicate QCBatch: QC21973

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		212	208	mg/L as CaCo3	1	1	9.2
Total Alkalinity		212	208	mg/L as CaCo3	1	1	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC21805

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.78	11.16	mg/L	1	12.50	<1.0	94	5	90 - 110	20
Nitrate-N	2.33	2.34	mg/L	1	2.50	<0.2	93	0	90 - 110	20
Sulfate	11.6	11.57	mg/L	1	12.50	<1.0	92	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes QCBatch: QC22002

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	110	111	µg/L	1	100	<1.00	110	0	84 - 124	20
Benzene	100	101	µg/L	1	100	<1.00	100	0	87 - 112	20
Trichloroethene (TCE)	91	92	µg/L	1	100	<1.00	91	1	81 - 105	20
Toluene	98	98	µg/L	1	100	<1.00	98	0	90 - 108	20
Chlorobenzene	98	97	µg/L	1	100	<1.00	98	1	84 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	50.4	50.0	µg/L	1	50	100	100	77 - 122
Toluene-d8	53.3	52.4	µg/L	1	50	106	104	96 - 111
4-Bromofluorobenzene	46.3	44.6	µg/L	1	50	92	89	87 - 113

Laboratory Control Spikes QCBatch: QC22023

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00116	0.00115	mg/L	1	0.001	<0.0002	116	0	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC22072

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	33.00	30.27	mg/L	1	80	<0.005	41	8	0 - 81	20
2-Chlorophenol	62.6	59.26	mg/L	1	80	<0.005	78	5	12 - 83	20
1,4-Dichlorobenzene	72.36	66.83	mg/L	1	80	<0.005	90	7	13 - 88	20
n-Nitrosodi-n-propylamine	76.72	72.71	mg/L	1	80	<0.005	95	5	9 - 101	20
1,2,4-Trichlorobenzene	69.72	67.82	mg/L	1	80	<0.005	87	2	21 - 87	20
4-Chloro-3-methylphenol	62.44	63.16	mg/L	1	80	<0.005	78	1	14 - 92	20
Acenaphthene	66.04	63.46	mg/L	1	80	<0.005	82	3	26 - 86	20
4-Nitrophenol	23.40	27.78	mg/L	1	80	<0.005	29	17	0 - 104	20
2,4-Dinitrotoluene	73.07	79.28	mg/L	1	80	<0.005	91	8	29 - 94	20
Pentachlorophenol	[2] 43.16	54.00	mg/L	1	80	<0.005	53	22	1 - 97	20
Pyrene	73.53	66.03	mg/L	1	80	<0.005	91	10	25 - 90	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	41.00	39.53	mg/L	1	80	51	49	0 - 66
Phenol-d5	27.97	26.74	mg/L	1	80	34	33	0 - 70
Nitrobenzene-d5	59.2	58.00	mg/L	1	80	74	72	23 - 99
2-Fluorobiphenyl	57.39	54.89	mg/L	1	80	71	68	27 - 95
2,4,6-Tribromophenol	53.32	58.67	mg/L	1	80	66	73	0 - 199
Terphenyl-d14	64.51	59.09	mg/L	1	80	80	73	20 - 96

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC21805

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	2210	2200	mg/L	1	1250		89	0	48 - 127	20
Chloride	2210	2200	mg/L	1	1250	1090	89	0	48 - 127	20
Nitrate-N	243	235	mg/L	1	250		97	3	87 - 100	20
Nitrate-N	243	235	mg/L	1	250	<0.2	97	3	87 - 100	20
Sulfate	2090	2090	mg/L	1	1250		92	0	59 - 121	20
Sulfate	2090	2090	mg/L	1	1250	934	92	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[2]Irradic recovery of penta chlorophenol other analytes show process is in control.

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Matrix Spikes

QCBatch: QC22023

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00104	0.00105	mg/L	1	0.001	<0.0002	104	0	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC21780

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1385	98	90 - 110	7/11/02

ICV (1)

QCBatch: QC21780

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1400	99	90 - 110	7/11/02

CCV (1)

QCBatch: QC21805

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.74	93	90 - 110	7/10/02
Nitrate-N		mg/L	2.50	2.33	93	90 - 110	7/10/02
Sulfate		mg/L	12.50	11.49	91	90 - 110	7/10/02

ICV (1)

QCBatch: QC21805

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.89	95	90 - 110	7/10/02
Nitrate-N		mg/L	2.50	2.34	93	90 - 110	7/10/02
Sulfate		mg/L	12.50	11.69	93	90 - 110	7/10/02

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CCV (1) QCBatch: QC21824

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	0.25	0.246	98	90 - 110	7/12/02
Total Zinc		mg/L	0.50	0.498	99	90 - 110	7/12/02

ICV (1) QCBatch: QC21824

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	0.25	0.248	99	95 - 105	7/12/02
Total Zinc		mg/L	0.50	0.500	100	95 - 105	7/12/02

CCV (1) QCBatch: QC21883

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	7/10/02

ICV (1) QCBatch: QC21883

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	7/10/02

CCV (1) QCBatch: QC21968

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	965	96	90 - 110	7/16/02

ICV (1) QCBatch: QC21968

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1029	102	90 - 110	7/16/02

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CCV (1) QCBatch: QC21973

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	7/16/02
Carbonate Alkalinity		mg/L as CaCo3	0	228	0	90 - 110	7/16/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	8	0	90 - 110	7/16/02
Total Alkalinity		mg/L as CaCo3	250	236	94	90 - 110	7/16/02

ICV (1) QCBatch: QC21973

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	7/16/02
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	90 - 110	7/16/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	7/16/02
Total Alkalinity		mg/L as CaCo3	250	238	95	90 - 110	7/16/02

CCV (1) QCBatch: QC22002

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	51	102	80 - 120	7/17/02
1,1-Dichloroethene		µg/L	50	50	100	80 - 120	7/17/02
Chloroform		µg/L	50	50	100	80 - 120	7/17/02
1,2-Dichloropropane		µg/L	50	52	104	80 - 120	7/17/02
Toluene		µg/L	50	50	100	80 - 120	7/17/02
Chlorobenzene		µg/L	50	50	100	80 - 120	7/17/02
Ethylbenzene		µg/L	50	51	102	80 - 120	7/17/02
Dibromofluoromethane		µg/L	50	49.9	99	80 - 120	7/17/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	7/17/02
4-Bromofluorobenzene		µg/L	50	50.9	101	80 - 120	7/17/02

CCV (1) QCBatch: QC22023

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00105	105	80 - 120	7/19/02

ICV (1) QCBatch: QC22023

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Report Date: August 29, 2002 Order Number: A02071026 Page Number: 20 of 20
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00095	95	80 - 120	7/19/02

CCV (1) QCBatch: QC22072

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	58.5	97	80 - 120	7/16/02
1,4-Dichlorobenzene		mg/L	60	59.73	99	80 - 120	7/16/02
2-Nitrophenol		mg/L	60	62.14	103	80 - 120	7/16/02
2,4-Dichlorophenol		mg/L	60	61.05	101	80 - 120	7/16/02
Hexachlorobutadiene		mg/L	60	60.03	100	80 - 120	7/16/02
4-Chloro-3-methylphenol		mg/L	60	60.24	100	80 - 120	7/16/02
2,4,6-Trichlorophenol		mg/L	60	57.57	95	80 - 120	7/16/02
Acenaphthene		mg/L	60	59.24	98	80 - 120	7/16/02
Diphenylamine		mg/L	60	60.37	100	80 - 120	7/16/02
Pentachlorophenol		mg/L	60	51.44	85	80 - 120	7/16/02
Fluoranthene		mg/L	60	60.02	100	80 - 120	7/16/02
Di-n-octylphthalate		mg/L	60	60.12	100	80 - 120	7/16/02
Benzo(a)pyrene		mg/L	60	59.34	98	80 - 120	7/16/02
2-Fluorophenol		mg/L	60	58.33	97	80 - 120	7/16/02
Phenol-d5		mg/L	60	57.94	96	80 - 120	7/16/02
Nitrobenzene-d5		mg/L	60	60.01	100	80 - 120	7/16/02
2-Fluorobiphenyl		mg/L	60	59.77	99	80 - 120	7/16/02
2,4,6-Tribromophenol		mg/L	60	58.63	97	80 - 120	7/16/02
Terphenyl-d14		mg/L	60	58.81	98	80 - 120	7/16/02

CCV (1) QCBatch: QC22163

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	26.0	104	90 - 110	7/22/02
Dissolved Magnesium		mg/L	25	25.6	102	90 - 110	7/22/02
Dissolved Potassium		mg/L	25	24.0	96	90 - 110	7/22/02
Dissolved Sodium		mg/L	25	25.5	102	90 - 110	7/22/02

ICV (1) QCBatch: QC22163

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	26.0	104	95 - 105	7/22/02
Dissolved Magnesium		mg/L	25	25.7	102	95 - 105	7/22/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	7/22/02
Dissolved Sodium		mg/L	25	26.2	104	95 - 105	7/22/02

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REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P.O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

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(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

OIL CONSERVATION DIV.
01 JUL 27 PM 1:26

July 3, 2001

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2000 to March 30, 2001. Due to an oversight on our part, quarterly samples for the 4th quarter of 2000 were not collected. Samples for the 2nd quarter of 2001 have been collected and those results will be forwarded as soon as we receive them.

We have disposed a total of 6,619,428 bbls. of fluid down the two wells as of March 31, 2001. This is broken down as follows: 5,145,012 bbls. down WDW-1 and 1,474,416 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 1 of 5
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: June 29, 2001

Order ID Number: A01040410

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
168299	Injection Wells	Water	4/3/01	10:10	4/4/01

This report consists of a total of 5 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 168299 - Injection Wells

Param	Flag	Result	Units
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<5.00	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone	1	74.3	µg/L
Iodomethane (methyl iodide)		<5.00	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L

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[1]estimated concentration, RSD value above 15% on initial calibration

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Report Date: June 29, 2001 Order Number: A01040410 Page Number: 2 of 5
N/A Injection Wells N/A

Sample 168299 continued . . .

Param	Flag	Result	Units
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroethene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortho)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L

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Report Date: June 29, 2001 Order Number: A01040410 Page Number: 3 of 5
N/A Injection Wells N/A

Sample 168299 continued . . .

Param	Flag	Result	Units
bis (2-chloroisopropyl) ether		<0.005	mg/L
4 Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di n butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: AG10410 Page Number: 4 of 5
N/A Injection Wells N/A

Sample 168299 continued ...

Param	Flag	Result	Units
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		514	mg/L as CaCo3
Total Alkalinity		514	mg/L as CaCo3
Specific Conductance		7300	µMHOS/cm
Corrosivity		0.4327	mm/yr
pH		8.63	s.u.
Total Mercury		<0.0002	mg/L
Ignitability		non-ignitable	
CL		1700	mg/L
Fluoride		76	mg/L
Nitrate-N	2	<1.0	mg/L
Sulfate		460	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	
Hydrogen Cyanide		<2.5	
Dissolved Calcium		110	mg/L
Dissolved Magnesium		32	mg/L
Dissolved Potassium		28	mg/L
Dissolved Sodium		1100	mg/L
Total Dissolved Solids		3800	mg/L
Total Aluminum		0.23	mg/L
Total Arsenic		0.309	mg/L
Total Barium		<0.1	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.512	mg/L

Continued on next page ...

[2]Sample re-ran out of hold time for NO3.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 5 of 5
N/A Injection Wells N/A

Sample 168299 continued . . .

Param	Flag	Result	Units
Total Cadmium		<0.025	mg/L
Total Chromium		0.0106	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		0.0144	mg/L
Total Iron		3.14	mg/L
Total Lead		<0.01	mg/L
Total Manganese		0.108	mg/L
Total Molybdenum		<0.05	mg/L
Total Nickel		<0.25	mg/L
Total Selenium		0.552	mg/L
Total Silver		<0.125	mg/L
Total Uranium		0.0502	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.118	mg/L
pH	3	8.3	s.u.

[3]Sample run out of holding time

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TraceAnalysis, Inc.

155 McCutcheon Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: NAVAJO Refining Phone #: 505 748 3311

Address: (Street, City, Zip) 501 E. Main Fax #: 505 746 5421

Contact Person: Darrell Moore

Invoice to: (if different from above)

Project #: Project Name: Injection wells

Project Location: Artesia Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
16129	Injection wells	2	40ml	X				X				X		4/30/01	1040
	" "	2	1L	X								X	X	4/30/01	1050
	" "	1	200ml	X					X			X		4/30/01	1010

ANALYSIS REQUEST (Circle or Specify Method No.)

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GCMS Vol. 8260B/624 | GCMS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See L-1824

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	4/30/01	16:15			
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Relinquished by:	Date:	Time:	Received by:	Date:	Time:
				4/30/01	12:30

LAB USE ONLY
Rec. Temp: 4°C
Thermometer ID #: 140
Correction Factor: -0.5°C

REMARKS:

☐ Check if Special Reporting Limits Are Needed

Carrier # Fed Ex 917-7348-474

Submittal of sample constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Page 1347 of 5828

Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Jan 2001	197	305	86	230	317	84	7885.71	10868.57	2880.00	226	299	146	236,571
Feb 2001	227	297	142	261	293	208	8948.57	10045.71	7131.43	208	297	161	268,457
March 2001	210	292	104	243	290	192	8331.43	9942.86	6582.86	212	309	153	249,943

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Jan 2001	251	251	0	92	144	0	3154.286	4937.143	0	131	164	121	94,629
Feb 2001	118	175	0	47	176	0	1611.429	6034.286	0	152	177	129	48,343
March 2001	116	160	0	23	171	0	788.5714	5862.857	0	163	220	141	23,657

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Page 1348 of 5828

Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
April 2001	258	318	63	237	272	145	8125.71	9325.71	4971.43	258	324	169	243,771
May 2001	245	304	114	199	251	100	6822.86	8605.71	3428.57	245	308	164	204,686
June 2001	243	308	104	162	223	119	5554.29	7645.71	4080.00	245	302	182	166,629

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
April 2001	83	127	0	17	138	0	582.8571	4731.429	0	145	167	126	17,486
May 2001	115	249	0	115	184	0	3942.857	6308.571	0	185	325	72	118,286
June 2001	142	258	37	142	168	35	4868.571	5760	1200	163	262	91	146,057

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TELEPHONE
(505) 748-3311

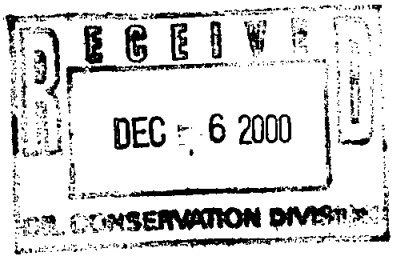
EASYLINK
62905278

NAVAJO REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

December 4, 2000



Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2000 to September 30, 2000. We have disposed a total of 4,464,244 bbls. of fluid down the two wells. This is broken down as follows: 3,620,341 bbls. down WDW-1 and 843,903 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Page 1350 of 5828

Qrtly Injection Press

Navajo R

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthl Min. Flo Rate (gp
July 2000	210	289	-12.1	201	480	10.1
August 2000	276	397	-12.4	210	261	12.1
September 2000	314	380	-12.3	221	265	11.6
WDW-2	**Monthly Avg. Pressure (psig)**	**Monthly Max. Pressure (psig)**	**Monthly Min. Pressure (psig)**	**Monthly Avg. Flow Rate (gpm)**	**Monthly Max Flow Rate (gpm)**	**Monthl Min. Flo Rate (gp**
July 2000	215	281	-14.6	156	203	0
August 2000	272	367	-15.4	188	209	100
September 2000	192	358	-15.4	159	202	110

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 24, 2000

Order ID Number: A00100302

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
154738	Injection Wells	Water	10/2/00	9:30	10/3/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 25 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

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Analytical and Quality Control Report

Sample: 154738 - Injection Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC05404	Date Analyzed:	10/6/00
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB04714	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<10.0	µg/L	5	1
Dichlorodifluoromethane		<10.0	µg/L	5	1
Chloromethane (methyl chloride)		<10.0	µg/L	5	1
Vinyl Chloride		<10.0	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	1
Chloroethane		<10.0	µg/L	5	1
Trichlorofluoromethane		<10.0	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<10.0	µg/L	5	1
Carbon Disulfide		<10.0	µg/L	5	1
Acrylonitrile		<25.0	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<10.0	µg/L	5	5
1,1-Dichloroethene		<10.0	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<10.0	µg/L	5	1
trans-1,2-Dichloroethene		<10.0	µg/L	5	1
1,1-Dichloroethane		<10.0	µg/L	5	1
cis-1,2-dichloroethene		<10.0	µg/L	5	1
2,2-Dichloropropane		<10.0	µg/L	5	1
1,2-Dichloroethane (EDC)		<10.0	µg/L	5	1
Chloroform		<10.0	µg/L	5	1
1,1,1-Trichloroethane		<10.0	µg/L	5	1
1,1-Dichloropropene		<10.0	µg/L	5	1
Benzene		<10.0	µg/L	5	1
Carbon Tetrachloride		<10.0	µg/L	5	1
1,2-Dichloropropane		<10.0	µg/L	5	1
Trichloroethene (TCE)		<10.0	µg/L	5	1
Dibromomethane (methylene bromide)		<10.0	µg/L	5	1
Bromodichloromethane		<10.0	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<10.0	µg/L	5	1
trans-1,3-Dichloropropene		<10.0	µg/L	5	1
Toluene		<10.0	µg/L	5	1
1,1,2-Trichloroethane		<10.0	µg/L	5	1
1,3-Dichloropropane		<10.0	µg/L	5	1
Dibromochloromethane		<10.0	µg/L	5	1
1,2-Dibromoethane (EDB)		<10.0	µg/L	5	1
Tetrachloroethene (PCE)		<10.0	µg/L	5	1
Chlorobenzene		<10.0	µg/L	5	1
1,1,1,2-Tetrachloroethane		<10.0	µg/L	5	1
Ethylbenzene		<10.0	µg/L	5	1
m,p-Xylene		<10.0	µg/L	5	1
Bromoform		<10.0	µg/L	5	1

Continued ...

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... *Continued* Sample: 154738 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
Styrene		<10.0	µg/L	5	1
o-Xylene		<10.0	µg/L	5	1
1,1,2,2-Tetrachloroethane		<10.0	µg/L	5	1
2-Chlorotoluene		<10.0	µg/L	5	1
1,2,3-Trichloropropane		<10.0	µg/L	5	1
Isopropylbenzene		<10.0	µg/L	5	1
Bromobenzene		<10.0	µg/L	5	1
n-Propylbenzene		<10.0	µg/L	5	1
1,3,5-Trimethylbenzene		<10.0	µg/L	5	1
tert-Butylbenzene		<10.0	µg/L	5	1
1,2,4-Trimethylbenzene		<10.0	µg/L	5	1
1,4-Dichlorobenzene (para)		<10.0	µg/L	5	1
sec-Butylbenzene		<10.0	µg/L	5	1
1,3-Dichlorobenzene		<10.0	µg/L	5	1
p-Isopropyltoluene		<10.0	µg/L	5	1
4-Chlorotoluene		<10.0	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<10.0	µg/L	5	1
n-Butylbenzene		<10.0	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		15.8	µg/L	5	1
Hexachlorobutadiene		<25.0	µg/L	5	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.88	µg/L	1	50	101	85 - 117
Toluene-d8		51.11	µg/L	1	50	102	93 - 109
4-Bromofluorobenzene		46.96	µg/L	1	50	93	76 - 109

Sample: 154738 - Injection Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC05390	Date Analyzed:	10/5/00
Analyst:	MA	Preparation Method:	E 3510C	Prep Batch:	PB04703	Date Prepared:	10/3/00

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 154738 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		0.015	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 154738 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		23.99	mg/L	1	80	29	8 - 73
Phenol-d5		17.95	mg/L	1	80	22	8 - 62
Nitrobenzene-d5		49.72	mg/L	1	80	62	44 - 109
2-Fluorobiphenyl		51.99	mg/L	1	80	64	45 - 109
2,4,6-Tribromophenol		53.92	mg/L	1	80	67	39 - 132
Terphenyl-d14		38.24	mg/L	1	80	47	46 - 121

Sample: 154738 - Injection Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC05424	Date Analyzed:	10/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04729	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		156	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		516	mg/L as CaCo3	1	1
Total Alkalinity		672	mg/L as CaCo3	1	1

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Sample: 154738 - Injection Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC05428	Date Analyzed:	10/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04725	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		6500	uMHOS/cm	1	

Sample: 154738 - Injection Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC05800	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:		Prep Batch:	PB05078	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		0.053	mm/yr	1	
pH		8.60	s.u.	1	

Sample: 154738 - Injection Wells

Analysis:	Dissolved Metals	Analytical Method:	E 200.7	QC Batch:	QC05813	Date Analyzed:	10/4/00
Analyst:	RR	Preparation Method:		Prep Batch:	PB05088	Date Prepared:	10/4/00

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		70	mg/L	1	0.50
Dissolved Magnesium		40	mg/L	1	0.50
Dissolved Potassium		6.7	mg/L	1	0.50
Dissolved Sodium		920	mg/L	1	0.50

Sample: 154738 - Injection Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC05801	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:	N/A	Prep Batch:	PB05081	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Flashpoint		>150	F	1	

Sample: 154738 - Injection Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC05733	Date Analyzed:	10/13/00
Analyst:	MHS	Preparation Method:	N/A	Prep Batch:	PB05017	Date Prepared:	10/10/00

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 154738 - Injection Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC05435	Date Analyzed:	10/5/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB04738	Date Prepared:	10/5/00

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Result	Units	Dilution	RDL
CL		940	mg/L	1	0.50
Sulfate		890	mg/L	1	0.50

Sample: 154738 - Injection Wells

Analysis:	Reactivity	Analytical Method:	S 7.3	QC Batch:	QC05799	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:		Prep Batch:	PB05087	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10		1	
Hydrogen Cyanide		<2.5		1	

Sample: 154738 - Injection Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC05422	Date Analyzed:	10/5/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04731	Date Prepared:	10/4/00

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2700	mg/L	1	10

Sample: 154738 - Injection Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC05814	Date Analyzed:	10/7/00
Analyst:	RR	Preparation Method:	E 3010A	Prep Batch:	PB05089	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.44	mg/L	1	0.20
Total Arsenic		0.27	mg/L	1	0.01
Total Barium		<0.01	mg/L	1	0.01
Total Beryllium		<0.01	mg/L	1	0.01
Total Boron		0.56	mg/L	1	0.20
Total Cadmium		<0.01	mg/L	1	0.01
Total Chromium		<0.01	mg/L	1	0.01
Total Cobalt		<0.01	mg/L	1	0.01
Total Copper		0.08	mg/L	1	0.01
Total Iron		1.3	mg/L	1	0.01
Total Lead		<0.01	mg/L	1	0.01
Total Manganese		0.15	mg/L	1	0.01
Total Molybdenum		<0.01	mg/L	1	0.01
Total Nickel		<0.01	mg/L	1	0.01
Total Selenium		0.44	mg/L	1	0.01
Total Silver		<0.01	mg/L	1	0.01
Total Uranium		<0.50	mg/L	1	0.50
Total Vanadium		<0.01	mg/L	1	0.01
Total Zinc		0.02	mg/L	1	0.01

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Sample: 154738 - Injection Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC05449	Date Analyzed:	10/3/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04752	Date Prepared:	10/3/00

Param	Flag	Result	Units	Dilution	RDL
pH	[1]	8.7	s.u.	1	1

Quality Control Report
Method Blank

Sample: Method Blank QCBatch: QC05390

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005

Continued ...

[1] Sample was run out of holding time, but was tested the day it was received.

Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Results	Units	Reporting Limit
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005

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Param	Flag	Results	Units	Reporting Limit
Bis (2-ethylhexyl) phthalate		0.029	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorophenol		31.70	mg/L	80	39	8 - 73
Phenol-d5		21.81	mg/L	80	27	8 - 62
Nitrobenzene-d5		64.33	mg/L	80	80	44 - 109
2-Fluorobiphenyl		60.92	mg/L	80	76	45 - 109
2,4,6-Tribromophenol		68.44	mg/L	80	85	39 - 132
Terphenyl-d14		82.55	mg/L	80	103	46 - 121

Sample: Method Blank

QCBatch: QC05404

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<2.00	µg/L	1
Dichlorodifluoromethane		<2.00	µg/L	1
Chloromethane (methyl chloride)		<2.00	µg/L	1
Vinyl Chloride		<2.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	1
Chloroethane		<2.00	µg/L	1
Trichlorofluoromethane		<2.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<2.00	µg/L	1
Carbon Disulfide		<2.00	µg/L	1
Acrylonitrile		<5.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<2.00	µg/L	5
1,1-Dichloroethene		<2.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<2.00	µg/L	1
trans-1,2-Dichloroethene		<2.00	µg/L	1
1,1-Dichloroethane		<2.00	µg/L	1
cis-1,2-dichloroethene		<2.00	µg/L	1
2,2-Dichloropropane		<2.00	µg/L	1
1,2-Dichloroethane (EDC)		<2.00	µg/L	1

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Param	Flag	Results	Units	Reporting Limit
Chloroform		<2.00	µg/L	1
1,1,1-Trichloroethane		<2.00	µg/L	1
1,1-Dichloropropene		<2.00	µg/L	1
Benzene		<2.00	µg/L	1
Carbon Tetrachloride		<2.00	µg/L	1
1,2-Dichloropropane		<2.00	µg/L	1
Trichloroethene (TCE)		<2.00	µg/L	1
Dibromomethane (methylene bromide)		<2.00	µg/L	1
Bromodichloromethane		<2.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<2.00	µg/L	1
trans-1,3-Dichloropropene		<2.00	µg/L	1
Toluene		<2.00	µg/L	1
1,1,2-Trichloroethane		<2.00	µg/L	1
1,3-Dichloropropane		<2.00	µg/L	1
Dibromochloromethane		<2.00	µg/L	1
1,2-Dibromoethane (EDB)		<2.00	µg/L	1
Tetrachloroethene (PCE)		<2.00	µg/L	1
Chlorobenzene		<2.00	µg/L	1
1,1,1,2-Tetrachloroethane		<2.00	µg/L	1
Ethylbenzene		<2.00	µg/L	1
m,p-Xylene		<2.00	µg/L	1
Bromoform		<2.00	µg/L	1
Styrene		<2.00	µg/L	1
o-Xylene		<2.00	µg/L	1
1,1,2,2-Tetrachloroethane		<2.00	µg/L	1
2-Chlorotoluene		<2.00	µg/L	1
1,2,3-Trichloropropane		<2.00	µg/L	1
Isopropylbenzene		<2.00	µg/L	1
Bromobenzene		<2.00	µg/L	1
n-Propylbenzene		<2.00	µg/L	1
1,3,5-Trimethylbenzene		<2.00	µg/L	1
tert-Butylbenzene		<2.00	µg/L	1
1,2,4-Trimethylbenzene		<2.00	µg/L	1
1,4-Dichlorobenzene (para)		<2.00	µg/L	1
sec-Butylbenzene		<2.00	µg/L	1
1,3-Dichlorobenzene		<2.00	µg/L	1
p-Isopropyltoluene		<2.00	µg/L	1
4-Chlorotoluene		<2.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<2.00	µg/L	1
n-Butylbenzene		<2.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<2.00	µg/L	1
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Dibromofluoromethane		50.44	µg/L	50	100	85 - 117

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Received by OCD: 5/16/2022 2:12:41 PM

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Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Toluene-d8		50.69	µg/L	50	101	93 - 109
4-Bromofluorobenzene		47.32	µg/L	50	94	76 - 109

Sample: Method Blank QCBatch: QC05422

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Sample: Method Blank QCBatch: QC05424

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Sample: Method Blank QCBatch: QC05428

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		6.2	uMHOS/cm	

Sample: Method Blank QCBatch: QC05435

Param	Flag	Results	Units	Reporting Limit
CL		<0.5	mg/L	0.50
Sulfate		<0.5	mg/L	0.50

Sample: Method Blank QCBatch: QC05733

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Sample: Method Blank QCBatch: QC05813

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Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.50	mg/L	0.50
Dissolved Magnesium		<0.50	mg/L	0.50
Dissolved Potassium		<0.50	mg/L	0.50
Dissolved Sodium		<0.50	mg/L	0.50

Sample: Method Blank QCBatch: QC05814

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.20	mg/L	0.20
Total Arsenic		<0.01	mg/L	0.01
Total Barium		<0.01	mg/L	0.01
Total Beryllium		<0.01	mg/L	0.01
Total Boron		<0.20	mg/L	0.20
Total Cadmium		<0.01	mg/L	0.01
Total Chromium		<0.01	mg/L	0.01
Total Cobalt		<0.01	mg/L	0.01
Total Copper		<0.01	mg/L	0.01
Total Iron		<0.01	mg/L	0.01
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.01	mg/L	0.01
Total Molybdenum		<0.01	mg/L	0.01
Total Nickel		<0.01	mg/L	0.01
Total Selenium		<0.01	mg/L	0.01
Total Silver		<0.01	mg/L	0.01
Total Uranium		<0.50	mg/L	0.50
Total Vanadium		<0.01	mg/L	0.01
Total Zinc		<0.01	mg/L	0.01

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Sample: LCS QC Batch: QC05390

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		20.905	mg/L	1	80	<0.005	26		5 - 57	20
2-Chlorophenol		48.293	mg/L	1	80	<0.005	60		29 - 110	20
1,4-Dichlorobenzene		55.729	mg/L	1	80	<0.005	69		25 - 94	20
n-Nitrosodi-n-propylamine		72.637	mg/L	1	80	<0.005	90		36 - 119	20
1,2,4-Trichlorobenzene		61.425	mg/L	1	80	<0.005	76		28 - 110	20
4-Chloro-3-methylphenol		55.224	mg/L	1	80	<0.005	69		40 - 126	20
Acenaphthene		64.238	mg/L	1	80	<0.005	80		47 - 118	20
4-Nitrophenol		20.895	mg/L	1	80	<0.005	26		0 - 69	20

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
2,4-Dinitrotoluene		84.211	mg/L	1	80	<0.005	105		46 - 133	20
Pentachlorophenol		52.617	mg/L	1	80	<0.005	65		21 - 131	20
Pyrene		73.392	mg/L	1	80	<0.005	91		44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		33.96	mg/L	1	80	42	8 - 73
Phenol-d5		22.60	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		68.20	mg/L	1	80	85	44 - 109
2-Fluorobiphenyl		69.55	mg/L	1	80	86	45 - 109
2,4,6-Tribromophenol		75.50	mg/L	1	80	94	39 - 132
Terphenyl-d14		78.63	mg/L	1	80	98	46 - 121

Sample: LCSD

QC Batch: QC05390

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		20.796	mg/L	1	80	<0.005	25	0	5 - 57	20
2-Chlorophenol		48.069	mg/L	1	80	<0.005	60	0	29 - 110	20
1,4-Dichlorobenzene		56.142	mg/L	1	80	<0.005	70	1	25 - 94	20
n-Nitrosodi-n-propylamine		74.847	mg/L	1	80	<0.005	93	3	36 - 119	20
1,2,4-Trichlorobenzene		61.727	mg/L	1	80	<0.005	77	0	28 - 110	20
4-Chloro-3-methylphenol		55.437	mg/L	1	80	<0.005	69	0	40 - 126	20
Acenaphthene		64.974	mg/L	1	80	<0.005	81	1	47 - 118	20
4-Nitrophenol		19.242	mg/L	1	80	<0.005	24	8	0 - 69	20
2,4-Dinitrotoluene		85.367	mg/L	1	80	<0.005	106	1	46 - 133	20
Pentachlorophenol		52.533	mg/L	1	80	<0.005	65	0	21 - 131	20
Pyrene		74.244	mg/L	1	80	<0.005	92	1	44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		33.33	mg/L	1	80	41	8 - 73
Phenol-d5		22.45	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		68.50	mg/L	1	80	85	44 - 109
2-Fluorobiphenyl		69.49	mg/L	1	80	86	45 - 109
2,4,6-Tribromophenol		77.03	mg/L	1	80	96	39 - 132
Terphenyl-d14		79.52	mg/L	1	80	99	46 - 121

Sample: LCS

QC Batch: QC05404

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		126	µg/L	1	100	<2.00	126		65 - 147	20
Benzene		114	µg/L	1	100	<2.00	114		79 - 124	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103		80 - 119	20
Toluene		111	µg/L	1	100	<2.00	111		78 - 118	20
Chlorobenzene		110	µg/L	1	100	<2.00	110		85 - 118	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		50.59	µg/L	1	50	101	85 - 117
Toluene-d8		49.17	µg/L	1	50	98	93 - 109
4-Bromofluorobenzene		47.76	µg/L	1	50	95	76 - 109

Sample: LCSD

QC Batch: QC05404

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		125	µg/L	1	100	<2.00	125	1	65 - 147	20
Benzene		114	µg/L	1	100	<2.00	114	0	79 - 124	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103	0	80 - 119	20
Toluene		111	µg/L	1	100	<2.00	111	0	78 - 118	20
Chlorobenzene		110	µg/L	1	100	<2.00	110	0	85 - 118	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		51.04	µg/L	1	50	102	85 - 117
Toluene-d8		50.26	µg/L	1	50	100	93 - 109
4-Bromofluorobenzene		46.44	µg/L	1	50	92	76 - 109

Sample: LCS

QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00101	mg/L	1	0.001	<0.0002	101		80 - 120	20

Sample: LCSD

QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00114	mg/L	1	0.001	<0.0002	114	12	80 - 120	20

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Sample: LCS QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		979	mg/L	1	1000	<0.50	97		75 - 125	20
Dissolved Magnesium		944	mg/L	1	1000	<0.50	94		75 - 125	20
Dissolved Potassium		1067	mg/L	1	1000	<0.50	106		75 - 125	20
Dissolved Sodium		1061	mg/L	1	1000	<0.50	106		75 - 125	20

Sample: LCSD QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1011	mg/L	1	1000	<0.50	101	3	75 - 125	20
Dissolved Magnesium		982	mg/L	1	1000	<0.50	98	4	75 - 125	20
Dissolved Potassium		1104	mg/L	1	1000	<0.50	110	3	75 - 125	20
Dissolved Sodium		1085	mg/L	1	1000	<0.50	108	2	75 - 125	20

Sample: LCS QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.16	mg/L	1	2	<0.20	108		75 - 125	20
Total Arsenic		1.00	mg/L	1	1	<0.01	100		75 - 125	20
Total Barium		2.12	mg/L	1	2	<0.01	106		75 - 125	20
Total Beryllium		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Boron		1.09	mg/L	1	1	<0.20	109		75 - 125	20
Total Cadmium		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Chromium		0.43	mg/L	1	0.40	<0.01	107		75 - 125	20
Total Cobalt		1.05	mg/L	1	1	<0.01	105		75 - 125	20
Total Copper		0.41	mg/L	1	0.40	<0.01	102		75 - 125	20
Total Iron		2.12	mg/L	1	2	<0.01	106		75 - 125	20
Total Lead		1.03	mg/L	1	1	<0.01	103		75 - 125	20
Total Manganese		0.21	mg/L	1	0.20	<0.01	105		75 - 125	20
Total Molybdenum		1.07	mg/L	1	1	<0.01	107		75 - 125	20
Total Nickel		1.01	mg/L	1	1	<0.01	101		75 - 125	20
Total Selenium		0.90	mg/L	1	1	<0.01	90		75 - 125	20
Total Silver		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Uranium		2.18	mg/L	1	2	<0.50	109		75 - 125	20
Total Vanadium		1.05	mg/L	1	1	<0.01	105		75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	<0.01	110		75 - 125	20

Sample: LCSD QC Batch: QC05814

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.14	mg/L	1	2	<0.20	107	1	75 - 125	20
Total Arsenic		0.98	mg/L	1	1	<0.01	98	2	75 - 125	20
Total Barium		2.10	mg/L	1	2	<0.01	105	1	75 - 125	20
Total Beryllium		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Boron		1.09	mg/L	1	1	<0.20	109	0	75 - 125	20
Total Cadmium		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Chromium		0.42	mg/L	1	0.40	<0.01	105	2	75 - 125	20
Total Cobalt		1.04	mg/L	1	1	<0.01	104	1	75 - 125	20
Total Copper		0.40	mg/L	1	0.40	<0.01	100	2	75 - 125	20
Total Iron		2.11	mg/L	1	2	<0.01	105	0	75 - 125	20
Total Lead		1.02	mg/L	1	1	<0.01	102	1	75 - 125	20
Total Manganese		0.21	mg/L	1	0.20	<0.01	105	0	75 - 125	20
Total Molybdenum		1.06	mg/L	1	1	<0.01	106	1	75 - 125	20
Total Nickel		1.00	mg/L	1	1	<0.01	100	1	75 - 125	20
Total Selenium		0.90	mg/L	1	1	<0.01	90	0	75 - 125	20
Total Silver		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Uranium		2.15	mg/L	1	2	<0.50	107	1	75 - 125	20
Total Vanadium		1.04	mg/L	1	1	<0.01	104	1	75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	<0.01	110	0	75 - 125	20

Quality Control Report
Matrix Spikes and Duplicate Spikes

Sample: MS QC Batch: QC05435

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		1289.87	mg/L	1	625	660	100		80 - 120	20
Sulfate		814.53	mg/L	1	625	150	106		80 - 120	20

Sample: MSD QC Batch: QC05435

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		1285.88	mg/L	1	625	660	100	1	80 - 120	20
Sulfate		799.39	mg/L	1	625	150	103	2	80 - 120	20

Sample: MS QC Batch: QC05733

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00098	mg/L	1	0.001	<0.0002	98		80 - 120	20

Sample: MSD QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00104	mg/L	1	0.001	<0.0002	104	6	80 - 120	20

Sample: MS QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1038	mg/L	1	1000	70	96		75 - 125	20
Dissolved Magnesium		986	mg/L	1	1000	40	94		75 - 125	20
Dissolved Potassium		1090	mg/L	1	1000	6.7	108		75 - 125	20
Dissolved Sodium		1965	mg/L	1	1000	920	104		75 - 125	20

Sample: MSD QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1014	mg/L	1	1000	70	94	2	75 - 125	20
Dissolved Magnesium		963	mg/L	1	1000	40	92	2	75 - 125	20
Dissolved Potassium		1063	mg/L	1	1000	6.7	105	2	75 - 125	20
Dissolved Sodium		1898	mg/L	1	1000	920	97	7	75 - 125	20

Sample: MS QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.52	mg/L	1	2	0.44	104		75 - 125	20
Total Arsenic		1.21	mg/L	1	1	0.27	94		75 - 125	20
Total Barium		1.89	mg/L	1	2	<0.01	94		75 - 125	20
Total Beryllium		0.18	mg/L	1	0.20	<0.01	90		75 - 125	20
Total Boron		1.54	mg/L	1	1	0.56	98		75 - 125	20
Total Cadmium		0.18	mg/L	1	0.20	<0.01	90		75 - 125	20
Total Chromium		0.37	mg/L	1	0.40	<0.01	92		75 - 125	20
Total Cobalt		0.92	mg/L	1	1	<0.01	92		75 - 125	20

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Copper		0.47	mg/L	1	0.40	0.08	97		75 - 125	20
Total Iron		3.2	mg/L	1	2	1.3	95		75 - 125	20
Total Lead		0.88	mg/L	1	1	<0.01	88		75 - 125	20
Total Manganese		0.34	mg/L	1	0.20	0.15	95		75 - 125	20
Total Molybdenum		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Nickel		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Selenium		1.29	mg/L	1	1	0.44	85		75 - 125	20
Total Silver		0.19	mg/L	1	0.20	<0.01	95		75 - 125	20
Total Uranium		1.76	mg/L	1	2	<0.50	88		75 - 125	20
Total Vanadium		0.95	mg/L	1	1	<0.01	95		75 - 125	20
Total Zinc		0.26	mg/L	1	0.20	0.02	120		75 - 125	20

Sample: MSD QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.46	mg/L	1	2	0.44	101	3	75 - 125	20
Total Arsenic		1.21	mg/L	1	1	0.27	94	0	75 - 125	20
Total Barium		1.87	mg/L	1	2	<0.01	93	1	75 - 125	20
Total Beryllium		0.18	mg/L	1	0.20	<0.01	90	0	75 - 125	20
Total Boron		1.43	mg/L	1	1	0.56	87	12	75 - 125	20
Total Cadmium		0.18	mg/L	1	0.20	<0.01	90	0	75 - 125	20
Total Chromium		0.37	mg/L	1	0.40	<0.01	92	0	75 - 125	20
Total Cobalt		0.92	mg/L	1	1	<0.01	92	0	75 - 125	20
Total Copper		0.46	mg/L	1	0.40	0.08	95	2	75 - 125	20
Total Iron		3.2	mg/L	1	2	1.3	95	0	75 - 125	20
Total Lead		0.87	mg/L	1	1	<0.01	87	1	75 - 125	20
Total Manganese		0.34	mg/L	1	0.20	0.15	95	0	75 - 125	20
Total Molybdenum		0.95	mg/L	1	1	<0.01	95	1	75 - 125	20
Total Nickel		0.94	mg/L	1	1	<0.01	94	0	75 - 125	20
Total Selenium		1.28	mg/L	1	1	0.44	84	1	75 - 125	20
Total Silver		0.18	mg/L	1	0.20	<0.01	90	5	75 - 125	20
Total Uranium		1.75	mg/L	1	2	<0.50	87	0	75 - 125	20
Total Vanadium		0.94	mg/L	1	1	<0.01	94	1	75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	0.02	100	18	75 - 125	20

Quality Control Report
Duplicate Samples

Sample: Duplicate QC Batch: QC05422

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1326	1400	mg/L	1	5	20

Sample: Duplicate QC Batch: QC05424

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity		212	214	mg/L as CaCo3	1	1	20
Total Alkalinity		212	214	mg/L as CaCo3	1	1	20

Sample: Duplicate QC Batch: QC05428

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		2623	2600	uMHOS/cm	1	1	20

Sample: Duplicate QC Batch: QC05449

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	20

Sample: Duplicate QC Batch: QC05799

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		Non-reactive	Non-reactive		1	0	20

Sample: Duplicate QC Batch: QC05800

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		0.053	0.053	mm/yr	1	0	20
pH		8.62	8.60	s.u.	1	0	20

Sample: Duplicate QC Batch: QC05801

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Flashpoint		>150	>150	F	1	0	20

Quality Control Report
Continuing Calibration Verification Standards

Sample: CCV (1)

QC Batch: QC05390

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	61.43	102	5 - 57	10/5/00
1,4-Dichlorobenzene		mg/L	60	62.16	103	25 - 94	10/5/00
2-Nitrophenol		mg/L	60	64.78	107	80 - 120	10/5/00
2,4-Dichlorophenol		mg/L	60	62.37	103	80 - 120	10/5/00
Hexachlorobutadiene		mg/L	60	61.30	102	80 - 120	10/5/00
4-Chloro-3-methylphenol		mg/L	60	62.56	104	40 - 126	10/5/00
2,4,6-Trichlorophenol		mg/L	60	63.41	105	80 - 120	10/5/00
Acenaphthene		mg/L	60	60.76	101	47 - 118	10/5/00
Diphenylamine		mg/L	60	60.83	101	80 - 120	10/5/00
Pentachlorophenol		mg/L	60	67.19	111	21 - 131	10/5/00
Fluoranthene		mg/L	60	60.33	100	80 - 120	10/5/00
Di-n-octylphthalate		mg/L	60	59.88	99	80 - 120	10/5/00
Benzo(a)pyrene		mg/L	60	64.30	107	80 - 120	10/5/00
2-Fluorophenol		mg/L	60	63.36	105	8 - 73	10/5/00
Phenol-d5		mg/L	60	62.44	104	8 - 62	10/5/00
Nitrobenzene-d5		mg/L	60	63.47	105	44 - 109	10/5/00
2-Fluorobiphenyl		mg/L	60	61.53	102	45 - 109	10/5/00
2,4,6-Tribromophenol		mg/L	60	63.19	105	39 - 132	10/5/00
Terphenyl-d14		mg/L	60	63.08	105	46 - 121	10/5/00

Sample: CCV (1)

QC Batch: QC05404

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	95	95	80 - 120	10/6/00
1,1-Dichloroethene		µg/L	100	103	103	73 - 154	10/6/00
Chloroform		µg/L	100	106	106	80 - 120	10/6/00
1,2-Dichloropropane		µg/L	100	102	102	80 - 120	10/6/00
Toluene		µg/L	100	100	100	81 - 122	10/6/00
Chlorobenzene		µg/L	100	96	96	86 - 121	10/6/00
Ethylbenzene		µg/L	100	99	99	80 - 120	10/6/00
Dibromofluoromethane		µg/L	50	55.86	111	80 - 120	10/6/00
Toluene-d8		µg/L	50	49.08	98	80 - 120	10/6/00
4-Bromofluorobenzene		µg/L	50	51.43	102	80 - 120	10/6/00

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Sample: CCV (1) QC Batch: QC05422

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	972	97	80 - 120	10/5/00

Sample: ICV (1) QC Batch: QC05422

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	953	95	80 - 120	10/5/00

Sample: CCV (1) QC Batch: QC05424

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	8.0	0	80 - 120	10/6/00
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	80 - 120	10/6/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Total Alkalinity		mg/L as CaCo3	250	228	91	80 - 120	10/6/00

Sample: ICV (1) QC Batch: QC05424

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Carbonate Alkalinity		mg/L as CaCo3	0	240	0	80 - 120	10/6/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Total Alkalinity		mg/L as CaCo3	250	240	96	80 - 120	10/6/00

Sample: CCV (1) QC Batch: QC05428

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1408	99	80 - 120	10/6/00

Sample: ICV (1) QC Batch: QC05428

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1408	99	80 - 120	10/6/00

Sample: CCV (1) QC Batch: QC05435

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	12.43	99	80 - 120	10/5/00
Sulfate		mg/L	12.50	12.77	102	80 - 120	10/5/00

Sample: ICV (1) QC Batch: QC05435

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	12.28	98	80 - 120	10/5/00
Sulfate		mg/L	12.50	12.79	102	80 - 120	10/5/00

Sample: CCV (1) QC Batch: QC05449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	10/3/00

Sample: ICV (1) QC Batch: QC05449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	10/3/00

Sample: CCV (1) QC Batch: QC05733

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00100	100	80 - 120	10/13/00

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Sample: ICV (1)

QC Batch: QC05733

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00092	92	80 - 120	10/13/00

Sample: CCV (1)

QC Batch: QC05813

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	100	119	119	75 - 125	10/4/00
Dissolved Magnesium		mg/L	100	117	117	75 - 125	10/4/00
Dissolved Potassium		mg/L	100	129	129	75 - 125	10/4/00
Dissolved Sodium		mg/L	100	128	128	75 - 125	10/4/00

Sample: ICV (1)

QC Batch: QC05813

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	100	120	120	75 - 125	10/4/00
Dissolved Magnesium		mg/L	100	121	121	75 - 125	10/4/00
Dissolved Potassium		mg/L	100	128	128	75 - 125	10/4/00
Dissolved Sodium		mg/L	100	128	128	75 - 125	10/4/00

Sample: CCV (1)

QC Batch: QC05814

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.85	97	75 - 125	10/7/00
Total Arsenic		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Barium		mg/L	5	4.98	99	75 - 125	10/7/00
Total Beryllium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Boron		mg/L	2.50	2.44	97	75 - 125	10/7/00
Total Cadmium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Chromium		mg/L	1	0.99	99	75 - 125	10/7/00
Total Cobalt		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Copper		mg/L	1	0.99	99	75 - 125	10/7/00
Total Iron		mg/L	5	4.98	99	75 - 125	10/7/00
Total Lead		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Manganese		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Molybdenum		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Nickel		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Selenium		mg/L	2.50	2.47	98	75 - 125	10/7/00

Continued . . .

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... Continued

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Uranium		mg/L	5	4.93	98	75 - 125	10/7/00
Total Vanadium		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Zinc		mg/L	0.50	0.49	98	75 - 125	10/7/00

Sample: ICV (1)

QC Batch: QC05814

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.90	98	75 - 125	10/7/00
Total Arsenic		mg/L	2.50	2.49	99	75 - 125	10/7/00
Total Barium		mg/L	5	5.02	100	75 - 125	10/7/00
Total Beryllium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Boron		mg/L	2.50	2.45	98	75 - 125	10/7/00
Total Cadmium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Chromium		mg/L	1	0.99	99	75 - 125	10/7/00
Total Cobalt		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Copper		mg/L	1	1.00	100	75 - 125	10/7/00
Total Iron		mg/L	5	5.00	100	75 - 125	10/7/00
Total Lead		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Manganese		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Molybdenum		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Nickel		mg/L	2.50	2.49	99	75 - 125	10/7/00
Total Selenium		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	10/7/00
Total Uranium		mg/L	5	5.00	100	75 - 125	10/7/00
Total Vanadium		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Zinc		mg/L	0.50	0.49	98	75 - 125	10/7/00

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Page ____ of ____

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Lubbock, Texas 79424
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Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A000160302

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 746 5421
Contact Person:
Invoice to: (if different from above)
Project #:
Project Name: Injection Wells
Project Location:
Sampler Signature: Charles Lloyd

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	NaHSO4	H2SO4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
154738	Injection Wells	2	1L	X									X	X	10/2/00	930
	" "	2	40ml	X						X			X		10/2/00	930
	" "	1	500ml	X					X				X		10/2/00	930

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See List

Relinquished by: Charles Lloyd Date: 10/2/00 Time: 1615 Received by: Date: Time:
Relinquished by: Date: Time: Received by: Date: Time:
Relinquished by: Date: Time: Received at Laboratory by: Nicki Crowley Date: 10-2-00 Time: 9:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 4 °
Log-in Review MS

REMARKS: 10/25

Carrier # FED EX 304 4184 017

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TELEPHONE
(505) 748-3311

EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

August 3, 2000

AUG - 4 2000

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from April 1, 2000 to June 30, 2000. We have disposed a total of 3,296,815 bbls. of fluid down the two wells. This is broken down as follows: 2,970,284 bbls. down WDW-1 and 326,531 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Page 1378 of 5828

WDW-1

Month	Wellhead Pressure			Injection Flow Rate			Flow Rate		Annulus Pressure			Annulus Level		
	Avg	Min	Max	Avg	Min	Max	Average	Total	Avg	Min	Max	Avg	Min	Max
	psig	psig	psig	gpm	gpm	gpm	BPD	Bbl	psig	psig	psig	%	%	%
Oct-99	87	-12.7	328	330	11	499	11,314	350,743						
Nov-99	161	-12.4	410	249	0	344	8,534	256,011						
Dec-99	156	-12.3	322	272	14	377	9,309	288,566						
Jan-00	297	-12	400	369	0	350	12,651	392,195	NA	NA	NA	NA	NA	NA
Feb-00	319	-12	400	319	0	350	10,937	317,173	243	145	318	91	90	92
Mar-00	309	-12	400	309	0	350	10,584	328,114	252	155	325	91	90	92
Apr-00	76	-12	455	297	0	455	10,183	305,486	393	372	500	88	86	89
May-00	230	-12	361	342	0	418	11,726	363,497	476	314	500	86	84	89
Jun-00	241	-12	350	310	0	353	10,629	318,857	496	370	500	85	83	86

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Page 1379 of 5828

WDW-2

Month	Wellhead Pressure			Injection Flow Rate			Avg Flow	Total Flow	Annulus Pressure			Annulus Level		
	Avg	Min	Max	Avg	Min	Max	BPD	Bbl	Avg	Min	Max	Avg	Min	Max
	psig	psig	psig	gpm	gpm	gpm			psig	psig	psig	%	%	%
Oct-99	NA	NA	NA	NA	NA	NA	NA	NA						
Nov-99	140	-13	337	159	0	437	5,434	163,029						
Dec-99	140	-13	338	70	0	341	2,390	74,081						
Jan-00	-13	-13	-13	0	0	0	0	0	NA	NA	NA	NA	NA	NA
Feb-00	-13	-13	-13	0	0	0	0	0	252	232	295	88	86	89
Mar-00	-13	-13	-13	0	0	0	0	0	201	181	243	89	87	90
Apr-00	10	-13	245	33	221	0	1,131	33,943	128	81	196	83	83	86
May-00	59	-13	234	36	122	0	1,234	38,263	161	71	311	83	79	88
Jun-00	105	-13	294	65	158	0	2,229	66,857	302	127	500	78	76	80

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TRACEANALYSIS, INC.
6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Charlie Plymale or Darrell Moore
501 E. Main
Artesia, NM 88210

July 13,2000
Receiving Date: 07/06/2000
Sample Type: Water
Project No: NA
Project Location: Artesia

Sampling Date: 07/05/2000
Sample Condition: Intact & Cool
Sample Received by: VH
Project Name: Injection Wells

TA#	FIELD CODE	TOTAL Hg (mg/L)	TOTAL U (mg/L)
T149250	Inj. Wells	<0.0002	<0.10
ICV		0.00098	1.00
CCV		0.00110	0.98
REPORTING LIMIT		0.0002	0.10
PREP DATE		07/07/2000	07/06/2000
ANALYSIS DATE		07/10/2000	07/10/2000
RPD		3*	1
% Extraction Accuracy		70*	85
% Instrument Accuracy		98	98

*NOTE: Low spike recovery due to nature of sample: extremely high dissolved solids with precipitate. Used LCS/LCSD for RPD and % Extraction Accuracy.

METHODS: EPA SW 846-3010B, 6010B, 7471A.
CHEMIST: TOTAL Hg: JM TOTAL U: RR
TOTAL Hg SPIKE: 0.001 mg/L TOTAL Hg.
TOTAL Hg CV: 0.001 mg/L TOTAL Hg.
TOTAL U SPIKE: 2.0 mg/L TOTAL U.
TOTAL U CV: 1.0 mg/L TOTAL U.

Director, Dr. Blair Leftwich

7-13-00
DATE

TRACEANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: July 14, 2000

Order ID Number: A00070613

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
149250	Inj Wells	Water	7/5/00	10:30	7/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 25 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

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Analytical and Quality Control Report

Sample: 149250 - Inj Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC03650	Date Analyzed:	7/7/00
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB03149	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<10.00	µg/L	5	2
Dichlorodifluoromethane		<10.00	µg/L	5	2
Chloromethane (methyl chloride)		<10.00	µg/L	5	2
Vinyl Chloride		<10.00	µg/L	5	2
Bromomethane (methyl bromide)		<25.00	µg/L	5	5
Chloroethane		<10.00	µg/L	5	2
Trichlorofluoromethane		<10.00	µg/L	5	2
Acetone		<50.00	µg/L	5	10
Iodomethane (methyl iodide)		<10.00	µg/L	5	2
Carbon Disulfide		<10.00	µg/L	5	2
Acrylonitrile		<10.00	µg/L	5	2
2-Butanone (MEK)		<10.00	µg/L	5	2
4-methyl-2-pentanone (MIBK)		<50.00	µg/L	5	10
2-hexanone		<10.00	µg/L	5	2
trans 1,4-Dichloro-2-butene		<50.00	µg/L	5	10
1,1-Dichloroethene		<10.00	µg/L	5	2
Methylene chloride		<25.00	µg/L	5	5
MTBE		<10.00	µg/L	5	2
trans-1,2-Dichloroethene		<10.00	µg/L	5	2
1,1-Dichloroethane		<10.00	µg/L	5	2
cis-1,2-dichloroethene		<10.00	µg/L	5	2
2,2-Dichloropropane		<10.00	µg/L	5	2
1,2-Dichloroethane (EDC)		<10.00	µg/L	5	2
Chloroform		<10.00	µg/L	5	2
1,1,1-Trichloroethane		<10.00	µg/L	5	2
1,1-Dichloropropene		<10.00	µg/L	5	2
Benzene		<10.00	µg/L	5	2
Carbon Tetrachloride		<10.00	µg/L	5	2
1,2-Dichloropropane		<10.00	µg/L	5	2
Trichloroethene (TCE)		<10.00	µg/L	5	2
Dibromomethane (methylene bromide)		<10.00	µg/L	5	2
Bromodichloromethane		<10.00	µg/L	5	2
2-Chloroethyl vinyl ether		<50.00	µg/L	5	10
cis-1,3-Dichloropropene		<10.00	µg/L	5	2
trans-1,3-Dichloropropene		<10.00	µg/L	5	2
Toluene		<10.00	µg/L	5	2
1,1,2-Trichloroethane		<10.00	µg/L	5	2
1,3-Dichloropropane		<10.00	µg/L	5	2
Dibromochloromethane		<10.00	µg/L	5	2
1,2-Dibromoethane (EDB)		<10.00	µg/L	5	2
Tetrachloroethene (PCE)		<10.00	µg/L	5	2
Chlorobenzene		<10.00	µg/L	5	2
1,1,1,2-Tetrachloroethane		<10.00	µg/L	5	2
Ethylbenzene		<10.00	µg/L	5	2
m,p-Xylene		12.80	µg/L	5	2

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... *Continued* Sample: 149250 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
Bromoform		<10.00	µg/L	5	2
Styrene		<10.00	µg/L	5	2
o-Xylene		<10.00	µg/L	5	2
1,1,2,2-Tetrachloroethane		<10.00	µg/L	5	2
2-Chlorotoluene		<10.00	µg/L	5	2
1,2,3-Trichloropropane		<10.00	µg/L	5	2
Isopropylbenzene		<10.00	µg/L	5	2
Bromobenzene		<10.00	µg/L	5	2
n-Propylbenzene		<10.00	µg/L	5	2
1,3,5-Trimethylbenzene		19.63	µg/L	5	2
tert-Butylbenzene		<10.00	µg/L	5	2
1,2,4-Trimethylbenzene		47.55	µg/L	5	2
1,4-Dichlorobenzene (para)		<10.00	µg/L	5	2
sec-Butylbenzene		<10.00	µg/L	5	2
1,3-Dichlorobenzene		<10.00	µg/L	5	2
p-Isopropyltoluene		<10.00	µg/L	5	2
4-Chlorotoluene		<10.00	µg/L	5	2
1,2-Dichlorobenzene (ortho)		<10.00	µg/L	5	2
n-Butylbenzene		<10.00	µg/L	5	2
1,2-Dibromo-3-chloropropane		<25.00	µg/L	5	5
1,2,3-Trichlorobenzene		<25.00	µg/L	5	5
1,2,4-Trichlorobenzene		<25.00	µg/L	5	5
Naphthalene		109.02	µg/L	5	2
Hexachlorobutadiene		<25.00	µg/L	5	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.88	µg/L	1	50	105	84 - 116
Toluene-d8		49.86	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		49.84	µg/L	1	50	99	80 - 110

Sample: 149250 - Inj Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC03678	Date Analyzed:	7/11/00
Analyst:	MA	Preparation Method:	E 3510C	Prep Batch:	PB03137	Date Prepared:	7/10/00

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005

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... *Continued* Sample: 149250 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		0.050	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		0.020	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		0.052	mg/L	1	0.005
2-Methylnaphthalene		0.017	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Napthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Napthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

... *Continued* Sample: 149250 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		27.61	mg/L	1	80	34	8 - 73
Phenol-d5		22.85	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		43.84	mg/L	1	80	54	44 - 109
2-Fluorobiphenyl		45.99	mg/L	1	80	57	45 - 109
2,4,6-Tribromophenol		40.31	mg/L	1	80	50	39 - 132
Terphenyl-d14		30.72	mg/L	1	80	38	46 - 121

Sample: 149250 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC03622	Date Analyzed:	7/7/00
Analyst:	LD	Preparation Method:	N/A	Prep Batch:	PB03116	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		360	mg/L as CaCo3	1	1
Total Alkalinity		360	mg/L as CaCo3	1	1

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 149250 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC03621	Date Analyzed:	7/6/00
Analyst:	LD	Preparation Method:	N/A	Prep Batch:	PB03115	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		4700	uMHOS/cm	1	

Sample: 149250 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC03709	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03199	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non 0.91	mm/yr	1	
pH		8.24	s.u.	1	

Sample: 149250 - Inj Wells

Analysis:	Dissolved Metals	Analytical Method:	E 200.7	QC Batch:	QC03653	Date Analyzed:	7/10/00
Analyst:	RR	Preparation Method:	E 3005A	Prep Batch:	PB03097	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		123	mg/L	1	0.50
Dissolved Magnesium		48	mg/L	1	0.50
Dissolved Potassium		35	mg/L	1	0.50
Dissolved Sodium		475	mg/L	1	0.50

Sample: 149250 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC03710	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03200	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 149250 - Inj Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC03642	Date Analyzed:	7/7/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB03142	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
CL		650	mg/L	1	0.50
Sulfate		820	mg/L	1	0.50

Sample: 149250 - Inj Wells

Analysis:	Reactivity	Analytical Method:	S 7.3	QC Batch:	QC03708	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03198	Date Prepared:	7/7/00

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10		1	
Hydrogen Cyanide		<2.5		1	

Sample: 149250 - Inj Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC03649	Date Analyzed:	7/10/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB03148	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2100	mg/L	1	10

Sample: 149250 - Inj Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC03651	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	E 3010A	Prep Batch:	PB03078	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		2.7	mg/L	1	0.05
Total Arsenic		0.21	mg/L	1	0.01
Total Barium		<0.01	mg/L	1	0.01
Total Beryllium		<0.01	mg/L	1	0.01
Total Boron		0.54	mg/L	1	0.10
Total Cadmium		<0.002	mg/L	1	0.002
Total Chromium		<0.005	mg/L	1	0.005
Total Cobalt		<0.02	mg/L	1	0.02
Total Copper		<0.02	mg/L	1	0.02
Total Iron		1.5	mg/L	1	0.05
Total Lead		<0.01	mg/L	1	0.01
Total Manganese		0.11	mg/L	1	0.01
Total Molybdenum		<0.05	mg/L	1	0.05
Total Nickel		<0.02	mg/L	1	0.02
Total Selenium		0.39	mg/L	1	0.01
Total Silver		<0.005	mg/L	1	0.005
Total Vanadium		<0.01	mg/L	1	0.01
Total Zinc		0.05	mg/L	1	0.05

Sample: 149250 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC03616	Date Analyzed:	7/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB03110	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
pH		7.8	s.u.	1	1

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Sample: Method Blank QCBatch: QC03621

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		4.8	uMHOS/cm	

Sample: Method Blank QCBatch: QC03642

Param	Flag	Results	Units	Reporting Limit
CL		<0.5	mg/L	0.50
Sulfate		<0.5	mg/L	0.50

Sample: Method Blank QCBatch: QC03649

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Sample: Method Blank QCBatch: QC03650

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<2.00	µg/L	2
Dichlorodifluoromethane		<2.00	µg/L	2
Chloromethane (methyl chloride)		<2.00	µg/L	2
Vinyl Chloride		<2.00	µg/L	2
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<2.00	µg/L	2
Trichlorofluoromethane		<2.00	µg/L	2
Acetone		<10.00	µg/L	10
Iodomethane (methyl iodide)		<2.00	µg/L	2
Carbon Disulfide		<2.00	µg/L	2
Acrylonitrile		<2.00	µg/L	2
2-Butanone (MEK)		<2.00	µg/L	2
4-methyl-2-pentanone (MIBK)		<10.00	µg/L	10
2-hexanone		<2.00	µg/L	2
trans 1,4-Dichloro-2-butene		<10.00	µg/L	10
1,1-Dichloroethene		<2.00	µg/L	2
Methylene chloride		<5.00	µg/L	5
MTBE		<2.00	µg/L	2
trans-1,2-Dichloroethene		<2.00	µg/L	2

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
1,1-Dichloroethane		<2.00	µg/L	2
cis-1,2-dichloroethene		<2.00	µg/L	2
2,2-Dichloropropane		<2.00	µg/L	2
1,2-Dichloroethane (EDC)		<2.00	µg/L	2
Chloroform		<2.00	µg/L	2
1,1,1-Trichloroethane		<2.00	µg/L	2
1,1-Dichloropropene		<2.00	µg/L	2
Benzene		<2.00	µg/L	2
Carbon Tetrachloride		<2.00	µg/L	2
1,2-Dichloropropane		<2.00	µg/L	2
Trichloroethene (TCE)		<2.00	µg/L	2
Dibromomethane (methylene bromide)		<2.00	µg/L	2
Bromodichloromethane		<2.00	µg/L	2
2-Chloroethyl vinyl ether		<10.00	µg/L	10
cis-1,3-Dichloropropene		<2.00	µg/L	2
trans-1,3-Dichloropropene		<2.00	µg/L	2
Toluene		<2.00	µg/L	2
1,1,2-Trichloroethane		<2.00	µg/L	2
1,3-Dichloropropane		<2.00	µg/L	2
Dibromochloromethane		<2.00	µg/L	2
1,2-Dibromoethane (EDB)		<2.00	µg/L	2
Tetrachloroethene (PCE)		<2.00	µg/L	2
Chlorobenzene		<2.00	µg/L	2
1,1,1,2-Tetrachloroethane		<2.00	µg/L	2
Ethylbenzene		<2.00	µg/L	2
m,p-Xylene		<2.00	µg/L	2
Bromoform		<2.00	µg/L	2
Styrene		<2.00	µg/L	2
o-Xylene		<2.00	µg/L	2
1,1,2,2-Tetrachloroethane		<2.00	µg/L	2
2-Chlorotoluene		<2.00	µg/L	2
1,2,3-Trichloropropane		<2.00	µg/L	2
Isopropylbenzene		<2.00	µg/L	2
Bromobenzene		<2.00	µg/L	2
n-Propylbenzene		<2.00	µg/L	2
1,3,5-Trimethylbenzene		<2.00	µg/L	2
tert-Butylbenzene		<2.00	µg/L	2
1,2,4-Trimethylbenzene		<2.00	µg/L	2
1,4-Dichlorobenzene (para)		<2.00	µg/L	2
sec-Butylbenzene		<2.00	µg/L	2
1,3-Dichlorobenzene		<2.00	µg/L	2
p-Isopropyltoluene		<2.00	µg/L	2
4-Chlorotoluene		<2.00	µg/L	2
1,2-Dichlorobenzene (ortho)		<2.00	µg/L	2
n-Butylbenzene		<2.00	µg/L	2
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<2.00	µg/L	2
Hexachlorobutadiene		<5.00	µg/L	5

Released to Imaging: 7/12/2024 10:49:45 AM

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Dibromofluoromethane		53.42	µg/L	50	106	84 - 116
Toluene-d8		51.43	µg/L	50	102	92 - 108
4-Bromofluorobenzene		45.60	µg/L	50	91	80 - 110

Sample: Method Blank QCBatch: QC03651

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.05	mg/L	0.05
Total Arsenic		<0.01	mg/L	0.01
Total Barium		<0.01	mg/L	0.01
Total Beryllium		<0.01	mg/L	0.01
Total Boron		<0.10	mg/L	0.10
Total Cadmium		<0.002	mg/L	0.002
Total Chromium		<0.005	mg/L	0.005
Total Cobalt		<0.02	mg/L	0.02
Total Copper		<0.02	mg/L	0.02
Total Iron		<0.05	mg/L	0.05
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.01	mg/L	0.01
Total Molybdenum		<0.05	mg/L	0.05
Total Nickel		<0.02	mg/L	0.02
Total Selenium		<0.01	mg/L	0.01
Total Silver		<0.005	mg/L	0.005
Total Vanadium		<0.01	mg/L	0.01
Total Zinc		<0.05	mg/L	0.05

Sample: Method Blank QCBatch: QC03653

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.50	mg/L	0.50
Dissolved Magnesium		<0.50	mg/L	0.50
Dissolved Potassium		<0.50	mg/L	0.50
Dissolved Sodium		<0.50	mg/L	0.50

Sample: Method Blank QCBatch: QC03678

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Napthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
2-Napthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorophenol		31.91	mg/L	80	39	8 - 73
Phenol-d5		23.93	mg/L	80	29	8 - 62
Nitrobenzene-d5		38.82	mg/L	80	48	44 - 109
2-Fluorobiphenyl		40.47	mg/L	80	50	45 - 109
2,4,6-Tribromophenol		37.81	mg/L	80	47	39 - 132
Terphenyl-d14		42.21	mg/L	80	52	46 - 121

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Sample: LCS

QC Batch: QC03650

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		111	µg/L	1	100	<2.00	111		73 - 154	20
Benzene		107	µg/L	1	100	<2.00	107		84 - 126	20
Trichloroethene (TCE)		104	µg/L	1	100	<2.00	104		82 - 123	20
Toluene		105	µg/L	1	100	<2.00	105		81 - 122	20
Chlorobenzene		102	µg/L	1	100	<2.00	102		86 - 121	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		52.19	µg/L	1	50	104	84 - 116
Toluene-d8		49.92	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		46.05	µg/L	1	50	92	80 - 110

Sample: LCSD

QC Batch: QC03650

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		112	µg/L	1	100	<2.00	112	1	73 - 154	20
Benzene		107	µg/L	1	100	<2.00	107	0	84 - 126	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103	1	82 - 123	20
Toluene		105	µg/L	1	100	<2.00	105	0	81 - 122	20
Chlorobenzene		101	µg/L	1	100	<2.00	101	1	86 - 121	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		52.87	µg/L	1	50	105	84 - 116
Toluene-d8		49.59	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		46.22	µg/L	1	50	92	80 - 110

Sample: LCS

QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.0	mg/L	2	2	<0.05	100		75 - 125	20
Total Arsenic		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Barium		2.0	mg/L	2	2	<0.01	100		75 - 125	20

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Beryllium		0.18	mg/L	0.20	0.20	<0.01	90		75 - 125	20
Total Boron		0.99	mg/L	1	1	<0.10	99		75 - 125	20
Total Cadmium		0.19	mg/L	0.20	0.20	<0.002	95		75 - 125	20
Total Chromium		0.40	mg/L	0.40	0.40	<0.005	100		75 - 125	20
Total Cobalt		1.0	mg/L	1	1	<0.02	100		75 - 125	20
Total Copper		0.39	mg/L	0.40	0.40	<0.02	97		75 - 125	20
Total Iron		2.1	mg/L	2	2	<0.05	105		75 - 125	20
Total Lead		0.98	mg/L	1	1	<0.01	98		75 - 125	20
Total Manganese		0.21	mg/L	0.20	0.20	<0.01	105		75 - 125	20
Total Molybdenum		1.0	mg/L	1	1	<0.05	100		75 - 125	20
Total Nickel		0.96	mg/L	1	1	<0.02	96		75 - 125	20
Total Selenium		0.82	mg/L	1	1	<0.01	82		75 - 125	20
Total Silver		0.20	mg/L	0.20	0.20	<0.005	100		75 - 125	20
Total Vanadium		1.0	mg/L	1	1	<0.01	100		75 - 125	20
Total Zinc		0.23	mg/L	0.20	0.20	<0.05	115		75 - 125	20

Sample: LCSD

QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		1.9	mg/L	1	2	<0.05	95	5	75 - 125	20
Total Arsenic		0.94	mg/L	1	1	<0.01	94	0	75 - 125	20
Total Barium		2.0	mg/L	2	2	<0.01	100	0	75 - 125	20
Total Beryllium		0.18	mg/L	0.20	2	<0.01	90	0	75 - 125	20
Total Boron		0.98	mg/L	1	2	<0.10	98	1	75 - 125	20
Total Cadmium		0.19	mg/L	0.20	2	<0.002	95	0	75 - 125	20
Total Chromium		0.40	mg/L	0.40	2	<0.005	100	0	75 - 125	20
Total Cobalt		1.0	mg/L	1	2	<0.02	100	0	75 - 125	20
Total Copper		0.39	mg/L	0.40	2	<0.02	97	0	75 - 125	20
Total Iron		2.0	mg/L	2	2	<0.05	100	5	75 - 125	20
Total Lead		0.98	mg/L	1	2	<0.01	98	0	75 - 125	20
Total Manganese		0.20	mg/L	0.20	2	<0.01	100	5	75 - 125	20
Total Molybdenum		1.0	mg/L	1	2	<0.05	100	0	75 - 125	20
Total Nickel		0.95	mg/L	1	100	<0.02	95	1	75 - 125	20
Total Selenium		0.81	mg/L	1	2	<0.01	81	1	75 - 125	20

Sample: LCS

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1050	mg/L	1	1000	<0.50	105		75 - 125	20
Dissolved Magnesium		1020	mg/L	1	1000	<0.50	102		75 - 125	20
Dissolved Potassium		1020	mg/L	1	1000	<0.50	102		75 - 125	20
Dissolved Sodium		1020	mg/L	1	1000	<0.50	102		75 - 125	20

Released to Imaging: 7/12/2024 10:49:45 AM

Sample: LCSD QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1030	mg/L	1	1000	<0.50	103	2	75 - 125	20
Dissolved Magnesium		1010	mg/L	1	1000	<0.50	101	1	75 - 125	20
Dissolved Potassium		999	mg/L	1	1000	<0.50	99	2	75 - 125	20
Dissolved Sodium		1010	mg/L	1	1000	<0.50	101	1	75 - 125	20

Sample: LCS QC Batch: QC03678

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		16.013	mg/L	1	80	<0.005	20		5 - 57	20
2-Chlorophenol		28.475	mg/L	1	80	<0.005	35		29 - 110	20
1,4-Dichlorobenzene		22.986	mg/L	1	80	<0.005	28		25 - 94	20
n-Nitrosodi-n-propylamine		20.749	mg/L	1	80	<0.005	25		36 - 119	20
1,2,4-Trichlorobenzene		24.908	mg/L	1	80	<0.005	31		28 - 110	20
4-Chloro-3-methylphenol		29.224	mg/L	1	80	<0.005	36		40 - 126	20
Acenaphthene		37.435	mg/L	1	80	<0.005	46		47 - 118	20
4-Nitrophenol		10.298	mg/L	1	80	<0.005	12		0 - 69	20
2,4-Dinitrotoluene		27.080	mg/L	1	80	<0.005	33		46 - 133	20
Pentachlorophenol		27.106	mg/L	1	80	<0.005	33		21 - 131	20
Pyrene		37.798	mg/L	1	80	<0.005	47		44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		84.40	mg/L	1	80	105	8 - 73
Phenol-d5		75.05	mg/L	1	80	93	8 - 62
Nitrobenzene-d5		80.85	mg/L	1	80	101	44 - 109
2-Fluorobiphenyl		80.05	mg/L	1	80	100	45 - 109
2,4,6-Tribromophenol		72.25	mg/L	1	80	90	39 - 132
Terphenyl-d14		72.08	mg/L	1	80	90	46 - 121

Sample: LCSD QC Batch: QC03678

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		14.027	mg/L	1	80	<0.005	17	13	5 - 57	20
2-Chlorophenol		25.110	mg/L	1	80	<0.005	31	12	29 - 110	20
1,4-Dichlorobenzene		19.835	mg/L	1	80	<0.005	24	15	25 - 94	20
n-Nitrosodi-n-propylamine		21.234	mg/L	1	80	<0.005	26	2	36 - 119	20
1,2,4-Trichlorobenzene		21.578	mg/L	1	80	<0.005	26	14	28 - 110	20
4-Chloro-3-methylphenol		26.048	mg/L	1	80	<0.005	32	11	40 - 126	20
Acenaphthene		37.566	mg/L	1	80	<0.005	46	0	47 - 118	20

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
4-Nitrophenol		8.783	mg/L	1	80	<0.005	10	16	0 - 69	20
2,4-Dinitrotoluene		22.423	mg/L	1	80	<0.005	28	19	46 - 133	20
Pentachlorophenol		24.661	mg/L	1	80	<0.005	30	9	21 - 131	20
Pyrene		41.124	mg/L	1	80	<0.005	51	8	44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		59.15	mg/L	1	80	73	8 - 73
Phenol-d5		50.50	mg/L	1	80	63	8 - 62
Nitrobenzene-d5		72.39	mg/L	1	80	90	44 - 109
2-Fluorobiphenyl		72.77	mg/L	1	80	90	45 - 109
2,4,6-Tribromophenol		68.99	mg/L	1	80	86	39 - 132
Terphenyl-d14		78.25	mg/L	1	80	97	46 - 121

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Matrix Spikes and Duplicate Spikes

Sample: MS QC Batch: QC03642

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		94.54	mg/L	1	62.50	38	90		80 - 120	20
Sulfate		86.33	mg/L	1	62.50	25	98		80 - 120	20

Sample: MSD QC Batch: QC03642

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		94.60	mg/L	1	62.50	38	90	0	80 - 120	20
Sulfate		85.71	mg/L	1	62.50	25	97	1	80 - 120	20

Sample: MS QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		4.5	mg/L	4	2	2.7	90		75 - 125	20
Total Arsenic		1.1	mg/L	1	1	0.21	89		75 - 125	20
Total Barium		1.8	mg/L	1	2	<0.01	90		75 - 125	20
Total Beryllium		0.17	mg/L	0.20	0.20	<0.01	85		75 - 125	20
Total Boron		1.4	mg/L	1	1	0.54	86		75 - 125	20
Total Cadmium		0.17	mg/L	0.20	0.20	<0.002	85		75 - 125	20
Total Chromium		0.37	mg/L	0.40	0.40	<0.005	92		75 - 125	20
Total Cobalt		0.89	mg/L	1	1	<0.02	89		75 - 125	20
Total Copper		0.38	mg/L	0.40	0.40	<0.02	95		75 - 125	20
Total Iron		3.4	mg/L	2	2	1.5	95		75 - 125	20
Total Lead		0.88	mg/L	1	1	<0.01	88		75 - 125	20
Total Manganese		0.29	mg/L	0.20	0.20	0.11	90		75 - 125	20
Total Molybdenum		0.92	mg/L	1	1	<0.05	92		75 - 125	20
Total Nickel		0.90	mg/L	1	1	<0.02	90		75 - 125	20
Total Selenium		1.2	mg/L	1	1	0.39	81		75 - 125	20
Total Silver		0.18	mg/L	0.20	0.20	<0.005	90		75 - 125	20
Total Vanadium		0.92	mg/L	1	1	<0.01	92		75 - 125	20
Total Zinc		0.19	mg/L	0.20	0.20	0.05	70		75 - 125	20

Sample: MSD QC Batch: QC03651

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		4.6	mg/L	4	2	2.7	95	5	75 - 125	20
Total Arsenic		1.1	mg/L	1	0.20	0.21	89	0	75 - 125	20
Total Barium		1.8	mg/L	1	2	<0.01	90	0	75 - 125	20
Total Beryllium		0.17	mg/L	0.20	0.20	<0.01	85	0	75 - 125	20
Total Boron		1.4	mg/L	1	1	0.54	86	0	75 - 125	20
Total Cadmium		0.17	mg/L	0.20	20.20	<0.002	85	0	75 - 125	20
Total Chromium		0.36	mg/L	0.40	0.40	<0.005	90	3	75 - 125	20
Total Cobalt		0.88	mg/L	1	1	<0.02	88	1	75 - 125	20
Total Copper		0.38	mg/L	0.40	0.40	<0.02	95	0	75 - 125	20
Total Iron		3.3	mg/L	2	2	1.5	90	5	75 - 125	20
Total Lead		0.87	mg/L	1	1	<0.01	87	1	75 - 125	20
Total Manganese		0.29	mg/L	0.20	0.20	0.11	90	0	75 - 125	20
Total Molybdenum		0.91	mg/L	1	1	<0.05	91	1	75 - 125	20
Total Nickel		0.88	mg/L	1	1	<0.02	88	2	75 - 125	20
Total Selenium		1.1	mg/L	1	1	0.39	71	13	75 - 125	20
Total Silver		0.18	mg/L	0.20	0.20	<0.005	90	0	75 - 125	20
Total Vanadium		0.92	mg/L	1	1	<0.01	92	0	75 - 125	20
Total Zinc		0.21	mg/L	0.20	1	0.05	80	13	75 - 125	20

Sample: MS

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1170	mg/L	1	1000	160	101		75 - 125	20
Dissolved Magnesium		1180	mg/L	1	1000	195	98		75 - 125	20
Dissolved Potassium		1040	mg/L	1	1000	26	101		75 - 125	20
Dissolved Sodium		1200	mg/L	1	1000	170	103		75 - 125	20

Sample: MSD

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1200	mg/L	1	1000	160	104	3	75 - 125	20
Dissolved Magnesium		1230	mg/L	1	1000	195	103	5	75 - 125	20
Dissolved Potassium		1080	mg/L	1	1000	26	105	4	75 - 125	20
Dissolved Sodium		1250	mg/L	1	1000	170	108	5	75 - 125	20

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Duplicate Samples

Sample: Duplicate

QC Batch: QC03616

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	20

Sample: Duplicate

QC Batch: QC03621

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		2746	2700	uMHOS/cm	1	2	20

Sample: Duplicate

QC Batch: QC03622

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity		220	213	mg/L as CaCo3	1	3	20
Total Alkalinity		220	213	mg/L as CaCo3	1	3	20

Sample: Duplicate

QC Batch: QC03649

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1852	1800	mg/L	1	3	20

Sample: Duplicate

QC Batch: QC03708

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		Non-reactive	Non-reactive		1	0	20

Sample: Duplicate

QC Batch: QC03709

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		Non 0.91	Non 0.91	mm/yr	1	0	20
pH		8.24	8.24	s.u.	1	0	20

Sample: Duplicate

QC Batch: QC03710

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Ignitability		non-ignitable	non-ignitable		1	0	20

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Continuing Calibration Verification Standards

Sample: CCV (1) QC Batch: QC03616

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	7/6/00

Sample: ICV (1) QC Batch: QC03616

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	7/6/00

Sample: CCV (1) QC Batch: QC03621

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1417	100	80 - 120	7/6/00

Sample: ICV (1) QC Batch: QC03621

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1417	100	80 - 120	7/6/00

Sample: CCV (1) QC Batch: QC03622

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	7/7/00
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	80 - 120	7/7/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	7	0	80 - 120	7/7/00
Total Alkalinity		mg/L as CaCo3	250	239	95	80 - 120	7/7/00

Sample: ICV (1) QC Batch: QC03622

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	7/7/00
Carbonate Alkalinity		mg/L as CaCo3	0	242	0	80 - 120	7/7/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	0	0	80 - 120	7/7/00
Total Alkalinity		mg/L as CaCo3	250	243	97	80 - 120	7/7/00

Sample: CCV (1) QC Batch: QC03642

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	11.36	90	80 - 120	7/7/00
Sulfate		mg/L	12.50	12.36	98	80 - 120	7/7/00

Sample: ICV (1) QC Batch: QC03642

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	11.35	90	80 - 120	7/7/00
Sulfate		mg/L	12.50	11.79	94	80 - 120	7/7/00

Sample: CCV (1) QC Batch: QC03649

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	977	97	80 - 120	7/10/00

Sample: ICV (1) QC Batch: QC03649

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	966	96	80 - 120	7/10/00

Sample: CCV (1) QC Batch: QC03650

Continued ...

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	113	113	80 - 120	7/7/00
1,1-Dichloroethene		µg/L	100	109	109	73 - 154	7/7/00
Chloroform		µg/L	100	111	111	80 - 120	7/7/00
1,2-Dichloropropane		µg/L	100	102	102	80 - 120	7/7/00
Toluene		µg/L	100	99	99	81 - 122	7/7/00
Chlorobenzene		µg/L	100	94	94	86 - 121	7/7/00
Ethylbenzene		µg/L	100	98	98	80 - 120	7/7/00
Dibromofluoromethane		µg/L	50	57.48	114	80 - 120	7/7/00
Toluene-d8		µg/L	50	48.77	97	80 - 120	7/7/00
4-Bromofluorobenzene		µg/L	50	51.72	103	80 - 120	7/7/00

Sample: CCV (1)

QC Batch: QC03651

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	5.1	102	75 - 125	7/7/00
Total Arsenic		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Barium		mg/L	5	5.1	102	75 - 125	7/7/00
Total Beryllium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Boron		mg/L	2.50	2.6	104	75 - 125	7/7/00
Total Cadmium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Chromium		mg/L	1	1.0	100	75 - 125	7/7/00
Total Cobalt		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Copper		mg/L	1	1.0	100	75 - 125	7/7/00
Total Iron		mg/L	5	5.1	102	75 - 125	7/7/00
Total Lead		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Manganese		mg/L	0.50	0.51	102	75 - 125	7/7/00
Total Molybdenum		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Nickel		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Selenium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Vanadium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Zinc		mg/L	0.50	0.53	106	75 - 125	7/7/00

Sample: ICV (1)

QC Batch: QC03651

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.9	98	75 - 125	7/7/00

Continued ...

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Arsenic		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Barium		mg/L	5	5.1	102	75 - 125	7/7/00
Total Beryllium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Boron		mg/L	2.50	2.6	104	75 - 125	7/7/00
Total Cadmium		mg/L	0.50	0.51	102	75 - 125	7/7/00
Total Chromium		mg/L	1	1.0	100	75 - 125	7/7/00
Total Cobalt		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Copper		mg/L	1	1.0	100	75 - 125	7/7/00
Total Iron		mg/L	5	5.0	100	75 - 125	7/7/00
Total Lead		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Manganese		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Molybdenum		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Nickel		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Selenium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Vanadium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Zinc		mg/L	0.50	0.54	108	75 - 125	7/7/00

Sample: CCV (1) QC Batch: QC03653

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	20	20.6	103	75 - 125	7/10/00
Dissolved Magnesium		mg/L	20	20.0	100	75 - 125	7/10/00
Dissolved Potassium		mg/L	20	18.7	93	75 - 125	7/10/00
Dissolved Sodium		mg/L	20	20.2	101	75 - 125	7/10/00

Sample: ICV (1) QC Batch: QC03653

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	20	20.6	103	75 - 125	7/10/00
Dissolved Magnesium		mg/L	20	20.2	101	75 - 125	7/10/00
Dissolved Potassium		mg/L	20	18.6	93	75 - 125	7/10/00
Dissolved Sodium		mg/L	20	20.0	100	75 - 125	7/10/00

Sample: CCV (1) QC Batch: QC03678

Continued ...

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	55.36	92	5 - 57	7/11/00
1,4-Dichlorobenzene		mg/L	60	58.97	98	25 - 94	7/11/00
2-Nitrophenol		mg/L	60	59.23	98	80 - 120	7/11/00
2,4-Dichlorophenol		mg/L	60	60.33	100	80 - 120	7/11/00
Hexachlorobutadiene		mg/L	60	58.79	97	80 - 120	7/11/00
4-Chloro-3-methylphenol		mg/L	60	57.70	96	40 - 126	7/11/00
2,4,6-Trichlorophenol		mg/L	60	58.60	97	80 - 120	7/11/00
Acenaphthene		mg/L	60	58.33	97	47 - 118	7/11/00
Diphenylamine		mg/L	60	58.11	96	80 - 120	7/11/00
Pentachlorophenol		mg/L	60	57.33	95	21 - 131	7/11/00
Fluoranthene		mg/L	60	56.95	94	80 - 120	7/11/00
Di-n-octylphthalate		mg/L	60	56.99	94	80 - 120	7/11/00
Benzo(a)pyrene		mg/L	60	59.82	99	80 - 120	7/11/00
2-Fluorophenol		mg/L	60	57.35	95	8 - 73	7/11/00
Phenol-d5		mg/L	60	55.81	93	8 - 62	7/11/00
Nitrobenzene-d5		mg/L	60	58.76	97	44 - 109	7/11/00
2-Fluorobiphenyl		mg/L	60	57.63	96	45 - 109	7/11/00
2,4,6-Tribromophenol		mg/L	60	55.41	92	39 - 132	7/11/00
Terphenyl-d14		mg/L	60	54.30	90	46 - 121	7/11/00

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149250

Page_____of_____

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (606) 794-1298
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TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A0007061 3

Company Name: NAVAJO Phone #:

Address: (Street, City, Zip) Fax #:

Contact Person: Charlie Plymale or Darrell Moore

Invoice to: (if different from above)

Project #: Project Name: Injection Wells

Project Location: Artesia Sampler Signature: Charlie Plymale

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	NaHSO4	H2SO4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
149250	Inj. wells	2	1L	X									X	X	7/5/00	10:30
	" "	2	40ml	X						X			X		7/5/00	10:30
	" "	1	500ml	X					X					X	7/5/00	10:30

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

Select

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Plymale	7/5/00	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Ansley	7-6-00	10:00am

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact (Y) / N

Headspace Y / (N)

Temp 13° C

Log-in Review SAS

REMARKS: 7/14/00

Carrier # Fed Ex 799 [illegible]

Page 1406 of 5828

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TELEPHONE
(505) 748-3311

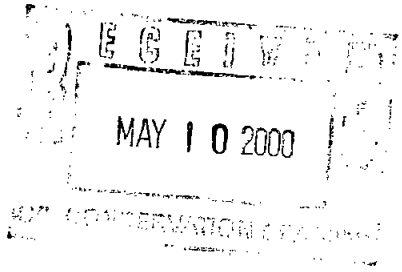
EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

May 8, 2000



Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: First Quarter 2000 Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2000 to March 31, 2000. We have disposed a total of 2,169,912 bbls. of fluid down the two wells. This is broken down as follows: 1,932,802 bbls. down WDW-1 and 237,110 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Page 1408 of 5828

WDW-1

Month	Wellhead Pressure			Injection Flow Rate			Flow Rate		Annulus Pressure			Annulus Level		
	Avg	**Min**	**Max**	**Avg**	**Min**	**Max**	**Average**	**Total**	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**
	psig	psig	psig	gpm	gpm	gpm	**BPD**	**Bbl**	psig	psig	psig	%	%	%
Oct-99	87	-12.7	328	330	499	10.8	11,314	350,743						
Nov-99	161	-12.4	410	249	344	0	8,534	256,011						
Dec-99	156	-12.3	322	272	377	13.5	9,309	288,566						
Jan-00	297	-12	400	369	350	0	12,651	392,195	NA	NA	NA	NA	NA	NA
Feb-00	319	-12	400	319	350	0	10,937	317,173	243	145	318	91	90	92
Mar-00	309	-12	400	309	350	0	10,584	328,114	252	155	325	91	90	92

WDW-2

Month	Wellhead Pressure			Injection Flow Rate			Avg Flow	Total Flow	Annulus Pressure			Annulus Level		
	Avg	**Min**	**Max**	**Avg**	**Min**	**Max**	BPD	Bbl	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**
	psig	psig	psig	gpm	gpm	gpm			psig	psig	psig	%	%	%
Oct-99	NA	NA	NA	NA	NA	NA	NA	NA						
Nov-99	140.3	-15.4	337	159	437	0	5,434	163,029						
Dec-99	140.3	-15.4	338	70	341	0	2,390	74,081						
Jan-00	-13	-13	-13	0	0	0	0	0	NA	NA	NA	NA	NA	NA
Feb-00	-13	-13	-13	0	0	0	0	0	252	232	295	88	86	89
Mar-00	-13	-13	-13	0	0	0	0	0	201	181	243	89	87	90

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TRACEANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 4/14/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00033024

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
143547	Injection Wells	Water	3/29/00	8:30	3/30/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 20 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Results Report

Sample Number: 143547
Description: Injection Wells

Param	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
624 (µg/L)									
Bromochloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dichlorodifluoromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chloromethane (methyl chloride)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Vinyl Chloride	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromomethane (methyl bromide)	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
Chloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Trichlorofluoromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Acetone	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
Iodomethane (methyl iodide)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Carbon Disulfide	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Acrylonitrile	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Butanone (MEK)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
4-methyl-2-pentanone (MIBK)	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
2-hexanone	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans 1,4-Dichloro-2-butene	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
1,1-Dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Methylene chloride	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
MTBE	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans-1,2-Dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1-Dichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
cis-1,2-dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2,2-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichloroethane (EDC)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chloroform	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,1-Trichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Benzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Carbon Tetrachloride	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Trichloroethene (TCE)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dibromomethane (methylene bromide)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromodichloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Chloroethyl vinyl ether	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
cis-1,3-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans-1,3-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Toluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,2-Trichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dibromochloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dibromoethane (EDB)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Tetrachloroethene (PCE)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chlorobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,1,2-Tetrachloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Ethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
m,p-Xylene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromoform	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Styrene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
o-Xylene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2

1,1,2,2-Tetrachloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Chlorotoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2,3-Trichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Isopropylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
n-Propylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3,5-Trimethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
tert-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2,4-Trimethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,4-Dichlorobenzene (para)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
sec-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3-Dichlorobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
p-Isopropyltoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
4-Chlorotoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichlorobenzene (ortho)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
n-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dibromo-3-chloropropane	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
1,2,3-Trichlorobenzene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
1,2,4-Trichlorobenzene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
Naphthalene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Hexachlorobutadiene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #
Dibromofluoromethane	51.31	1	50	103	72 - 128	JG	PB01722	QC02061
Toluene-d8	49.28	1	50	99	91 - 107	JG	PB01722	QC02061
4-Bromofluorobenzene	48.81	1	50	98	74 - 106	JG	PB01722	QC02061

625 (mg/L)									
Pyridine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosodimethylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Picoline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Methyl methanesulfonate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Ethyl methanesulfonate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Aniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroethyl) ether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Chlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,3-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,4-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzyl alcohol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroisopropyl) ether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Methylphenol/3-Methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acetophenone	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosodi-n-propylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachloroethane	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Nitrobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosopiperidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Isophorone	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Nitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dimethylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroethoxy) methane	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzoic acid	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2,4-Trichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 4 of 20

N/A Injection Wells N/A

a,a-Dimethylphenethylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Naphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chloroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,6-Dichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorobutadiene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitroso-di-n-butylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chloro-3-methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Methylnaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Methylnaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2,4,5-Tetrachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorocyclopentadiene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4,6-Trichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4,5-Trichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Chloronaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Chloronaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dimethylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acenaphthylene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,6-Dinitrotoluene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acenaphthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dinitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzofuran	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Nitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Napthylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dinitrotoluene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Napthylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,3,4,6-Tetrachlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Fluorene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diethylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chlorophenyl-phenylether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4,6-Dinitro-2-methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diphenylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diphenylhydrazine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Bromophenyl-phenylether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenacetin	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Aminobiphenyl	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachloronitrobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pronamide	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenanthrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Di-n-butylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
p-Dimethylaminoazobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Butylbenzylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(a)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3,3-Dichlorobenzidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Chrysene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Bis (2-ethylhexyl) phthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Di-n-octylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Benzo(b)fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
7,12-Dimethylbenz(a)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(k)fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(a)pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3-Methylcholanthrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzo(a,j)acridine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Indeno(1,2,3-cd)pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzo(a,h)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(g,h,i)perylene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Surrogate (mg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
2-Fluorophenol	13.42	1	80	17	8 - 73	MA	PB01723	QC02062	
Phenol-d5	10.12	1	80	13	8 - 62	MA	PB01723	QC02062	
Nitrobenzene-d5	39.11	1	80	49	44 - 109	MA	PB01723	QC02062	
2-Fluorobiphenyl	46.86	1	80	59	45 - 109	MA	PB01723	QC02062	
2,4,6-Tribromophenol	27.61	1	80	35	39 - 132	MA	PB01723	QC02062	
Terphenyl-d14	32.93	1	80	41	46 - 121	MA	PB01723	QC02062	
Alkalinity (mg/L as CaCo3)									
Hydroxide Alkalinity	<1.0	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Carbonate Alkalinity	<1.0	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Bicarbonate Alkalinity	325	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Total Alkalinity	325	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Conductivity (uMHOS/cm)									
Specific Conductance	7000	1	SM 2510B	4/5/00	4/5/00	JS	PB01580	QC01888	
Corrosivity (mm/yr)									
Corrosivity	Non 0.18	1	S 1110	4/3/00	4/3/00	JM	PB01743	QC02088	
pH	8.67	1	S 1110	4/3/00	4/3/00	JM	PB01743	QC02088	
Dissolved Metals (mg/L)									
Dissolved Calcium	131	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Magnesium	24	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Potassium	26	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Sodium	832	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Hg, Total (mg/L)									
Total Mercury	<0.0002	1	S 7470A	4/4/00	4/6/00	JM	PB01644	QC01968	0.0002
Ignitability									
Ignitability	>150	1	W-846 Ch. 7	4/3/00	4/3/00	JM	PB01744	QC02089	
Ion Chromatography (IC) (mg/L)									
CL	1600	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.5
Fluoride	29	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.2
Nitrate-N	2.6	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.2
Sulfate	870	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.5
pH (s.u.)									
pH	* 8.4	1	E 150.1	3/30/00	3/30/00	RS	PB01527	QC01825	1
* pH - Out of holding time.									
Reactivity									
Reactivity	Non-reactive	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	
Hydrogen Sulfide	<10	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	
Hydrogen Cyanide	<2.5	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 6 of 20

N/A Injection Wells N/A

TDS (mg/L)									
Total Dissolved Solids	* 3200	1	E 160.1	4/7/00	4/8/00	JS	PB01628	QC01956	10
* Total Dissolved Solids - Sample re-ran out of holding time									
Total Metals (mg/L)									
Total Aluminum	0.24	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Arsenic	0.21	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Barium	0.03	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Beryllium	<0.004	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.004
Total Boron	0.24	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Cadmium	<0.002	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.002
Total Chromium	<0.005	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.005
Total Cobalt	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Copper	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Iron	0.27	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Lead	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Manganese	0.05	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Molybdenum	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Nickel	0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Selenium	0.44	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Silver	<0.005	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.005
Total Uranium	<0.50	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.5
Total Vanadium	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Zinc	0.02	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Bromochloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dichlorodifluoromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chloromethane (methyl chloride) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Vinyl Chloride (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Bromomethane (methyl bromide) (µg/L)		<5.00	5	4/3/00	PB01722	QC02061
Chloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Trichlorofluoromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Acetone (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
Iodomethane (methyl iodide) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Carbon Disulfide (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Acrylonitrile (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2-Butanone (MEK) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
4-methyl-2-pentanone (MIBK) (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
2-hexanone (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans 1,4-Dichloro-2-butene (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
1,1-Dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Methylene chloride (µg/L)		<5.00	5	4/3/00	PB01722	QC02061
MTBE (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans-1,2-Dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1-Dichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
cis-1,2-dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2,2-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chloroform (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,1-Trichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Benzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Carbon Tetrachloride (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Trichloroethene (TCE) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dibromomethane (methylene bromide) (µg		<2.00	2	4/3/00	PB01722	QC02061
Bromodichloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2-Chloroethyl vinyl ether (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
cis-1,3-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans-1,3-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Toluene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,2-Trichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,3-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dibromochloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Tetrachloroethene (PCE) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chlorobenzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Ethylbenzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
m,p-Xylene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061

Bromoform (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Styrene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
o-Xylene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,1,2,2-Tetrachloroethane (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
2-Chlorotoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2,3-Trichloropropane (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Isopropylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Bromobenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
n-Propylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,3,5-Trimethylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
tert-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2,4-Trimethylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,4-Dichlorobenzene (para) (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
sec-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,3-Dichlorobenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
p-Isopropyltoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
4-Chlorotoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichlorobenzene (ortho) (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
n-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
1,2,3-Trichlorobenzene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
1,2,4-Trichlorobenzene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
Naphthalene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Hexachlorobutadiene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	51.31	50	103	72 - 128	QC02061
Toluene-d8 (µg/L)	49.28	50	99	91 - 107	QC02061
4-Bromofluorobenzene (µg/L)	48.81	50	98	74 - 106	QC02061

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Pyridine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosodimethylamine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Picoline (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Methyl methanesulfonate (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Ethyl methanesulfonate (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Phenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Aniline (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroethyl) ether (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Chlorophenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,3-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,4-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Benzyl alcohol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,2-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Methylphenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroisopropyl) ether (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
4-Methylphenol/3-Methylphenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Acetophenone (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosodi-n-propylamine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Hexachloroethane (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062

Report Date: 4/14/00	Order ID Number: A00033024				Page Number: 9 of 20
N/A	Injection Wells				N/A
Nitrobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosopiperidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Isophorone (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Nitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dimethylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroethoxy) methane (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzoic acid (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1,2,4-Trichlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
a,a-Dimethylphenethylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Naphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chloroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,6-Dichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorobutadiene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitroso-di-n-butylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chloro-3-methylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Methylnaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Methylnaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1,2,4,5-Tetrachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorocyclopentadiene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4,6-Trichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4,5-Trichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Chloronaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Chloronaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dimethylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Acenaphthylene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,6-Dinitrotoluene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Acenaphthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dinitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzofuran (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Nitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Napthylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dinitrotoluene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Napthylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,3,4,6-Tetrachlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Fluorene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diethylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chlorophenyl-phenylether (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4,6-Dinitro-2-methylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diphenylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diphenylhydrazine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Bromophenyl-phenylether (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Phenacetin (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Aminobiphenyl (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachloronitrobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 10 of 20

N/A Injection Wells N/A

Pronamide (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Phenanthrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Di-n-butylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
p-Dimethylaminoazobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Butylbenzylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(a)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3,3-Dichlorobenzidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Chrysene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Bis (2-ethylhexyl) phthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Di-n-octylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(b)fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
7,12-Dimethylbenz(a)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(k)fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(a)pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3-Methylcholanthrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzo(a,j)acridine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Indeno(1,2,3-cd)pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzo(a,h)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(g,h,i)perylene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
2-Fluorophenol (mg/L)	21.51	80	27	8 - 73	QC02062
Phenol-d5 (mg/L)	14.16	80	18	8 - 62	QC02062
Nitrobenzene-d5 (mg/L)	52.84	80	66	44 - 109	QC02062
2-Fluorobiphenyl (mg/L)	55.45	80	69	45 - 109	QC02062
2,4,6-Tribromophenol (mg/L)	47.37	80	59	39 - 132	QC02062
Terphenyl-d14 (mg/L)	53.65	80	67	46 - 121	QC02062

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Hydroxide Alkalinity (mg/L as CaCo3)		<1.0	1	4/5/00	PB01579	QC01887
Carbonate Alkalinity (mg/L as CaCo3)		<1.0	1	4/5/00	PB01579	QC01887
Bicarbonate Alkalinity (mg/L as CaCo3)		<4.0	1	4/5/00	PB01579	QC01887
Total Alkalinity (mg/L as CaCo3)		<4.0	1	4/5/00	PB01579	QC01887

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Specific Conductance (uMHOS/cm)		3.1		4/5/00	PB01580	QC01888

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dissolved Calcium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Magnesium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Potassium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Sodium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 11 of 20

N/A Injection Wells N/A

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Mercury (mg/L)		<0.0002	0.0002	4/6/00	PB01644	QC01968

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL (mg/L)		<0.5	0.5	3/30/00	PB01514	QC01806
Fluoride (mg/L)		<0.2	0.2	3/30/00	PB01514	QC01806
Nitrate-N (mg/L)		<0.2	0.2	3/30/00	PB01514	QC01806
Sulfate (mg/L)		<0.5	0.5	3/30/00	PB01514	QC01806

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Dissolved Solids (mg/L)		<10	10	4/8/00	PB01628	QC01956

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Aluminum (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Arsenic (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Barium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Beryllium (mg/L)		<0.004	0.004	4/6/00	PB01721	QC02060
Total Boron (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Cadmium (mg/L)		<0.002	0.002	4/6/00	PB01721	QC02060
Total Chromium (mg/L)		<0.005	0.005	4/6/00	PB01721	QC02060
Total Cobalt (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Copper (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Iron (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Lead (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Manganese (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Molybdenum (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Nickel (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Selenium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Silver (mg/L)		<0.005	0.005	4/6/00	PB01721	QC02060
Total Uranium (mg/L)		<0.50	0.5	4/6/00	PB01721	QC02060
Total Vanadium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Zinc (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	86	1	125	200.21	91		80 - 120	-	QC01806
MS	Fluoride (mg/L)	4.5	1	25	28.98	98		80 - 120	-	QC01806
MS	Nitrate-N (mg/L)	5.7	1	50	50.58	90		80 - 120	-	QC01806
MS	Sulfate (mg/L)	160	1	125	280.50	96		80 - 120	-	QC01806
MSD	CL (mg/L)	86	1	125	199.06	90	1	-	0 - 20	QC01806
MSD	Fluoride (mg/L)	4.5	1	25	27.82	93	5	-	0 - 20	QC01806
MSD	Nitrate-N (mg/L)	5.7	1	50	49.86	88	2	-	0 - 20	QC01806
MSD	Sulfate (mg/L)	160	1	125	279.52	96	1	-	0 - 20	QC01806

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Dissolved Calcium (mg/L)	108	1	1000	1094	99		75 - 125	-	QC01950
MS	Dissolved Magnesium (mg/L)	24	1	1000	1014	99		75 - 125	-	QC01950
MS	Dissolved Potassium (mg/L)	14	1	1000	970	96		75 - 125	-	QC01950
MS	Dissolved Sodium (mg/L)	62	1	1000	947	89		75 - 125	-	QC01950
MSD	Dissolved Calcium (mg/L)	108	1	1000	1094	99	0	-	0 - 20	QC01950
MSD	Dissolved Magnesium (mg/L)	24	1	1000	1014	99	0	-	0 - 20	QC01950
MSD	Dissolved Potassium (mg/L)	14	1	1000	1023	101	5	-	0 - 20	QC01950
MSD	Dissolved Sodium (mg/L)	62	1	1000	1075	101	13	-	0 - 20	QC01950

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Total Mercury (mg/L)	<0.0002	1	0.001	0.00103	103		80 - 120	-	QC01968
MSD	Total Mercury (mg/L)	<0.0002	1	0.001	0.00112	112	8	-	0 - 20	QC01968

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Total Aluminum (mg/L)	0.24	1	2	2.11	94		75 - 125	-	QC02060
MS	Total Arsenic (mg/L)	0.21	1	2	1.95	87		75 - 125	-	QC02060
MS	Total Barium (mg/L)	0.03	1	2	1.85	91		75 - 125	-	QC02060
MS	Total Beryllium (mg/L)	<0.004	1	2	1.68	84		75 - 125	-	QC02060
MS	Total Boron (mg/L)	0.24	1	2	1.97	87		75 - 125	-	QC02060
MS	Total Cadmium (mg/L)	<0.002	1	2	1.61	81		75 - 125	-	QC02060
MS	Total Chromium (mg/L)	<0.005	1	2	1.69	85		75 - 125	-	QC02060
MS	Total Cobalt (mg/L)	<0.01	1	2	1.72	86		75 - 125	-	QC02060
MS	Total Copper (mg/L)	<0.01	1	2	1.96	98		75 - 125	-	QC02060

MS	Total Iron (mg/L)	0.27	1	2	1.97	85	75 - 125	-	QC02060
MS	Total Lead (mg/L)	<0.01	1	2	1.67	84	75 - 125	-	QC02060
MS	Total Manganese (mg/L)	0.05	1	2	1.75	85	75 - 125	-	QC02060
MS	Total Molybdenum (mg/L)	<0.01	1	2	1.67	84	75 - 125	-	QC02060
MS	Total Nickel (mg/L)	0.01	1	2	1.81	90	75 - 125	-	QC02060
MS	Total Selenium (mg/L)	0.44	1	2	2.16	86	75 - 125	-	QC02060
MS	Total Silver (mg/L)	<0.005	1	0.25	0.26	104	75 - 125	-	QC02060
MS	Total Uranium (mg/L)	<0.50	1	2	2.12	106	75 - 125	-	QC02060
MS	Total Vanadium (mg/L)	<0.01	1	2	1.69	85	75 - 125	-	QC02060
MS	Total Zinc (mg/L)	0.02	1	2	1.73	86	75 - 125	-	QC02060
MSD	Total Aluminum (mg/L)	0.24	1	2	2.11	94	0	-	0 - 20	QC02060
MSD	Total Arsenic (mg/L)	0.21	1	2	1.95	87	0	-	0 - 20	QC02060
MSD	Total Barium (mg/L)	0.03	1	2	1.85	91	0	-	0 - 20	QC02060
MSD	Total Beryllium (mg/L)	<0.004	1	2	1.68	84	0	-	0 - 20	QC02060
MSD	Total Boron (mg/L)	0.24	1	2	1.98	87	1	-	0 - 20	QC02060
MSD	Total Cadmium (mg/L)	<0.002	1	2	1.61	81	0	-	0 - 20	QC02060
MSD	Total Chromium (mg/L)	<0.005	1	2	1.70	85	1	-	0 - 20	QC02060
MSD	Total Cobalt (mg/L)	<0.01	1	2	1.72	86	0	-	0 - 20	QC02060
MSD	Total Copper (mg/L)	<0.01	1	2	1.97	99	1	-	0 - 20	QC02060
MSD	Total Iron (mg/L)	0.27	1	2	1.98	86	1	-	0 - 20	QC02060
MSD	Total Lead (mg/L)	<0.01	1	2	1.67	84	0	-	0 - 20	QC02060
MSD	Total Manganese (mg/L)	0.05	1	2	1.76	86	1	-	0 - 20	QC02060
MSD	Total Molybdenum (mg/L)	<0.01	1	2	1.67	84	0	-	0 - 20	QC02060
MSD	Total Nickel (mg/L)	0.01	1	2	1.81	90	0	-	0 - 20	QC02060
MSD	Total Selenium (mg/L)	0.44	1	2	2.17	87	1	-	0 - 20	QC02060
MSD	Total Silver (mg/L)	<0.005	1	0.25	0.22	88	17	-	0 - 20	QC02060
MSD	Total Uranium (mg/L)	<0.50	1	2	2.14	107	1	-	0 - 20	QC02060
MSD	Total Vanadium (mg/L)	<0.01	1	2	1.69	85	0	-	0 - 20	QC02060
MSD	Total Zinc (mg/L)	0.02	1	2	1.75	87	1	-	0 - 20	QC02060

Quality Control Report
Duplicates

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydroxide Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC01887
Duplicate	Carbonate Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC01887
Duplicate	Bicarbonate Alkalinity (mg/L as CaC		247	248	1	0	0 - 20	QC01887
Duplicate	Total Alkalinity (mg/L as CaCo3)		247	248	1	0	0 - 20	QC01887

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Specific Conductance (uMHOS/cm)		6973	7000	1	0	0 - 20	QC01888

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 14 of 20
N/A Injection Wells N/A

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Corrosivity (mm/yr)		Non 0.11	Non 0.18	1	0	0 - 20	QC02088
Duplicate	pH (s.u.)		8.52	8.67	1	2	0 - 20	QC02088

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Ignitability		>150	>150	1	0	0 - 20	QC02089

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	pH (s.u.)		8.6	8.6	1	0	0 - 20	QC01825

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydrogen Cyanide		<2.5	<2.5	1	0	0 - 20	QC02090
Duplicate	Hydrogen Sulfide		<10	<10	1	0	0 - 20	QC02090
Duplicate	Reactivity		Non	Non-reactive	1	0	0 - 20	QC02090

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Total Dissolved Solids (mg/L)		3275	3200	1	2	0 - 20	QC01956

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Phenol (mg/L)	<0.005	1	80	19.456	24		5 - 57	-	QC02062
LCS	2-Chlorophenol (mg/L)	<0.005	1	80	45.702	57		29 - 110	-	QC02062
LCS	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	44.401	56		25 - 94	-	QC02062
LCS	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	59.842	74		36 - 119	-	QC02062
LCS	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	54.118	68		28 - 110	-	QC02062
LCS	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	47.100	59		40 - 126	-	QC02062
LCS	Acenaphthene (mg/L)	<0.005	1	80	60.703	76		47 - 118	-	QC02062
LCS	4-Nitrophenol (mg/L)	<0.005	1	80	12.383	15		0 - 69	-	QC02062
LCS	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	47.651	60		46 - 133	-	QC02062
LCS	Pentachlorophenol (mg/L)	<0.005	1	80	44.187	55		21 - 131	-	QC02062
LCS	Pyrene (mg/L)	<0.005	1	80	55.480	69		44 - 125	-	QC02062

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	2-Fluorophenol (mg/L)	1	80	20.66	26	8 - 73	QC02062
LCS	Phenol-d5 (mg/L)	1	80	13.92	17	8 - 62	QC02062
LCS	Nitrobenzene-d5 (mg/L)	1	80	53.11	66	44 - 109	QC02062
LCS	2-Fluorobiphenyl (mg/L)	1	80	57.58	72	45 - 109	QC02062
LCS	2,4,6-Tribromophenol (mg/L)	1	80	45.44	57	39 - 132	QC02062
LCS	Terphenyl-d14 (mg/L)	1	80	52.87	66	46 - 121	QC02062

LCSD	Phenol (mg/L)	<0.005	1	80	18.927	24	3	-	0 - 20	QC02062
LCSD	2-Chlorophenol (mg/L)	<0.005	1	80	50.853	64	11	-	0 - 20	QC02062
LCSD	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	49.094	61	10	-	0 - 20	QC02062
LCSD	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	64.251	80	9	-	0 - 20	QC02062
LCSD	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	61.803	77	13	-	0 - 20	QC02062
LCSD	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	50.593	63	7	-	0 - 20	QC02062
LCSD	Acenaphthene (mg/L)	<0.005	1	80	65.886	82	8	-	0 - 20	QC02062
LCSD	4-Nitrophenol (mg/L)	<0.005	1	80	13.429	17	8	-	0 - 20	QC02062
LCSD	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	49.290	62	3	-	0 - 20	QC02062
LCSD	Pentachlorophenol (mg/L)	<0.005	1	80	50.568	63	13	-	0 - 20	QC02062
LCSD	Pyrene (mg/L)	<0.005	1	80	58.976	74	6	-	0 - 20	QC02062

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	2-Fluorophenol (mg/L)	1	80	27.06	34	8 - 73	QC02062
LCSD	Phenol-d5 (mg/L)	1	80	18.60	23	8 - 62	QC02062
LCSD	Nitrobenzene-d5 (mg/L)	1	80	59.76	75	44 - 109	QC02062
LCSD	2-Fluorobiphenyl (mg/L)	1	80	64.04	80	45 - 109	QC02062
LCSD	2,4,6-Tribromophenol (mg/L)	1	80	48.41	61	39 - 132	QC02062
LCSD	Terphenyl-d14 (mg/L)	1	80	55.12	69	46 - 121	QC02062

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Dissolved Calcium (mg/L)	<0.50	1	1000	968	97		75 - 125	-	QC01950

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 16 of 20

N/A Injection Wells N/A

LCS	Dissolved Magnesium (mg/L)	<0.50	1	1000	966	97	75 - 125	-	QC01950
LCS	Dissolved Potassium (mg/L)	<0.50	1	1000	1022	102	75 - 125	-	QC01950
LCS	Dissolved Sodium (mg/L)	<0.50	1	1000	983	98	75 - 125	-	QC01950
LCSD	Dissolved Calcium (mg/L)	<0.50	1	1000	978	98	1	-	0 - 20	QC01950
LCSD	Dissolved Magnesium (mg/L)	<0.50	1	1000	972	97	1	-	0 - 20	QC01950
LCSD	Dissolved Potassium (mg/L)	<0.50	1	1000	999	100	2	-	0 - 20	QC01950
LCSD	Dissolved Sodium (mg/L)	<0.50	1	1000	987	99	0	-	0 - 20	QC01950

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Total Mercury (mg/L)	<0.0002	1	0.001	0.00090	90		80 - 120	-	QC01968
LCSD	Total Mercury (mg/L)	<0.0002	1	0.001	0.00106	106	16	-	0 - 20	QC01968

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Total Aluminum (mg/L)	<0.01	1	2	1.98	99		75 - 125	-	QC02060
LCS	Total Arsenic (mg/L)	<0.01	1	2	1.87	94		75 - 125	-	QC02060
LCS	Total Barium (mg/L)	<0.01	1	2	2.18	109		75 - 125	-	QC02060
LCS	Total Beryllium (mg/L)	<0.004	1	2	1.95	98		75 - 125	-	QC02060
LCS	Total Boron (mg/L)	<0.01	1	2	1.92	96		75 - 125	-	QC02060
LCS	Total Cadmium (mg/L)	<0.002	1	2	1.97	99		75 - 125	-	QC02060
LCS	Total Chromium (mg/L)	<0.005	1	2	2.01	100		75 - 125	-	QC02060
LCS	Total Cobalt (mg/L)	<0.01	1	2	2.05	102		75 - 125	-	QC02060
LCS	Total Copper (mg/L)	<0.01	1	2	2.08	104		75 - 125	-	QC02060
LCS	Total Iron (mg/L)	<0.01	1	2	2.06	103		75 - 125	-	QC02060
LCS	Total Lead (mg/L)	<0.01	1	2	2.04	102		75 - 125	-	QC02060
LCS	Total Manganese (mg/L)	<0.01	1	2	2.02	101		75 - 125	-	QC02060
LCS	Total Molybdenum (mg/L)	<0.01	1	2	2.03	101		75 - 125	-	QC02060
LCS	Total Nickel (mg/L)	<0.01	1	2	1.99	100		75 - 125	-	QC02060
LCS	Total Selenium (mg/L)	<0.01	1	2	1.87	94		75 - 125	-	QC02060
LCS	Total Silver (mg/L)	<0.005	1	0.4	0.415	104		75 - 125	-	QC02060
LCS	Total Uranium (mg/L)	<0.50	1	2	1.99	100		75 - 125	-	QC02060
LCS	Total Vanadium (mg/L)	<0.01	1	2	1.98	99		75 - 125	-	QC02060
LCS	Total Zinc (mg/L)	<0.01	1	2	2.02	101		75 - 125	-	QC02060
LCSD	Total Aluminum (mg/L)	<0.01	1	2	2.00	100	1	-	0 - 20	QC02060
LCSD	Total Arsenic (mg/L)	<0.01	1	2	1.89	95	1	-	0 - 20	QC02060
LCSD	Total Barium (mg/L)	<0.01	1	2	2.19	110	0	-	0 - 20	QC02060
LCSD	Total Beryllium (mg/L)	<0.004	1	2	1.96	98	1	-	0 - 20	QC02060
LCSD	Total Boron (mg/L)	<0.01	1	2	1.94	97	1	-	0 - 20	QC02060
LCSD	Total Cadmium (mg/L)	<0.002	1	2	1.98	99	1	-	0 - 20	QC02060
LCSD	Total Chromium (mg/L)	<0.005	1	2	2.02	101	0	-	0 - 20	QC02060
LCSD	Total Cobalt (mg/L)	<0.01	1	2	2.06	103	0	-	0 - 20	QC02060
LCSD	Total Copper (mg/L)	<0.01	1	2	2.09	105	0	-	0 - 20	QC02060

Report Date: 4/14/00	Order ID Number: A00033024							Page Number: 17 of 20	
N/A	Injection Wells								N/A
LCSD Total Iron (mg/L)	<0.01	1	2	2.07	103	0	-	0 - 20	QC02060
LCSD Total Lead (mg/L)	<0.01	1	2	2.05	102	0	-	0 - 20	QC02060
LCSD Total Manganese (mg/L)	<0.01	1	2	2.03	101	0	-	0 - 20	QC02060
LCSD Total Molybdenum (mg/L)	<0.01	1	2	2.05	102	1	-	0 - 20	QC02060
LCSD Total Nickel (mg/L)	<0.01	1	2	2.00	100	1	-	0 - 20	QC02060
LCSD Total Selenium (mg/L)	<0.01	1	2	1.89	95	1	-	0 - 20	QC02060
LCSD Total Silver (mg/L)	<0.005	1	0.4	0.418	105	1	-	0 - 20	QC02060
LCSD Total Uranium (mg/L)	<0.50	1	2	1.97	99	1	-	0 - 20	QC02060
LCSD Total Vanadium (mg/L)	<0.01	1	2	1.99	100	1	-	0 - 20	QC02060
LCSD Total Zinc (mg/L)	<0.01	1	2	2.04	102	1	-	0 - 20	QC02060

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	Phenol (mg/L)		60	58.22	97	5 - 57	4/3/00	QC02062
CCV 1	1,4-Dichlorobenzene (mg/L)		60	58.66	98	25 - 94	4/3/00	QC02062
CCV 1	2-Nitrophenol (mg/L)		60	58.06	97	80 - 120	4/3/00	QC02062
CCV 1	Hexachlorobutadiene (mg/L)		60	61.40	102	80 - 120	4/3/00	QC02062
CCV 1	4-Chloro-3-methylphenol (mg/L)		60	55.07	92	40 - 126	4/3/00	QC02062
CCV 1	2,4,6-Trichlorophenol (mg/L)		60	58.83	98	80 - 120	4/3/00	QC02062
CCV 1	Acenaphthylene (mg/L)		60	58.23	97	80 - 120	4/3/00	QC02062
CCV 1	Diphenylamine (mg/L)		60	51.43	86	80 - 120	4/3/00	QC02062
CCV 1	Pentachlorophenol (mg/L)		60	52.25	87	21 - 131	4/3/00	QC02062
CCV 1	Fluoranthene (mg/L)		60	52.07	87	80 - 120	4/3/00	QC02062
CCV 1	Di-n-octylphthalate (mg/L)		60	56.37	94	80 - 120	4/3/00	QC02062
CCV 1	Benzo(a)pyrene (mg/L)		60	61.74	103	80 - 120	4/3/00	QC02062

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Hydroxide Alkalinity (mg/L as CaCo3)		0	5.0	0	80 - 120	4/5/00	QC01887
ICV	Carbonate Alkalinity (mg/L as CaCo3)		0	212	0	80 - 120	4/5/00	QC01887
ICV	Bicarbonate Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	4/5/00	QC01887
ICV	Total Alkalinity (mg/L as CaCo3)		236	217	92	80 - 120	4/5/00	QC01887
CCV 1	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	4/5/00	QC01887
CCV 1	Carbonate Alkalinity (mg/L as CaCo3)		0	212	0	80 - 120	4/5/00	QC01887
CCV 1	Bicarbonate Alkalinity (mg/L as CaCo3)		0	11	0	80 - 120	4/5/00	QC01887
CCV 1	Total Alkalinity (mg/L as CaCo3)		236	223	94	80 - 120	4/5/00	QC01887

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Specific Conductance (uMHOS/cm)		1413	1279	91	80 - 120	4/5/00	QC01888
CCV 1	Specific Conductance (uMHOS/cm)		1413	1288	91	80 - 120	4/5/00	QC01888

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Dissolved Calcium (mg/L)		20	20.9	105	75 - 125	4/6/00	QC01950
ICV	Dissolved Magnesium (mg/L)		20	21.9	110	75 - 125	4/6/00	QC01950
ICV	Dissolved Potassium (mg/L)		20	20.7	103	75 - 125	4/6/00	QC01950
ICV	Dissolved Sodium (mg/L)		20	21.5	108	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Calcium (mg/L)		20	20.9	105	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Magnesium (mg/L)		20	21.9	110	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Potassium (mg/L)		20	20.7	103	75 - 125	4/6/00	QC01950

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	Dissolved Sodium (mg/L)		20	21.5	108	75 - 125	4/6/00	QC01950

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Mercury (mg/L)		0.005	0.00091	18	80 - 120	4/6/00	QC01968
CCV 1	Total Mercury (mg/L)		0.005	0.00101	20	80 - 120	4/6/00	QC01968

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.39	91	80 - 120	3/30/00	QC01806
ICV	Fluoride (mg/L)		2.5	2.48	99	80 - 120	3/30/00	QC01806
ICV	Nitrate-N (mg/L)		5	4.65	93	80 - 120	3/30/00	QC01806
ICV	Sulfate (mg/L)		12.5	11.52	92	80 - 120	3/30/00	QC01806
CCV 1	CL (mg/L)		12.5	11.32	91	80 - 120	3/30/00	QC01806
CCV 1	Fluoride (mg/L)		2.5	2.47	99	80 - 120	3/30/00	QC01806
CCV 1	Nitrate-N (mg/L)		5	4.64	93	80 - 120	3/30/00	QC01806
CCV 1	Sulfate (mg/L)		12.5	11.46	92	80 - 120	3/30/00	QC01806

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	pH (s.u.)		7	7.0	100	80 - 120	3/30/00	QC01825
CCV 1	pH (s.u.)		7	7.0	100	80 - 120	3/30/00	QC01825

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Dissolved Solids (mg/L)		1000	1006	101	80 - 120	4/8/00	QC01956
CCV 1	Total Dissolved Solids (mg/L)		1000	984	98	80 - 120	4/8/00	QC01956

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Aluminum (mg/L)		20	19.6	98	75 - 125	4/6/00	QC02060
ICV	Total Arsenic (mg/L)		1	1.00	100	75 - 125	4/6/00	QC02060
ICV	Total Barium (mg/L)		20	21.0	105	75 - 125	4/6/00	QC02060
ICV	Total Beryllium (mg/L)		0.5	0.502	100	75 - 125	4/6/00	QC02060
ICV	Total Boron (mg/L)		2.5	2.53	101	75 - 125	4/6/00	QC02060
ICV	Total Cadmium (mg/L)		0.5	0.509	102	75 - 125	4/6/00	QC02060
ICV	Total Chromium (mg/L)		1	1.01	101	75 - 125	4/6/00	QC02060

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Cobalt (mg/L)		5	5.09	102	75 - 125	4/6/00	QC02060
ICV	Total Copper (mg/L)		2.5	2.49	100	75 - 125	4/6/00	QC02060
ICV	Total Iron (mg/L)		10	10.1	101	75 - 125	4/6/00	QC02060
ICV	Total Lead (mg/L)		0.5	0.510	102	75 - 125	4/6/00	QC02060
ICV	Total Manganese (mg/L)		1.5	1.52	101	75 - 125	4/6/00	QC02060
ICV	Total Molybdenum (mg/L)		2.5	2.53	101	75 - 125	4/6/00	QC02060
ICV	Total Nickel (mg/L)		4	4.01	100	75 - 125	4/6/00	QC02060
ICV	Total Selenium (mg/L)		0.5	0.503	101	75 - 125	4/6/00	QC02060
ICV	Total Silver (mg/L)		1	0.99	99	75 - 125	4/6/00	QC02060
ICV	Total Uranium (mg/L)		1	1.05	105	75 - 125	4/6/00	QC02060
ICV	Total Vanadium (mg/L)		5	5.03	101	75 - 125	4/6/00	QC02060
ICV	Total Zinc (mg/L)		2	2.04	102	75 - 125	4/6/00	QC02060
CCV 1	Total Aluminum (mg/L)		20	19.4	97	75 - 125	4/6/00	QC02060
CCV 1	Total Arsenic (mg/L)		1	0.98	98	75 - 125	4/6/00	QC02060
CCV 1	Total Barium (mg/L)		20	20.5	102	75 - 125	4/6/00	QC02060
CCV 1	Total Beryllium (mg/L)		0.5	0.493	99	75 - 125	4/6/00	QC02060
CCV 1	Total Boron (mg/L)		2.5	2.47	99	75 - 125	4/6/00	QC02060
CCV 1	Total Cadmium (mg/L)		0.5	0.494	99	75 - 125	4/6/00	QC02060
CCV 1	Total Chromium (mg/L)		1	0.99	99	75 - 125	4/6/00	QC02060
CCV 1	Total Cobalt (mg/L)		5	4.99	100	75 - 125	4/6/00	QC02060
CCV 1	Total Copper (mg/L)		2.5	2.48	99	75 - 125	4/6/00	QC02060
CCV 1	Total Iron (mg/L)		10	9.9	99	75 - 125	4/6/00	QC02060
CCV 1	Total Lead (mg/L)		0.5	0.502	100	75 - 125	4/6/00	QC02060
CCV 1	Total Manganese (mg/L)		1.5	1.49	99	75 - 125	4/6/00	QC02060
CCV 1	Total Molybdenum (mg/L)		2.5	2.48	99	75 - 125	4/6/00	QC02060
CCV 1	Total Nickel (mg/L)		4	3.98	100	75 - 125	4/6/00	QC02060
CCV 1	Total Selenium (mg/L)		0.5	0.499	100	75 - 125	4/6/00	QC02060
CCV 1	Total Silver (mg/L)		1	0.98	98	75 - 125	4/6/00	QC02060
CCV 1	Total Uranium (mg/L)		1	1.06	106	75 - 125	4/6/00	QC02060
CCV 1	Total Vanadium (mg/L)		5	4.95	99	75 - 125	4/6/00	QC02060
CCV 1	Total Zinc (mg/L)		2	1.97	99	75 - 125	4/6/00	QC02060

143547

Page ____ of ____

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TraceAnalysis, Inc.

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El Paso, Texas 79922-1028
Tel (915) 585-3443
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1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # H00033024

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E. Main
Fax #: 505 748 9077
Contact Person: Darrell Moore or Charlie Phymale
Invoice to: (if different from above)
Project #:
Project Name: Injection Wells
Project Location: Artesia
Sampler Signature: Charlie Phymale

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	NaHSO4	SAMPLING: DATE	TIME
143547	Injection Wells	2	1L	X						X	X		3/29/00	8:30
	" "	2	40ml	X							X	X	3/29/00	8:30
	" "	1	500ml	X					X	X			3/29/00	8:30

MTBE 8021B/602
BTEX 8021B/602
TPH 418.1/TX1005
PAH 8270C
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7
TCLP Metals Ag As Ba Cd Cr Pb Se Hg
TCLP Volatiles
TCLP Semi Volatiles
TCLP Pesticides
RCI
GC-MS Vol. 8260B/624
GC/MS Semi. Vol. 8270C/625
PCB's 8082/608
Pesticides 8081A/608
BOD, TSS, pH
Turn Around Time if different from standard
Hold

See list

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Phymale	3/29/00	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Henely	3:30 00	10:00

LAB USE ONLY

Intact (Y) / N
Headspace Y / (N)
Temp 12° C
Log-in Review MS

REMARKS:

4/17

Carrier # Fed Ex 279-3832-431

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID #_____

Company Name: NAVA 50 Phone #: 5057483311

Address: (Street, City, Zip) 501 E. Main Fax #: 505 7489077

Contact Person: Darrell Moore or Charlie Plymale

Invoice to: (If different from above)

Project #: Project Name: Inj. wells

Project Location: Artesia Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME
	Inj wells	1	1L	X						X	X	3/30/00	13:50

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7: See 1-sh | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

Relinquished by: Charlie Plymale	Date: 3/30/00	Time: 16:15	Received by:
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Hensley 3-31-00 9:00

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp -2° °
Log-in Review

REMARKS:
RL Sample

Carrier # FedEx 279-4050 942

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

TELEPHONE
(505) 748-3311

EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

February 1, 2000

RECEIVED
FEB 0 3 2000
Environmental Bureau
Oil Conservation Division

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 1999 to December 31, 1999. We have disposed a total of 1,136,090 bbls. of fluid down the two wells. This is broken down as follows: 893,539 bbls. down WDW-1 and 242,551 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Page 1432 of 5828

Qrtly Injection Pressures, Rates

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	M Ma V
October 1999	87	328	-12.7	330	499	10.8	11314.29	17
November 1999	161	410.4	-12.4	248.9	343.8	0	8533.71	11
December 1999	155.5	322.4	-12.3	271.5	376.7	13.5	9308.57	12

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	M Ma V
October 1999	NA	NA	NA	NA	NA	NA	NA	
November 1999	140.3	337	-15.4	158.5	436.6	0	5434.286	14
December 1999	140.3	337.8	-15.4	69.7	341	0	2389.714	1'

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E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING CO.
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

January 17, 2000
Receiving Date: 01/06/00
Sample Type: Water
Project #: N/A
Project Location: N/A

Prep Date: 01/10/00
Analysis Date: 01/10/00
Sampling Date: 01/05/00
Sample Condition: I & C
Sample Received by: VW
Project Name: Injection Wells

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T138278	Injection Wells	20	34	164	628
ICV		20.2	20.3	20.5	20.2
CCV		19.9	20.2	20.2	20.2
Reporting Limit		5.0	5.0	5.0	5.0
RPD		1	1	2	0
% Extraction Accuracy		109	101	99	108
% Instrument Accuracy		100	101	102	101

METHODS: EPA SW 846-6010B, 3005A
CHEMIST: RR
TOTAL SPIKE: 1,000 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.
TOTAL CV: 20 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich

01/17/00
Date

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E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING CO.
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

January 17, 2000
Receiving Date: 01/06/00
Sample Type: Water
Project #: N/A
Project Location: N/A

Analysis Date: 01/14/00
Sampling Date: 01/05/00
Sample Condition: I & C
Sample Received by: VW
Project Name: Injection Wells

TA#	Field Code	REACTIVITY	SULFIDES (ppm)	CYANIDES (ppm)	CORROSIVITY (mm/yr)	pH (s.u.)	FLASHPOINT (F)
	EPA LIMIT =	---	500	250	>6.5 mm/yr	<2 >12.5	>140 F
T138278	Injection Wells	Non-reactive	<10	<2.5	Non 0.40 mm/yr	8.16	>150 Non-Ignitable
RPD		0	0	0	0	0	0
% Extraction Accuracy		100	100	100	100	100	100
% Instrument Accuracy		---	---	---	---	---	---

METHODS: EPA SW 846-Chapter 7 7.3, Chapter 7 7.2, Chapter 7 7.1.
CHEMIST: JM

Director, Dr. Blair Leftwich

01/17/00
Date

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E-Mail: lab@traceanalysis.com

January 14, 2000
Receiving Date: 01/06/2000
Sample Type: Water
Project No: NA
Project Location: NA

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

Sampling Date: 01/05/2000
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Injection Wells

TOTAL METALS (mg/L)

TA#	Field Code	Ag	As	Ba	Cd	Cr	Pb	Se	Hg
T138278	Injection Wells	<0.05	0.19	<0.10	<0.02	<0.05	<0.10	0.27	<0.0002
ICV		0.21	0.98	0.94	0.94	0.94	0.94	0.98	0.00104
CCV		0.19	0.94	0.94	0.94	0.92	0.94	0.94	0.00107
Reporting Limit		0.05	0.10	0.10	0.02	0.05	0.10	0.10	0.0002
RPD		4	3	3	1	1	2	3	7
% Extraction Accuracy		73	89	86	83	86	83	88	85
% Instrument Accuracy		100	96	94	94	93	94	96	106
PREP DATE		01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/13/2000
ANALYSIS DATE		01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/13/2000

CHEMIST: As, Se, Cd, Cr, Pb, Ag, Ba: RR Hg: BP
METHODS: EPA SW 846-3010A, 6010B, 7470A.
TOTAL METALS SPIKE: 0.40 mg/L Ag; 2.0 mg/L As, Ba, Cd, Cr, Pb, Se; 0.0010 mg/L Hg.
TOTAL METALS CV: 0.20 mg/L Ag; 1.0 mg/L As, Ba, Cd, Cr, Pb, Se; 0.0010 mg/L Hg.

Director, Dr. Blair Leftwich

01/17/00
Date

TRACEANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 1/19/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00010608

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
138278	Injection Wells	Water	1/5/00	9:45	1/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 2 of 15
N/A Injection Wells N/A

Analytical Results Report

Sample Number: 138278
Description: Injection Wells

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
8260 (µg/L)										
Dichlorodifluoromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromomethane		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Chloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Trichlorofluoromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Methylene chloride		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
MTBE		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,2-Dichloroethene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,2-dichloroethene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2,2-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloroethane (EDC)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1-Trichloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Carbon Tetrachloride		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromomethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromodichloromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,3-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,3-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,2-Trichloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromochloromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dibromoethane (EDB)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Tetrachloroethene (PCE)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1,2-Tetrachloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
m,p-Xylene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromoform		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Styrene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
o-Xylene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Isopropylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2-Chlorotoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Propylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
4-Chlorotoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3,5-Trimethylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
tert-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trimethylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,4-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
sec-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
p-Isopropyltoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichlorobenzene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Naphthalene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trichlorobenzene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
1,2-Dibromo-3-chloropropane		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Hexachlorobutadiene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 3 of 15

N/A Injection Wells N/A

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
Dibromofluoromethane	50.71	1	50	101	83 - 121	JG	PB00190	QC00251	
Toluene-d8	51.32	1	50	103	91 - 108	JG	PB00190	QC00251	
4-Bromofluorobenzene	47.70	1	50	95	80 - 120	JG	PB00190	QC00251	
8270 (mg/L)									
Pyridine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosodimethylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Picoline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Methyl methanesulfonate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Ethyl methanesulfonate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Aniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroethyl) ether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Chlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,3-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,4-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzyl alcohol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroisopropyl) ether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Methylphenol/3-Methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acetophenone	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosodi-n-propylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachloroethane	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Nitrobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosopiperidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Isophorone	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Nitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dimethylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroethoxy) methane	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzoic acid	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2,4-Trichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
a,a-Dimethylphenethylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Naphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chloroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,6-Dichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorobutadiene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitroso-di-n-butylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chloro-3-methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Methylnaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Methylnaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2,4,5-Tetrachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorocyclopentadiene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4,6-Trichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4,5-Trichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Chloronaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Chloronaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dimethylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acenaphthylene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,6-Dinitrotoluene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acenaphthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 4 of 15

N/A Injection Wells N/A

2,4-Dinitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzofuran	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Nitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Napthylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dinitrotoluene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Napthylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,3,4,6-Tetrachlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Fluorene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diethylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chlorophenyl-phenylether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4,6-Dinitro-2-methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diphenylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diphenylhydrazine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Bromophenyl-phenylether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenacetin	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Aminobiphenyl	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachloronitrobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pronamide	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenanthrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Di-n-butylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
p-Dimethylaminoazobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Butylbenzylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(a)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3,3-Dichlorobenzidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Chrysene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Bis (2-ethylhexyl) phthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Di-n-octylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(b)fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
7,12-Dimethylbenz(a)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(k)fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(a)pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3-Methylcholanthrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzo(a,j)acridine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Indeno(1,2,3-cd)pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzo(a,h)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(g,h,i)perylene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005

Surrogate (mg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
2-Fluorophenol	34.11	1	80	43	9 - 71	MA	PB00185	QC00333	
Phenol-d5	30.32	1	80	38	4 - 64	MA	PB00185	QC00333	
Nitrobenzene-d5	54.02	1	80	68	44 - 109	MA	PB00185	QC00333	
2-Fluorobiphenyl	51.81	1	80	65	47 - 108	MA	PB00185	QC00333	
2,4,6-Tribromophenol	44.98	1	80	56	51 - 128	MA	PB00185	QC00333	
Terphenyl-d14	66.88	1	80	84	58 - 115	MA	PB00185	QC00333	
Alkalinity (mg/L as CaCo3)									
Hydroxide Alkalinity	<1.0	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Carbonate Alkalinity	<1.0	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 5 of 15

N/A Injection Wells N/A

Bicarbonate Alkalinity		320	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Total Alkalinity		320	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Conductivity (uMHOS/cm)										
Specific Conductance		4982	1	SM 2510B	1/11/00	1/11/00	MF	PB00232	QC00304	
Ion Chromatography (IC) (mg/L)										
CL		920	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.5
Fluoride		27	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.1
Nitrate-N		2.6	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.2
Sulfate		700	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.5
pH (s.u.)										
pH	*	8.2	1	E 150.1	1/6/00	1/6/00	RS	PB00253	QC00327	1
TDS (mg/L)										
Total Dissolved Solids		2300	1	E 160.1	1/11/00	1/12/00	JS	PB00238	QC00311	10

* pH - Out of holding time.

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dichlorodifluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromomethane (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Chloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Trichlorofluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Methylene chloride (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
MTBE (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,2-Dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,2-dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Carbon Tetrachloride (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromomethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromodichloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,2-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromochloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Tetrachloroethene (PCE) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
m,p-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromoform (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Styrene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
o-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Isopropylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Propylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
4-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3,5-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
tert-Butylbenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2,4-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,4-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
sec-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,3-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
p-Isopropyltoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichlorobenzene (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Naphthalene (µg/L)		<2	2	1/6/00	PB00190	QC00251

1,2,4-Trichlorobenzene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
Hexachlorobutadiene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	50.11	50	100	83 - 121	QC00251
Toluene-d8 (µg/L)	52.65	50	105	91 - 108	QC00251
4-Bromofluorobenzene (µg/L)	46.07	50	92	80 - 120	QC00251

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Pyridine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosodimethylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Picoline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Methyl methanesulfonate (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Ethyl methanesulfonate (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Phenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Aniline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroethyl) ether (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Chlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,3-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,4-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Benzyl alcohol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroisopropyl) ether (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Methylphenol/3-Methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Acetophenone (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosodi-n-propylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachloroethane (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Nitrobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosopiperidine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Isophorone (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Nitrophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dimethylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroethoxy) methane (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Benzoic acid (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2,4-Trichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
a,a-Dimethylphenethylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Naphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Chloroaniline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,6-Dichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorobutadiene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitroso-di-n-butylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Chloro-3-methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1-Methylnaphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Methylnaphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2,4,5-Tetrachlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorocyclopentadiene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4,6-Trichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333

Report Date: 1/19/00	Order ID Number: A00010608			Page Number: 8 of 15	
N/A	Injection Wells				N/A
2,4,5-Trichlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Chloronaphthalene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
1-Chloronaphthalene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dimethylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Acenaphthylene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,6-Dinitrotoluene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Acenaphthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dinitrophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dibenzofuran (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachlorobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Nitrophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
1-Napthylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dinitrotoluene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Napthylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,3,4,6-Tetrachlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Fluorene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diethylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Chlorophenyl-phenylether (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4,6-Dinitro-2-methylphenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diphenylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diphenylhydrazine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Bromophenyl-phenylether (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Phenacetin (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Aminobiphenyl (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachloronitrobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pronamide (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Phenanthrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Di-n-butylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzidine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
p-Dimethylaminoazobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Butylbenzylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(a)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3,3-Dichlorobenzidine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Chrysene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Bis (2-ethylhexyl) phthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Di-n-octylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(b)fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
7,12-Dimethylbenz(a)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(k)fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(a)pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3-Methylcholanthrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dibenzo(a,j)acridine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Indeno(1,2,3-cd)pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333

Dibenzo(a,h)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(g,h,i)perylene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
2-Fluorophenol (mg/L)	35.26	80	44	9 - 71	QC00333
Phenol-d5 (mg/L)	22.41	80	28	4 - 64	QC00333
Nitrobenzene-d5 (mg/L)	59.32	80	74	44 - 109	QC00333
2-Fluorobiphenyl (mg/L)	63.26	80	79	47 - 108	QC00333
2,4,6-Tribromophenol (mg/L)	58.13	80	73	51 - 128	QC00333
Terphenyl-d14 (mg/L)	67.36	80	84	58 - 115	QC00333

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Hydroxide Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Carbonate Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Bicarbonate Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Total Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Specific Conductance (uMHOS/cm)		6.7		1/11/00	PB00232	QC00304

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL (mg/L)		<0.5	0.5	1/6/00	PB00196	QC00257
Fluoride (mg/L)		<0.1	0.1	1/6/00	PB00196	QC00257
Nitrate-N (mg/L)		<0.2	0.2	1/6/00	PB00196	QC00257
Sulfate (mg/L)		<0.5	0.5	1/6/00	PB00196	QC00257

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Dissolved Solids (mg/L)		<10	10	1/12/00	PB00238	QC00311

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param		Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	*	920	1	1250	2060.31	91		80 - 120	0 - 20	QC00257
MS	Fluoride (mg/L)	*	27	1	250	253.06	90		80 - 120	0 - 20	QC00257
MS	Nitrate-N (mg/L)	*	2.6	1	500	477.41	95		80 - 120	0 - 20	QC00257
MS	Sulfate (mg/L)	*	700	1	1250	1935.14	99		80 - 120	0 - 20	QC00257

* CL - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 92.
* Fluoride - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 89.
* Nitrate-N - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 95.
* Sulfate - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 98.

Standard	Param		Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MSD	CL (mg/L)	*	920	1	1250	2061.14	91	0	80 - 120	0 - 20	QC00257
MSD	Fluoride (mg/L)	*	27	1	250	255.32	91	1	80 - 120	0 - 20	QC00257
MSD	Nitrate-N (mg/L)	*	2.6	1	500	482.88	96	1	80 - 120	0 - 20	QC00257
MSD	Sulfate (mg/L)	*	700	1	1250	1969.34	102	3	80 - 120	0 - 20	QC00257

* CL - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 92.
* Fluoride - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 89.
* Nitrate-N - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 95.
* Sulfate - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 98.

Quality Control Report
Duplicates

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydroxide Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC00275
Duplicate	Carbonate Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC00275
Duplicate	Bicarbonate Alkalinity (mg/L as CaC		330	320	1	3	0 - 20	QC00275
Duplicate	Total Alkalinity (mg/L as CaCo3)		330	320	1	3	0 - 20	QC00275

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Specific Conductance (uMHOS/cm)		966	978	1	1	0 - 20	QC00304

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	pH (s.u.)		7.4	7.4	1	0	0 - 20	QC00327

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 11 of 15

N/A Injection Wells N/A

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Total Dissolved Solids (mg/L)		1870	1800	1	4	0 - 20	QC00311

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	1,1-Dichloroethene (ug/L)		1	100	88	88		77 - 136	0 - 20	QC00251
LCS	Benzene (ug/L)		1	100	95	95		71 - 120	0 - 20	QC00251
LCS	Trichloroethene (TCE) (ug/L)		1	100	90	90		84 - 109	0 - 20	QC00251
LCS	Toluene (ug/L)		1	100	94	94		74 - 113	0 - 20	QC00251
LCS	Chlorobenzene (ug/L)		1	100	95	95		79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	Dibromofluoromethane (µg/L)	1	50	50.97	102	83 - 121	QC00251
LCS	Toluene-d8 (µg/L)	1	50	51.40	103	91 - 108	QC00251
LCS	4-Bromofluorobenzene (µg/L)	1	50	45.29	91	80 - 120	QC00251

LCSD	1,1-Dichloroethene (ug/L)		1	100	86	86	2	77 - 136	0 - 20	QC00251
LCSD	Benzene (ug/L)		1	100	95	95	0	71 - 120	0 - 20	QC00251
LCSD	Trichloroethene (TCE) (ug/L)		1	100	89	89	1	84 - 109	0 - 20	QC00251
LCSD	Toluene (ug/L)		1	100	94	94	0	74 - 113	0 - 20	QC00251
LCSD	Chlorobenzene (ug/L)		1	100	94	94	1	79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	Dibromofluoromethane (µg/L)	1	50	49.67	99	83 - 121	QC00251
LCSD	Toluene-d8 (µg/L)	1	50	51.67	103	91 - 108	QC00251
LCSD	4-Bromofluorobenzene (µg/L)	1	50	44.87	90	80 - 120	QC00251

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Phenol (mg/L)	<0.005	1	80	22.818	29		5 - 112	0 - 20	QC00333
LCS	2-Chlorophenol (mg/L)	<0.005	1	80	55.548	69		28 - 110	0 - 20	QC00333
LCS	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	50.523	63		27 - 94	0 - 20	QC00333
LCS	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	66.130	83		Det - 230	0 - 20	QC00333
LCS	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	53.798	67		31 - 109	0 - 20	QC00333
LCS	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	52.521	66		41 - 126	0 - 20	QC00333
LCS	Acenaphthene (mg/L)	<0.005	1	80	63.740	80		46 - 118	0 - 20	QC00333
LCS	4-Nitrophenol (mg/L)	<0.005	1	80	17.704	22		0 - 70	0 - 20	QC00333
LCS	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	62.222	78		50 - 132	0 - 20	QC00333
LCS	Pentachlorophenol (mg/L)	<0.005	1	80	42.948	54		1 - 150	0 - 20	QC00333
LCS	Pyrene (mg/L)	<0.005	1	80	66.491	83		49 - 122	0 - 20	QC00333

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	2-Fluorophenol (mg/L)	1	80	36.50	46	9 - 71	QC00333
LCS	Phenol-d5 (mg/L)	1	80	24.31	30	4 - 64	QC00333
LCS	Nitrobenzene-d5 (mg/L)	1	80	63.52	79	44 - 109	QC00333
LCS	2-Fluorobiphenyl (mg/L)	1	80	63.34	79	47 - 108	QC00333
LCS	2,4,6-Tribromophenol (mg/L)	1	80	63.27	79	51 - 128	QC00333
LCS	Terphenyl-d14 (mg/L)	1	80	63.55	79	58 - 115	QC00333

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 13 of 15

N/A Injection Wells N/A

LCSD	Phenol (mg/L)	<0.005	1	80	22.026	28	4	2 - 55	0 - 20	QC00333
LCSD	2-Chlorophenol (mg/L)	<0.005	1	80	52.863	66	5	28 - 110	0 - 20	QC00333
LCSD	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	48.069	60	5	27 - 94	0 - 20	QC00333
LCSD	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	64.392	80	3	Det - 230	0 - 20	QC00333
LCSD	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	52.282	65	3	31 - 109	0 - 20	QC00333
LCSD	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	54.382	68	3	41 - 126	0 - 20	QC00333
LCSD	Acenaphthene (mg/L)	<0.005	1	80	62.427	78	2	46 - 118	0 - 20	QC00333
LCSD	4-Nitrophenol (mg/L)	<0.005	1	80	18.749	23	6	0 - 70	0 - 20	QC00333
LCSD	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	64.415	81	3	50 - 132	0 - 20	QC00333
LCSD	Pentachlorophenol (mg/L)	<0.005	1	80	43.506	54	1	1 - 150	0 - 20	QC00333
LCSD	Pyrene (mg/L)	<0.005	1	80	69.022	86	4	49 - 122	0 - 20	QC00333

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	2-Fluorophenol (mg/L)	1	80	34.57	43	9 - 71	QC00333
LCSD	Phenol-d5 (mg/L)	1	80	23.20	29	4 - 64	QC00333
LCSD	Nitrobenzene-d5 (mg/L)	1	80	60.47	76	44 - 109	QC00333
LCSD	2-Fluorobiphenyl (mg/L)	1	80	62.00	78	47 - 108	QC00333
LCSD	2,4,6-Tribromophenol (mg/L)	1	80	66.43	83	51 - 128	QC00333
LCSD	Terphenyl-d14 (mg/L)	1	80	66.95	84	58 - 115	QC00333

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV (1	1,2-Dichloropropane (µg/L)		100	106	106	80 - 120	1/6/00	QC00251
CCV (1	Dibromofluoromethane (µg/L)		50	50.35	101	83 - 121	1/6/00	QC00251
CCV (1	Toluene-d8 (µg/L)		50	49.3	99	91 - 108	1/6/00	QC00251
CCV (1	4-Bromofluorobenzene (µg/L)		50	51.76	104	80 - 120	1/6/00	QC00251

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV (1	Phenol (mg/L)		60	60.31	101	80 - 120	1/11/00	QC00333
CCV (1	1,4-Dichlorobenzene (mg/L)		60	61.32	102	27 - 94	1/11/00	QC00333
CCV (1	2-Nitrophenol (mg/L)		60	58.50	98	80 - 120	1/11/00	QC00333
CCV (1	2,4-Dichlorophenol (mg/L)		60	57.94	97	80 - 120	1/11/00	QC00333
CCV (1	Hexachlorobutadiene (mg/L)		60	61.10	102	80 - 120	1/11/00	QC00333
CCV (1	4-Chloro-3-methylphenol (mg/L)		60	55.24	92	41 - 126	1/11/00	QC00333
CCV (1	2,4,6-Trichlorophenol (mg/L)		60	57.30	96	80 - 120	1/11/00	QC00333
CCV (1	Acenaphthene (mg/L)		60	59.46	99	46 - 118	1/11/00	QC00333
CCV (1	Diphenylamine (mg/L)		60	56.48	94	80 - 120	1/11/00	QC00333
CCV (1	Pentachlorophenol (mg/L)		60	54.86	91	1 - 150	1/11/00	QC00333
CCV (1	Fluoranthene (mg/L)		60	59.83	100	80 - 120	1/11/00	QC00333
CCV (1	Di-n-octylphthalate (mg/L)		60	56.06	93	80 - 120	1/11/00	QC00333
CCV (1	Benzo(a)pyrene (mg/L)		60	58.81	98	80 - 120	1/11/00	QC00333

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	1/10/00	QC00275
ICV	Carbonate Alkalinity (mg/L as CaCo3)		0	2280	0	80 - 120	1/10/00	QC00275
ICV	Bicarbonate Alkalinity (mg/L as CaCo3)		0	40	0	80 - 120	1/10/00	QC00275
ICV	Total Alkalinity (mg/L as CaCo3)		2400	2320	97	80 - 120	1/10/00	QC00275
CCV (1	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	1/10/00	QC00275
CCV (1	Carbonate Alkalinity (mg/L as CaCo3)		0	2120	0	80 - 120	1/10/00	QC00275
CCV (1	Bicarbonate Alkalinity (mg/L as CaCo3)		0	80	0	80 - 120	1/10/00	QC00275
CCV (1	Total Alkalinity (mg/L as CaCo3)		2400	2200	92	80 - 120	1/10/00	QC00275

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Specific Conductance (uMHOS/cm)		1413	1351	96	80 - 120	1/11/00	QC00304
CCV (1	Specific Conductance (uMHOS/cm)		1413	1347	95	80 - 120	1/11/00	QC00304

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.37	91	80 - 120	1/6/00	QC00257
ICV	Fluoride (mg/L)		2.5	2.28	91	80 - 120	1/6/00	QC00257
ICV	Nitrate-N (mg/L)		5	4.59	92	80 - 120	1/6/00	QC00257
ICV	Sulfate (mg/L)		12.5	12.51	100	80 - 120	1/6/00	QC00257
CCV (1	CL (mg/L)		12.5	11.37	91	80 - 120	1/6/00	QC00257
CCV (1	Fluoride (mg/L)		2.5	2.26	90	80 - 120	1/6/00	QC00257
CCV (1	Nitrate-N (mg/L)		5	4.51	90	80 - 120	1/6/00	QC00257
CCV (1	Sulfate (mg/L)		12.5	12.64	101	80 - 120	1/6/00	QC00257

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	pH (s.u.)		7	7.0	100	80 - 120	1/6/00	QC00327
CCV (1	pH (s.u.)		7	7.0	100	80 - 120	1/6/00	QC00327

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Dissolved Solids (mg/L)		1000	965	97	80 - 120	1/12/00	QC00311
CCV (1	Total Dissolved Solids (mg/L)		1000	968	97	80 - 120	1/12/00	QC00311

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID #: A000106008

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) PO BOX 159
Fax #: 505 748 9077
Contact Person: Charlie Plymale
Invoice to: (If different from above)
Project #:
Project Name: Inj Wells
Project Location:
Sampler Signature: Charlie Plymale

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME
138278	Inj WELLS	2	40ml	X				X		X		1/5/00	9:45
	"	1	1L	X					X	X		1/5/00	9:45
	"	1	1L	X							X	1/5/00	9:45
	"	1	250ml	X							X	1/5/00	9:45

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC-MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Turn Around Time if different from standard	Hold
			See Attachment													

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Plymale	1/5/00	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Wonde	Date: 1-6-00	Time: 10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

LAB USE ONLY
Intact (Y) N
Headspace Y / N
Temp -1 °
Log-in Review MB

REMARKS:
F 1-18-00
1-20-00

Carrier # Fed Ex 272626946 3

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Page 1451 of 5828
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TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 2/7/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00010608

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
138278	Injection Wells	Water	1/5/00	9:45	1/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 5 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

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TELEPHONE
(505) 748-3311

Navajo REFINING COMPANY
501 EAST MAIN STREET • P. O. DRAWER 159
ARTESIA, NEW MEXICO 88210

EASYLINK
62905278
FAX
(505) 746-6410

FAX NUMBERS:

ACCOUNTING OFFICES:	505/746-6410	MARKETING OFFICES:	505/746-6155
REFINING/ENGINEERING:	505/748-9077	PIPELINE DIVISION:	505/746-4438

PLEASE DELIVER 6 PAGES, INCLUDING THIS COVER SHEET

TO: Wayne Price PHONE: _____

COMPANY/DEPARTMENT: OCD

MESSAGE: Wayne, here is the volatile analysis

FROM: Darrell Moore DATE: 3/16/00

If you do not receive all pages, please call _____ at 505/748-3311, ext. _____.

NOTE: Unless otherwise indicated or obvious from the nature of the transmittal, the information contained in this facsimile message is privileged and confidential information intended for the use of the individual or entity named above. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error or are not sure whether it is privileged, please immediately notify us by telephone, and return the original message to us at the above address via the U. S. Postal Service. Thank you.

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Report Date: 2/7/00 Order ID Number: A00010608 Page Number: 2 of 5
N/A Injection Wells N/A

Analytical Results Report

Sample Number: 138278
Description: Injection Wells

Param	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
8260 (µg/L)									
Dichlorodifluoromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromomethane	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Chloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Trichlorofluoromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Methylene chloride	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
MTBE	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,2-Dichloroethene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,2-dichloroethene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2,2-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloroethane (EDC)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1-Trichloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Carbon Tetrachloride	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Benzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromomethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromodichloromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,3-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,3-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,2-Trichloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromochloromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dibromoethane (EDB)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Tetrachloroethene (PCE)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1,2-Tetrachloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
m,p-Xylene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromoform	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Styrene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
o-Xylene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Isopropylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2-Chlorotoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Propylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
4-Chlorotoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3,5-Trimethylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
tert-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trimethylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,4-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
sec-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
p-Isopropyltoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichlorobenzene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Naphthalene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trichlorobenzene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
1,2-Dibromo-3-chloropropane	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

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Page 1453 of 5828

Report Date: 2/7/00	Order ID Number: A00010608	Page Number: 3 of 5
N/A	Injection Wells	N/A

Hexachlorobutadiene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #
Dibromofluoromethane	50.71	1	50	101	69 - 121	JG	PB00190	QC00251
Toluene-d8	51.32	1	50	103	91 - 108	JG	PB00190	QC00251
4-Bromofluorobenzene	47.70	1	50	95	80 - 120	JG	PB00190	QC00251

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Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dichlorodifluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromomethane (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Chloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Trichlorofluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Methylene chloride (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
MTBE (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,2-Dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,2-dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Carbon Tetrachloride (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromomethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromodichloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,2-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromochloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Tetrachloroethene (PCE) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
m,p-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromoform (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Styrene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
o-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Isopropylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Propylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
4-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3,5-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
tert-Butylbenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2,4-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,4-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
sec-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,3-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
p-Isopropyltoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichlorobenzene (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Naphthalene (µg/L)		<2	2	1/6/00	PB00190	QC00251

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Report Date: 2/7/00	Order ID Number: A00010608			Page Number: 5 of 5	
N/A	Injection Wells				N/A
1,2,4-Trichlorobenzene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
Hexachlorobutadiene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	50.11	50	100	69 - 121	QC00251
Toluene-d8 (µg/L)	52.65	50	105	91 - 108	QC00251
4-Bromofluorobenzene (µg/L)	46.07	50	92	80 - 120	QC00251

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	1,1-Dichloroethene (ug/L)		1	100	88	88		77 - 136	0 - 20	QC00251
LCS	Benzene (ug/L)		1	100	95	95		71 - 120	0 - 20	QC00251
LCS	Trichloroethene (TCE) (ug/L)		1	100	90	90		84 - 109	0 - 20	QC00251
LCS	Toluene (ug/L)		1	100	94	94		74 - 113	0 - 20	QC00251
LCS	Chlorobenzene (ug/L)		1	100	95	95		79 - 112	0 - 20	QC00251
Standard	Surrogate		Dil.	Spike Amount	Result	% Rec.		% Rec. Limit		QC Batch #
LCS	Dibromofluoromethane (µg/L)		1	50	50.97	102		69 - 121		QC00251
LCS	Toluene-d8 (µg/L)		1	50	51.40	103		91 - 108		QC00251
LCS	4-Bromofluorobenzene (µg/L)		1	50	45.29	91		80 - 120		QC00251
LCSD	1,1-Dichloroethene (ug/L)		1	100	86	86	2	77 - 136	0 - 20	QC00251
LCSD	Benzene (ug/L)		1	100	95	95	0	71 - 120	0 - 20	QC00251
LCSD	Trichloroethene (TCE) (ug/L)		1	100	89	89	1	84 - 109	0 - 20	QC00251
LCSD	Toluene (ug/L)		1	100	94	94	0	74 - 113	0 - 20	QC00251
LCSD	Chlorobenzene (ug/L)		1	100	94	94	1	79 - 112	0 - 20	QC00251
Standard	Surrogate		Dil.	Spike Amount	Result	% Rec.		% Rec. Limit		QC Batch #
LCSD	Dibromofluoromethane (µg/L)		1	50	49.67	99		69 - 121		QC00251
LCSD	Toluene-d8 (µg/L)		1	50	51.67	103		91 - 108		QC00251
LCSD	4-Bromofluorobenzene (µg/L)		1	50	44.87	90		80 - 120		QC00251

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	1,2-Dichloropropane (µg/L)		100	106	106	80 - 120	1/6/00	QC00251
CCV 1	Dibromofluoromethane (µg/L)		50	50.35	101	83 - 121	1/6/00	QC00251
CCV 1	Toluene-d8 (µg/L)		50	49.3	99	91 - 108	1/6/00	QC00251
CCV 1	4-Bromofluorobenzene (µg/L)		50	51.76	104	80 - 120	1/6/00	QC00251

QUARTERLY INJECTION REPORTS

HOLLYFRONTIER.

NOV 08 2019 PM02:41

November 4, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7018 1130 0000 9712 6718

RE: 2019 3rd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4 HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the third quarter 2019 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for each well was 1150 psig for WDW-1, 1174 psig for WDW-2, 1033 psig for WDW-3 and 106 psig for WDW-4.The average flows were 125 gpm for WDW-1, 52 gpm for WDW-2, 65 gpm for WDW-3 and 263 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from July 1, 2019 to September 30, 2019. Navajo has disposed a total of 1,596,583 barrels of fluid into the four wells during the third quarter of 2019. The volume per well is:

- 395,417 barrels into WDW-1; 30-015-27592
- 163,132 barrels into WDW-2; 30-015-20894
- 206,606 barrels into WDW-3; 30-015-26575
- 831,428 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

Page 1460 of 5828

NOV 08 2019 PM02:41

2019 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1											**Previous Quar**	44,268,701
Jul-19	1,219	131	147	113	438	606	271	139,234	156,240	120,103	**139,234**	44,407,935
Aug-19	1,099	122	151	95	273	487	104	129,669	160,491	100,971	**129,669**	44,537,604
Sep-19	1,133	123	144	105	397	518	193	126,514	148,114	108,000	**126,514**	44,664,118
Monthly Avg	1,150	125								**TOTAL**	395,417	
30-015-20894 WDW-2											**Previous Quar**	28,200,783
Jul-19	1,224	57	69	0	397	501	325	60,583	73,337	0	**60,583**	28,261,366
Aug-19	1,160	51	77	23	631	1,040	360	54,206	81,840	24,446	**54,206**	28,315,572
Sep-19	1,137	47	63	32	372	418	300	48,343	64,800	32,914	**48,343**	28,363,915
Monthly Avg	1,174	52								**TOTAL**	163,132	
30-015-26575 WDW-3											**Previous Quar**	19,829,843
Jul-19	1,045	69	106	40	383	555	250	73,337	112,663	42,514	**73,337**	19,903,180
Aug-19	1,062	77	109	0	394	593	218	81,840	115,851	0	**81,840**	19,985,020
Sep-19	993	50	112	5	397	515	300	51,429	115,200	5,143	**51,429**	20,036,449
Monthly Avg	1,033	65								**TOTAL**	206,606	
30-015-44677 WDW-4											**Previous Quar**	1,449,086
Jul-19	102	256	317	109	163	237	90	272,091	336,926	115,851	**272,091**	1,721,177
Aug-19	115	294	344	164	178	248	102	312,480	365,623	174,309	**312,480**	2,033,657
Sep-19	101	240	326	177	172	254	100	246,857	335,314	182,057	**246,857**	2,280,514
Monthly Avg	106	263								**TOTAL**	831,428	

	Q3 Disposal bbls	Max Flow gpm
WDW-1	395,417	147
WDW-2	163,132	70
WDW-3	206,606	109
WDW-4	831,428	329

	Total BBLS	Beginning Volume	Ending Volume
WDW1	395,417	44,268,701	44,664,118
WDW2	163,132	28,200,783	28,363,915
WDW3	206,606	19,829,843	20,036,449
WDW4	831,428	1,449,086	2,280,514
	1,596,583	93,748,413	

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 01, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1910144

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/2/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1910144**
Date: **11/1/2019**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Analytical Notes Regarding EPA Method 8270:
The recovery of pyridine in the LCS was low when compared to our SOP limits.

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1910144-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/30/2019 4:05:00 PM
Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **CJS**
Fluoride	31	2.0	*	mg/L	20	10/3/2019 11:52:11 PM
Chloride	430	25	*	mg/L	50	10/14/2019 2:16:22 PM
Bromide	ND	0.50		mg/L	5	10/3/2019 11:39:50 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	10/3/2019 11:39:50 PM
Sulfate	1700	25	*	mg/L	50	10/14/2019 2:16:22 PM
Nitrate+Nitrite as N	1.2	1.0		mg/L	5	10/4/2019 12:16:52 AM
EPA METHOD 7470: MERCURY						Analyst: **rde**
Mercury	ND	0.020		mg/L	1	10/4/2019 3:15:56 PM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: **rde**
Calcium	340	10		mg/L	10	10/30/2019 1:32:00 PM
Magnesium	110	10		mg/L	10	10/30/2019 1:32:00 PM
Potassium	100	10		mg/L	10	10/30/2019 1:32:00 PM
Sodium	570	10		mg/L	10	10/30/2019 1:32:00 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **bcv**
Arsenic	ND	5.0		mg/L	5	10/21/2019 2:24:21 PM
Barium	ND	100		mg/L	5	10/14/2019 11:43:53 AM
Cadmium	ND	1.0		mg/L	5	10/14/2019 11:43:53 AM
Chromium	ND	5.0		mg/L	5	10/14/2019 11:43:53 AM
Lead	ND	5.0		mg/L	5	10/21/2019 2:24:21 PM
Selenium	ND	1.0		mg/L	5	10/14/2019 11:43:53 AM
Silver	ND	5.0		mg/L	5	10/14/2019 11:43:53 AM
EPA METHOD 8270C TCLP						Analyst: **DAM**
2-Methylphenol	ND	200		mg/L	1	10/14/2019 6:38:07 PM
3+4-Methylphenol	ND	200		mg/L	1	10/14/2019 6:38:07 PM
2,4-Dinitrotoluene	ND	0.13		mg/L	1	10/14/2019 6:38:07 PM
Hexachlorobenzene	ND	0.13		mg/L	1	10/14/2019 6:38:07 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	10/14/2019 6:38:07 PM
Hexachloroethane	ND	3.0		mg/L	1	10/14/2019 6:38:07 PM
Nitrobenzene	ND	2.0		mg/L	1	10/14/2019 6:38:07 PM
Pentachlorophenol	ND	100		mg/L	1	10/14/2019 6:38:07 PM
Pyridine	ND	5.0		mg/L	1	10/14/2019 6:38:07 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	10/14/2019 6:38:07 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	10/14/2019 6:38:07 PM
Cresols, Total	ND	200		mg/L	1	10/14/2019 6:38:07 PM
Surr: 2-Fluorophenol	42.6	15-82.5		%Rec	1	10/14/2019 6:38:07 PM
Surr: Phenol-d5	34.0	15-74.2		%Rec	1	10/14/2019 6:38:07 PM
Surr: 2,4,6-Tribromophenol	51.3	18.6-118		%Rec	1	10/14/2019 6:38:07 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1910144-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/30/2019 4:05:00 PM
Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C TCLP						Analyst: **DAM**
Surr: Nitrobenzene-d5	64.8	30.4-106		%Rec	1	10/14/2019 6:38:07 PM
Surr: 2-Fluorobiphenyl	53.0	15-104		%Rec	1	10/14/2019 6:38:07 PM
Surr: 4-Terphenyl-d14	61.1	15-133		%Rec	1	10/14/2019 6:38:07 PM
NOTES: * See the case narrative for notes.						
TCLP VOLATILES BY 8260B						Analyst: **JMR**
Benzene	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
2-Butanone	ND	200		mg/L	1	10/4/2019 4:16:04 AM
Carbon Tetrachloride	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
Chloroform	ND	6.0		mg/L	1	10/4/2019 4:16:04 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	10/4/2019 4:16:04 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	10/4/2019 4:16:04 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	10/4/2019 4:16:04 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
Vinyl chloride	ND	0.20		mg/L	1	10/4/2019 4:16:04 AM
Chlorobenzene	ND	100		mg/L	1	10/4/2019 4:16:04 AM
Surr: 1,2-Dichloroethane-d4	88.0	70-130		%Rec	1	10/4/2019 4:16:04 AM
Surr: 4-Bromofluorobenzene	93.4	70-130		%Rec	1	10/4/2019 4:16:04 AM
Surr: Dibromofluoromethane	98.6	70-130		%Rec	1	10/4/2019 4:16:04 AM
Surr: Toluene-d8	104	70-130		%Rec	1	10/4/2019 4:16:04 AM
CORROSIVITY						Analyst: **PAC**
pH	7.69			su	1	10/6/2019
IGNITABILITY METHOD 1010						Analyst: **PAC**
Ignitability	>170			°F	1	10/14/2019
OXIDATION REDUCTION POTENTIAL						Analyst: **PAC**
Oxidation-Reduction Potential	190			mV	1	10/6/2019
CYANIDE, REACTIVE						Analyst: **PAC**
Cyanide, Reactive	0.0927	0.00500		mg/L	1	10/15/2019
SULFIDE, REACTIVE						Analyst: **PAC**
Reactive Sulfide	ND	0.050		mg/L	1	10/7/2019
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5100	5.0		µmhos/c	1	10/7/2019 11:56:48 AM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	408.2	20.00		mg/L Ca	1	10/3/2019 5:57:44 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 9/30/2019 4:05:00 PM
Lab ID: 1910144-001 **Matrix:** AQUEOUS **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2320B: ALKALINITY						Analyst: **JRR**
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	10/3/2019 5:57:44 PM
Total Alkalinity (as CaCO3)	408.2	20.00		mg/L Ca	1	10/3/2019 5:57:44 PM
SPECIFIC GRAVITY						Analyst: **JRR**
Specific Gravity	1.000	0			1	10/10/2019 12:45:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3520	40.0	*D	mg/L	1	10/7/2019 2:22:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1910144-002 **Matrix:** TRIP BLANK **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TCLP VOLATILES BY 8260B						Analyst: **JMR**
Benzene	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
2-Butanone	ND	200		mg/L	1	10/4/2019 5:42:29 AM
Carbon Tetrachloride	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
Chloroform	ND	6.0		mg/L	1	10/4/2019 5:42:29 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	10/4/2019 5:42:29 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	10/4/2019 5:42:29 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	10/4/2019 5:42:29 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
Vinyl chloride	ND	0.20		mg/L	1	10/4/2019 5:42:29 AM
Chlorobenzene	ND	100		mg/L	1	10/4/2019 5:42:29 AM
Surr: 1,2-Dichloroethane-d4	91.6	70-130		%Rec	1	10/4/2019 5:42:29 AM
Surr: 4-Bromofluorobenzene	93.8	70-130		%Rec	1	10/4/2019 5:42:29 AM
Surr: Dibromofluoromethane	100	70-130		%Rec	1	10/4/2019 5:42:29 AM
Surr: Toluene-d8	101	70-130		%Rec	1	10/4/2019 5:42:29 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R63431**	RunNo: **63431**
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166069** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R63431**	RunNo: **63431**
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166070** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	108	90	110			
Bromide	2.5	0.10	2.500	0	98.5	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.8	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.8	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R63681**	RunNo: **63681**
Prep Date:	Analysis Date: **10/14/2019**	SeqNo: **2176160** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R63681**	RunNo: **63681**
Prep Date:	Analysis Date: **10/14/2019**	SeqNo: **2176161** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	99.4	90	110			
Sulfate	10	0.50	10.00	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **TCLP Volatiles by 8260B**

Client ID: **LCSW** Batch ID: **T63413** RunNo: **63413**

Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165302** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.0	0.30	4.000	0	99.0	70	130			
1,1-Dichloroethene	3.7	0.30	4.000	0	91.8	70	130			
Trichloroethene (TCE)	3.7	0.30	4.000	0	91.3	70	130			
Chlorobenzene	4.2	0.30	4.000	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	1.8		2.000		89.9	70	130			
Surr: 4-Bromofluorobenzene	1.9		2.000		96.3	70	130			
Surr: Dibromofluoromethane	2.0		2.000		97.7	70	130			
Surr: Toluene-d8	2.1		2.000		103	70	130			

Sample ID: **1910144-001a ms** SampType: **MS** TestCode: **TCLP Volatiles by 8260B**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **T63413** RunNo: **63413**

Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.0	0.30	4.000	0.1900	95.7	70	130			
1,1-Dichloroethene	3.7	0.30	4.000	0	92.9	70	130			
Trichloroethene (TCE)	3.5	0.30	4.000	0	87.0	70	130			
Chlorobenzene	4.1	0.30	4.000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	1.8		2.000		91.0	70	130			
Surr: 4-Bromofluorobenzene	1.8		2.000		88.4	70	130			
Surr: Dibromofluoromethane	2.0		2.000		99.4	70	130			
Surr: Toluene-d8	2.1		2.000		106	70	130			

Sample ID: **1910144-001a msd** SampType: **MSD** TestCode: **TCLP Volatiles by 8260B**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **T63413** RunNo: **63413**

Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165305** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	3.9	0.30	4.000	0.1900	93.1	70	130	2.64	20	
1,1-Dichloroethene	3.6	0.30	4.000	0	89.0	70	130	4.24	20	
Trichloroethene (TCE)	3.4	0.30	4.000	0	85.3	70	130	2.00	20	
Chlorobenzene	4.0	0.30	4.000	0	100	70	130	1.70	20	
Surr: 1,2-Dichloroethane-d4	1.8		2.000		90.5	70	130	0	0	
Surr: 4-Bromofluorobenzene	1.8		2.000		91.4	70	130	0	0	
Surr: Dibromofluoromethane	2.0		2.000		99.6	70	130	0	0	
Surr: Toluene-d8	2.1		2.000		103	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**							
Client ID: **PBW**	Batch ID: **T63413**	RunNo: **63413**							
Prep Date:	Analysis Date: **10/4/2019**	SeqNo: **2165310**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	1.9		2.000		95.2	70	130			
Surr: 4-Bromofluorobenzene	1.9		2.000		93.5	70	130			
Surr: Dibromofluoromethane	2.0		2.000		99.0	70	130			
Surr: Toluene-d8	2.0		2.000		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **1910144-001bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **47936** RunNo: **63667**

Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175826** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.14	0.0010	0.1000	0	135	30.5	98.2			S
3+4-Methylphenol	0.30	0.0010	0.2000	0	149	27.4	98.6			S
2,4-Dinitrotoluene	0.14	0.0010	0.1000	0	140	34.3	87.4			S
Hexachlorobenzene	0.15	0.0010	0.1000	0	146	36.5	100			S
Hexachlorobutadiene	0.12	0.0010	0.1000	0	124	15	108			S
Hexachloroethane	0.11	0.0010	0.1000	0	113	15	90.7			S
Nitrobenzene	0.14	0.0010	0.1000	0	144	39	100			S
Pentachlorophenol	0.12	0.0010	0.1000	0	124	15	97.5			S
Pyridine	0.022	0.0010	0.1000	0	22.5	15	65.8			
2,4,5-Trichlorophenol	0.14	0.0010	0.1000	0	137	36.1	109			S
2,4,6-Trichlorophenol	0.14	0.0010	0.1000	0	138	37.8	104			S
Cresols, Total	0.43	0.0010	0.3000	0	145	27.1	99.8			S
Surr: 2-Fluorophenol	0.096		0.2000		48.0	15	82.5			
Surr: Phenol-d5	0.076		0.2000		37.9	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		67.6	18.6	118			
Surr: Nitrobenzene-d5	0.080		0.1000		79.9	30.4	106			
Surr: 2-Fluorobiphenyl	0.066		0.1000		66.3	15	104			
Surr: 4-Terphenyl-d14	0.071		0.1000		70.6	15	133			

Sample ID: **1910144-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **47936** RunNo: **63667**

Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175827** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.065	0.0010	0.1000	0	65.2	30.5	98.2	69.7	44.3	R
3+4-Methylphenol	0.13	0.0010	0.2000	0	63.1	27.4	98.6	81.2	50	R
2,4-Dinitrotoluene	0.068	0.0010	0.1000	0	67.6	34.3	87.4	69.9	45.1	R
Hexachlorobenzene	0.067	0.0010	0.1000	0	67.3	36.5	100	73.8	47.2	R
Hexachlorobutadiene	0.059	0.0010	0.1000	0	58.9	15	108	71.4	43.4	R
Hexachloroethane	0.055	0.0010	0.1000	0	54.9	15	90.7	69.6	39.2	R
Nitrobenzene	0.071	0.0010	0.1000	0	71.2	39	100	67.6	42.1	R
Pentachlorophenol	0.057	0.0010	0.1000	0	57.0	15	97.5	74.4	50	R
Pyridine	0.0028	0.0010	0.1000	0	2.80	15	65.8	156	50	RS
2,4,5-Trichlorophenol	0.070	0.0010	0.1000	0	70.0	36.1	109	65.0	49.7	R
2,4,6-Trichlorophenol	0.069	0.0010	0.1000	0	69.3	37.8	104	66.6	47	R
Cresols, Total	0.19	0.0010	0.3000	0	63.8	27.1	99.8	77.5	27.4	R
Surr: 2-Fluorophenol	0.046		0.2000		23.2	15	82.5	0	0	
Surr: Phenol-d5	0.038		0.2000		18.9	15	74.2	0	0	
Surr: 2,4,6-Tribromophenol	0.061		0.2000		30.6	18.6	118	0	0	

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **1910144-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **47936** RunNo: **63667**

Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175827** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.036		0.1000		36.4	30.4	106	0	0	
Surr: 2-Fluorobiphenyl	0.034		0.1000		33.9	15	104	0	0	
Surr: 4-Terphenyl-d14	0.031		0.1000		31.1	15	133	0	0	

Sample ID: **lcs-47936** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**

Client ID: **LCSW** Batch ID: **47936** RunNo: **63667**

Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175828** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.14	0.0010	0.1000	0	139	33.8	121			S
3+4-Methylphenol	0.33	0.0010	0.2000	0	163	33.6	109			S
2,4-Dinitrotoluene	0.14	0.0010	0.1000	0	144	50.4	124			S
Hexachlorobenzene	0.15	0.0010	0.1000	0	152	50.1	120			S
Hexachlorobutadiene	0.12	0.0010	0.1000	0	116	16.1	103			S
Hexachloroethane	0.11	0.0010	0.1000	0	112	15	94.2			S
Nitrobenzene	0.15	0.0010	0.1000	0	150	32.4	125			S
Pentachlorophenol	0.12	0.0010	0.1000	0	124	44.6	114			S
Pyridine	0.0031	0.0010	0.1000	0	3.08	15	67			S
2,4,5-Trichlorophenol	0.15	0.0010	0.1000	0	147	49.4	118			S
2,4,6-Trichlorophenol	0.16	0.0010	0.1000	0	160	50.3	116			S
Cresols, Total	0.46	0.0010	0.3000	0	155	33.8	109			S
Surr: 2-Fluorophenol	0.10		0.2000		50.0	15	82.5			
Surr: Phenol-d5	0.083		0.2000		41.6	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		67.6	18.6	118			
Surr: Nitrobenzene-d5	0.081		0.1000		81.2	30.4	106			
Surr: 2-Fluorobiphenyl	0.073		0.1000		73.2	15	104			
Surr: 4-Terphenyl-d14	0.075		0.1000		74.8	15	133			

Sample ID: **mb-47936** SampType: **MBLK** TestCode: **EPA Method 8270C TCLP**

Client ID: **PBW** Batch ID: **47936** RunNo: **63667**

Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175829** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								

Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **mb-47936**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**							
Client ID: **PBW**	Batch ID: **47936**	RunNo: **63667**							
Prep Date: **10/4/2019**	Analysis Date: **10/14/2019**	SeqNo: **2175829**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.11		0.2000		53.1	15	82.5			
Surr: Phenol-d5	0.086		0.2000		42.9	15	74.2			
Surr: 2,4,6-Tribromophenol	0.15		0.2000		73.7	18.6	118			
Surr: Nitrobenzene-d5	0.076		0.1000		75.6	30.4	106			
Surr: 2-Fluorobiphenyl	0.071		0.1000		70.9	15	104			
Surr: 4-Terphenyl-d14	0.080		0.1000		80.0	15	133			

NOTES:

*See the case narrative for notes.

Qualifiers:

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PQL	Practical Quanitative Limit
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J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **lcs-1 99.8uS eC**	SampType: **lcs**	TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW**	Batch ID: **R63466**	RunNo: **63466**
Prep Date:	Analysis Date: **10/7/2019**	SeqNo: **2168649** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	98	5.0	99.80	0	98.7	85	115			

Qualifiers:

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B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47939**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **47939**	RunNo: **63437**							
Prep Date: **10/4/2019**	Analysis Date: **10/4/2019**	SeqNo: **2166383**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-47939**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **47939**	RunNo: **63437**							
Prep Date: **10/4/2019**	Analysis Date: **10/4/2019**	SeqNo: **2166384**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.0	80	120			

Qualifiers:

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S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A64097**	RunNo: **64097**
Prep Date:	Analysis Date: **10/30/2019**	SeqNo: **2192808** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A64097**	RunNo: **64097**
Prep Date:	Analysis Date: **10/30/2019**	SeqNo: **2192809** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	52	1.0	50.00	0	104	80	120			
Magnesium	52	1.0	50.00	0	104	80	120			
Potassium	52	1.0	50.00	0	103	80	120			
Sodium	50	1.0	50.00	0	101	80	120			

Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47925**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170148** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170150** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.46	0.020	0.5000	0	92.6	80	120			
Cadmium	0.48	0.0020	0.5000	0	95.6	80	120			
Chromium	0.47	0.0060	0.5000	0	94.4	80	120			
Lead	0.48	0.0050	0.5000	0	95.5	80	120			
Selenium	0.48	0.050	0.5000	0	96.3	80	120			
Silver	0.092	0.0050	0.1000	0	92.2	80	120			

Sample ID: **MB-47925**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170241** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170243** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.47	0.020	0.5000	0	94.0	80	120			
Cadmium	0.48	0.0020	0.5000	0	96.4	80	120			
Chromium	0.48	0.0060	0.5000	0	95.2	80	120			
Selenium	0.47	0.050	0.5000	0	93.5	80	120			
Silver	0.093	0.0050	0.1000	0	93.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47925**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170263** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **47925**	RunNo: **63528**
Prep Date: **10/3/2019**	Analysis Date: **10/8/2019**	SeqNo: **2170265** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.47	0.020	0.5000	0	94.7	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.6	80	120			
Chromium	0.48	0.0060	0.5000	0	96.4	80	120			
Lead	0.48	0.0050	0.5000	0	96.6	80	120			
Selenium	0.47	0.050	0.5000	0	93.4	80	120			
Silver	0.094	0.0050	0.1000	0	93.9	80	120			

Sample ID: **MB-47925**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **47925**	RunNo: **63599**
Prep Date: **10/3/2019**	Analysis Date: **10/10/2019**	SeqNo: **2172999** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **47925**	RunNo: **63599**
Prep Date: **10/3/2019**	Analysis Date: **10/10/2019**	SeqNo: **2173001** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.45	0.020	0.5000	0	89.4	80	120			
Barium	0.45	0.020	0.5000	0	90.1	80	120			
Cadmium	0.44	0.0020	0.5000	0	88.6	80	120			
Chromium	0.44	0.0060	0.5000	0	88.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **LCS-47925**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **47925**	RunNo: **63599**
Prep Date: **10/3/2019**	Analysis Date: **10/10/2019**	SeqNo: **2173001** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.46	0.050	0.5000	0	92.1	80	120			
Silver	0.088	0.0050	0.1000	0	88.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-R63747**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R63747**	RunNo: **63747**							
Prep Date:	Analysis Date: **10/15/2019**	SeqNo: **2179127**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID: **LCS-R63747**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R63747**	RunNo: **63747**							
Prep Date:	Analysis Date: **10/15/2019**	SeqNo: **2179128**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.101		0.1000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-R63747**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R63747**	RunNo: **63747**							
Prep Date:	Analysis Date: **10/7/2019**	SeqNo: **2179130**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID: **LCS-R63747**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R63747**	RunNo: **63747**							
Prep Date:	Analysis Date: **10/7/2019**	SeqNo: **2179131**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.47		0.5000	0	93.6	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R63435**	RunNo: **63435**							
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166170**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R63435**	RunNo: **63435**							
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166171**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.64	20.00	80.00	0	99.6	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R63435**	RunNo: **63435**							
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166193**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R63435**	RunNo: **63435**							
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166194**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.84	20.00	80.00	0	98.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **1910144-001CDUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R63579** RunNo: **63579**

Prep Date: Analysis Date: **10/10/2019** SeqNo: **2172149** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9995	0						0.0600	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**

01-Nov-19

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47951**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **47951**	RunNo: **63462**
Prep Date: **10/4/2019**	Analysis Date: **10/7/2019**	SeqNo: **2167775** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-47951**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **47951**	RunNo: **63462**
Prep Date: **10/4/2019**	Analysis Date: **10/7/2019**	SeqNo: **2167776** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1910144 RcptNo: 1

Received By: Juan Rojas 10/2/2019 9:30:00 AM
Completed By: Leah Baca 10/2/2019 1:17:37 PM Leah S Baca
Reviewed By: LB 10/3/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 3 :2
(<2 or >12 unless noted)
Adjusted? NO
Checked by: DAD 10/3/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.8	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: 6-2 = -8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1910144	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
10-1-19	11:45	Brady Hubbard	courier	10/2/19	9:30
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chavez, Carl J, EMNRD

From: Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>
Sent: Wednesday, November 6, 2019 8:27 AM
To: Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD
Cc: Dade, Lewis (Randy)
Subject: [EXT] Third Quarter Injection Report
Attachments: Rpt_1910144_3 Quarterly_WDW-1,_2,_&_3__Inj_Well_Final_v1.pdf

Carl,
Please find attached the cover letter and injection data for the 2019 third quarter. A hard copy is being sent with the analytical data. If there are any questions, please let me know. Have a good week .
Thanks again for the help, Randy

Lewis R. (Randy) Dade
Environmental Specialist
The HollyFrontier Companies
501 E. Main / P.O. Box 159
Artesia, NM 88210 / 88211-0159
575-746-5281 (o)
575-703-4735 (c)
575-746-5451 (f)
Email: Lewis.Dade@hollyfrontier.com

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 01, 2019

Robert Combs

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1910144

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/2/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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Case Narrative

WO#: **1910144**
Date: **11/1/2019**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Analytical Notes Regarding EPA Method 8270:
The recovery of pyridine in the LCS was low when compared to our SOP limits.

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 9/30/2019 4:05:00 PM
Lab ID: 1910144-001 **Matrix:** AQUEOUS **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **CJS**
Fluoride	31	2.0	*	mg/L	20	10/3/2019 11:52:11 PM
Chloride	430	25	*	mg/L	50	10/14/2019 2:16:22 PM
Bromide	ND	0.50		mg/L	5	10/3/2019 11:39:50 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	10/3/2019 11:39:50 PM
Sulfate	1700	25	*	mg/L	50	10/14/2019 2:16:22 PM
Nitrate+Nitrite as N	1.2	1.0		mg/L	5	10/4/2019 12:16:52 AM
EPA METHOD 7470: MERCURY						Analyst: **rde**
Mercury	ND	0.020		mg/L	1	10/4/2019 3:15:56 PM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: **rde**
Calcium	340	10		mg/L	10	10/30/2019 1:32:00 PM
Magnesium	110	10		mg/L	10	10/30/2019 1:32:00 PM
Potassium	100	10		mg/L	10	10/30/2019 1:32:00 PM
Sodium	570	10		mg/L	10	10/30/2019 1:32:00 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **bcv**
Arsenic	ND	5.0		mg/L	5	10/21/2019 2:24:21 PM
Barium	ND	100		mg/L	5	10/14/2019 11:43:53 AM
Cadmium	ND	1.0		mg/L	5	10/14/2019 11:43:53 AM
Chromium	ND	5.0		mg/L	5	10/14/2019 11:43:53 AM
Lead	ND	5.0		mg/L	5	10/21/2019 2:24:21 PM
Selenium	ND	1.0		mg/L	5	10/14/2019 11:43:53 AM
Silver	ND	5.0		mg/L	5	10/14/2019 11:43:53 AM
EPA METHOD 8270C TCLP						Analyst: **DAM**
2-Methylphenol	ND	200		mg/L	1	10/14/2019 6:38:07 PM
3+4-Methylphenol	ND	200		mg/L	1	10/14/2019 6:38:07 PM
2,4-Dinitrotoluene	ND	0.13		mg/L	1	10/14/2019 6:38:07 PM
Hexachlorobenzene	ND	0.13		mg/L	1	10/14/2019 6:38:07 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	10/14/2019 6:38:07 PM
Hexachloroethane	ND	3.0		mg/L	1	10/14/2019 6:38:07 PM
Nitrobenzene	ND	2.0		mg/L	1	10/14/2019 6:38:07 PM
Pentachlorophenol	ND	100		mg/L	1	10/14/2019 6:38:07 PM
Pyridine	ND	5.0		mg/L	1	10/14/2019 6:38:07 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	10/14/2019 6:38:07 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	10/14/2019 6:38:07 PM
Cresols, Total	ND	200		mg/L	1	10/14/2019 6:38:07 PM
Surr: 2-Fluorophenol	42.6	15-82.5		%Rec	1	10/14/2019 6:38:07 PM
Surr: Phenol-d5	34.0	15-74.2		%Rec	1	10/14/2019 6:38:07 PM
Surr: 2,4,6-Tribromophenol	51.3	18.6-118		%Rec	1	10/14/2019 6:38:07 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 9/30/2019 4:05:00 PM
Lab ID: 1910144-001 **Matrix:** AQUEOUS **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C TCLP						Analyst: **DAM**
Surr: Nitrobenzene-d5	64.8	30.4-106		%Rec	1	10/14/2019 6:38:07 PM
Surr: 2-Fluorobiphenyl	53.0	15-104		%Rec	1	10/14/2019 6:38:07 PM
Surr: 4-Terphenyl-d14	61.1	15-133		%Rec	1	10/14/2019 6:38:07 PM
NOTES:						
* See the case narrative for notes.						
TCLP VOLATILES BY 8260B						Analyst: **JMR**
Benzene	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
2-Butanone	ND	200		mg/L	1	10/4/2019 4:16:04 AM
Carbon Tetrachloride	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
Chloroform	ND	6.0		mg/L	1	10/4/2019 4:16:04 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	10/4/2019 4:16:04 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	10/4/2019 4:16:04 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	10/4/2019 4:16:04 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	10/4/2019 4:16:04 AM
Vinyl chloride	ND	0.20		mg/L	1	10/4/2019 4:16:04 AM
Chlorobenzene	ND	100		mg/L	1	10/4/2019 4:16:04 AM
Surr: 1,2-Dichloroethane-d4	88.0	70-130		%Rec	1	10/4/2019 4:16:04 AM
Surr: 4-Bromofluorobenzene	93.4	70-130		%Rec	1	10/4/2019 4:16:04 AM
Surr: Dibromofluoromethane	98.6	70-130		%Rec	1	10/4/2019 4:16:04 AM
Surr: Toluene-d8	104	70-130		%Rec	1	10/4/2019 4:16:04 AM
CORROSIVITY						Analyst: **PAC**
pH	7.69			su	1	10/6/2019
IGNITABILITY METHOD 1010						Analyst: **PAC**
Ignitability	>170			°F	1	10/14/2019
OXIDATION REDUCTION POTENTIAL						Analyst: **PAC**
Oxidation-Reduction Potential	190			mV	1	10/6/2019
CYANIDE, REACTIVE						Analyst: **PAC**
Cyanide, Reactive	0.0927	0.00500		mg/L	1	10/15/2019
SULFIDE, REACTIVE						Analyst: **PAC**
Reactive Sulfide	ND	0.050		mg/L	1	10/7/2019
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5100	5.0		µmhos/c	1	10/7/2019 11:56:48 AM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	408.2	20.00		mg/L Ca	1	10/3/2019 5:57:44 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 9/30/2019 4:05:00 PM
Lab ID: 1910144-001 **Matrix:** AQUEOUS **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2320B: ALKALINITY						Analyst: **JRR**
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	10/3/2019 5:57:44 PM
Total Alkalinity (as CaCO3)	408.2	20.00		mg/L Ca	1	10/3/2019 5:57:44 PM
SPECIFIC GRAVITY						Analyst: **JRR**
Specific Gravity	1.000	0			1	10/10/2019 12:45:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3520	40.0	*D	mg/L	1	10/7/2019 2:22:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1910144**
Date Reported: **11/1/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well **Collection Date:**
Lab ID: 1910144-002 **Matrix:** TRIP BLANK **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TCLP VOLATILES BY 8260B						Analyst: **JMR**
Benzene	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
2-Butanone	ND	200		mg/L	1	10/4/2019 5:42:29 AM
Carbon Tetrachloride	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
Chloroform	ND	6.0		mg/L	1	10/4/2019 5:42:29 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	1	10/4/2019 5:42:29 AM
1,1-Dichloroethene	ND	0.70		mg/L	1	10/4/2019 5:42:29 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	10/4/2019 5:42:29 AM
Trichloroethene (TCE)	ND	0.50		mg/L	1	10/4/2019 5:42:29 AM
Vinyl chloride	ND	0.20		mg/L	1	10/4/2019 5:42:29 AM
Chlorobenzene	ND	100		mg/L	1	10/4/2019 5:42:29 AM
Surr: 1,2-Dichloroethane-d4	91.6	70-130		%Rec	1	10/4/2019 5:42:29 AM
Surr: 4-Bromofluorobenzene	93.8	70-130		%Rec	1	10/4/2019 5:42:29 AM
Surr: Dibromofluoromethane	100	70-130		%Rec	1	10/4/2019 5:42:29 AM
Surr: Toluene-d8	101	70-130		%Rec	1	10/4/2019 5:42:29 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R63431**	RunNo: **63431**							
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166069**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R63431**	RunNo: **63431**							
Prep Date:	Analysis Date: **10/3/2019**	SeqNo: **2166070**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	108	90	110			
Bromide	2.5	0.10	2.500	0	98.5	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.8	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.8	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R63681**	RunNo: **63681**							
Prep Date:	Analysis Date: **10/14/2019**	SeqNo: **2176160**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R63681**	RunNo: **63681**							
Prep Date:	Analysis Date: **10/14/2019**	SeqNo: **2176161**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	99.4	90	110			
Sulfate	10	0.50	10.00	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW** Batch ID: **T63413** RunNo: **63413**
Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165302** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.0	0.30	4.000	0	99.0	70	130			
1,1-Dichloroethene	3.7	0.30	4.000	0	91.8	70	130			
Trichloroethene (TCE)	3.7	0.30	4.000	0	91.3	70	130			
Chlorobenzene	4.2	0.30	4.000	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	1.8		2.000		89.9	70	130			
Surr: 4-Bromofluorobenzene	1.9		2.000		96.3	70	130			
Surr: Dibromofluoromethane	2.0		2.000		97.7	70	130			
Surr: Toluene-d8	2.1		2.000		103	70	130			

Sample ID: **1910144-001a ms** SampType: **MS** TestCode: **TCLP Volatiles by 8260B**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **T63413** RunNo: **63413**
Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.0	0.30	4.000	0.1900	95.7	70	130			
1,1-Dichloroethene	3.7	0.30	4.000	0	92.9	70	130			
Trichloroethene (TCE)	3.5	0.30	4.000	0	87.0	70	130			
Chlorobenzene	4.1	0.30	4.000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	1.8		2.000		91.0	70	130			
Surr: 4-Bromofluorobenzene	1.8		2.000		88.4	70	130			
Surr: Dibromofluoromethane	2.0		2.000		99.4	70	130			
Surr: Toluene-d8	2.1		2.000		106	70	130			

Sample ID: **1910144-001a msd** SampType: **MSD** TestCode: **TCLP Volatiles by 8260B**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **T63413** RunNo: **63413**
Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165305** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	3.9	0.30	4.000	0.1900	93.1	70	130	2.64	20	
1,1-Dichloroethene	3.6	0.30	4.000	0	89.0	70	130	4.24	20	
Trichloroethene (TCE)	3.4	0.30	4.000	0	85.3	70	130	2.00	20	
Chlorobenzene	4.0	0.30	4.000	0	100	70	130	1.70	20	
Surr: 1,2-Dichloroethane-d4	1.8		2.000		90.5	70	130	0	0	
Surr: 4-Bromofluorobenzene	1.8		2.000		91.4	70	130	0	0	
Surr: Dibromofluoromethane	2.0		2.000		99.6	70	130	0	0	
Surr: Toluene-d8	2.1		2.000		103	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **rb2** SampType: **MBLK** TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW** Batch ID: **T63413** RunNo: **63413**
Prep Date: Analysis Date: **10/4/2019** SeqNo: **2165310** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	1.9		2.000		95.2	70	130			
Surr: 4-Bromofluorobenzene	1.9		2.000		93.5	70	130			
Surr: Dibromofluoromethane	2.0		2.000		99.0	70	130			
Surr: Toluene-d8	2.0		2.000		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **1910144-001bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **47936** RunNo: **63667**
Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175826** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.14	0.0010	0.1000	0	135	30.5	98.2			S
3+4-Methylphenol	0.30	0.0010	0.2000	0	149	27.4	98.6			S
2,4-Dinitrotoluene	0.14	0.0010	0.1000	0	140	34.3	87.4			S
Hexachlorobenzene	0.15	0.0010	0.1000	0	146	36.5	100			S
Hexachlorobutadiene	0.12	0.0010	0.1000	0	124	15	108			S
Hexachloroethane	0.11	0.0010	0.1000	0	113	15	90.7			S
Nitrobenzene	0.14	0.0010	0.1000	0	144	39	100			S
Pentachlorophenol	0.12	0.0010	0.1000	0	124	15	97.5			S
Pyridine	0.022	0.0010	0.1000	0	22.5	15	65.8			
2,4,5-Trichlorophenol	0.14	0.0010	0.1000	0	137	36.1	109			S
2,4,6-Trichlorophenol	0.14	0.0010	0.1000	0	138	37.8	104			S
Cresols, Total	0.43	0.0010	0.3000	0	145	27.1	99.8			S
Surr: 2-Fluorophenol	0.096		0.2000		48.0	15	82.5			
Surr: Phenol-d5	0.076		0.2000		37.9	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		67.6	18.6	118			
Surr: Nitrobenzene-d5	0.080		0.1000		79.9	30.4	106			
Surr: 2-Fluorobiphenyl	0.066		0.1000		66.3	15	104			
Surr: 4-Terphenyl-d14	0.071		0.1000		70.6	15	133			

Sample ID: **1910144-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **47936** RunNo: **63667**
Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175827** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.065	0.0010	0.1000	0	65.2	30.5	98.2	69.7	44.3	R
3+4-Methylphenol	0.13	0.0010	0.2000	0	63.1	27.4	98.6	81.2	50	R
2,4-Dinitrotoluene	0.068	0.0010	0.1000	0	67.6	34.3	87.4	69.9	45.1	R
Hexachlorobenzene	0.067	0.0010	0.1000	0	67.3	36.5	100	73.8	47.2	R
Hexachlorobutadiene	0.059	0.0010	0.1000	0	58.9	15	108	71.4	43.4	R
Hexachloroethane	0.055	0.0010	0.1000	0	54.9	15	90.7	69.6	39.2	R
Nitrobenzene	0.071	0.0010	0.1000	0	71.2	39	100	67.6	42.1	R
Pentachlorophenol	0.057	0.0010	0.1000	0	57.0	15	97.5	74.4	50	R
Pyridine	0.0028	0.0010	0.1000	0	2.80	15	65.8	156	50	RS
2,4,5-Trichlorophenol	0.070	0.0010	0.1000	0	70.0	36.1	109	65.0	49.7	R
2,4,6-Trichlorophenol	0.069	0.0010	0.1000	0	69.3	37.8	104	66.6	47	R
Cresols, Total	0.19	0.0010	0.3000	0	63.8	27.1	99.8	77.5	27.4	R
Surr: 2-Fluorophenol	0.046		0.2000		23.2	15	82.5	0	0	
Surr: Phenol-d5	0.038		0.2000		18.9	15	74.2	0	0	
Surr: 2,4,6-Tribromophenol	0.061		0.2000		30.6	18.6	118	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **1910144-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **47936** RunNo: **63667**
Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175827** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.036		0.1000		36.4	30.4	106	0	0	
Surr: 2-Fluorobiphenyl	0.034		0.1000		33.9	15	104	0	0	
Surr: 4-Terphenyl-d14	0.031		0.1000		31.1	15	133	0	0	

Sample ID: **lcs-47936** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSW** Batch ID: **47936** RunNo: **63667**
Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175828** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.14	0.0010	0.1000	0	139	33.8	121			S
3+4-Methylphenol	0.33	0.0010	0.2000	0	163	33.6	109			S
2,4-Dinitrotoluene	0.14	0.0010	0.1000	0	144	50.4	124			S
Hexachlorobenzene	0.15	0.0010	0.1000	0	152	50.1	120			S
Hexachlorobutadiene	0.12	0.0010	0.1000	0	116	16.1	103			S
Hexachloroethane	0.11	0.0010	0.1000	0	112	15	94.2			S
Nitrobenzene	0.15	0.0010	0.1000	0	150	32.4	125			S
Pentachlorophenol	0.12	0.0010	0.1000	0	124	44.6	114			S
Pyridine	0.0031	0.0010	0.1000	0	3.08	15	67			S
2,4,5-Trichlorophenol	0.15	0.0010	0.1000	0	147	49.4	118			S
2,4,6-Trichlorophenol	0.16	0.0010	0.1000	0	160	50.3	116			S
Cresols, Total	0.46	0.0010	0.3000	0	155	33.8	109			S
Surr: 2-Fluorophenol	0.10		0.2000		50.0	15	82.5			
Surr: Phenol-d5	0.083		0.2000		41.6	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		67.6	18.6	118			
Surr: Nitrobenzene-d5	0.081		0.1000		81.2	30.4	106			
Surr: 2-Fluorobiphenyl	0.073		0.1000		73.2	15	104			
Surr: 4-Terphenyl-d14	0.075		0.1000		74.8	15	133			

Sample ID: **mb-47936** SampType: **MBLK** TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW** Batch ID: **47936** RunNo: **63667**
Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175829** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **mb-47936** SampType: **MBLK** TestCode: **EPA Method 8270C TCLP**
Client ID: **PBW** Batch ID: **47936** RunNo: **63667**
Prep Date: **10/4/2019** Analysis Date: **10/14/2019** SeqNo: **2175829** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.11		0.2000		53.1	15	82.5			
Surr: Phenol-d5	0.086		0.2000		42.9	15	74.2			
Surr: 2,4,6-Tribromophenol	0.15		0.2000		73.7	18.6	118			
Surr: Nitrobenzene-d5	0.076		0.1000		75.6	30.4	106			
Surr: 2-Fluorobiphenyl	0.071		0.1000		70.9	15	104			
Surr: 4-Terphenyl-d14	0.080		0.1000		80.0	15	133			

NOTES:
*See the case narrative for notes.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **lcs-1 99.8uS eC** SampType: **lcs** TestCode: **SM2510B: Specific Conductance**
Client ID: **LCSW** Batch ID: **R63466** RunNo: **63466**
Prep Date: Analysis Date: **10/7/2019** SeqNo: **2168649** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	98	5.0	99.80	0	98.7	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47939**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **47939**	RunNo: **63437**							
Prep Date: **10/4/2019**	Analysis Date: **10/4/2019**	SeqNo: **2166383**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-47939**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **47939**	RunNo: **63437**							
Prep Date: **10/4/2019**	Analysis Date: **10/4/2019**	SeqNo: **2166384**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A64097**	RunNo: **64097**
Prep Date:	Analysis Date: **10/30/2019**	SeqNo: **2192808** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A64097**	RunNo: **64097**
Prep Date:	Analysis Date: **10/30/2019**	SeqNo: **2192809** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	52	1.0	50.00	0	104	80	120			
Magnesium	52	1.0	50.00	0	104	80	120			
Potassium	52	1.0	50.00	0	103	80	120			
Sodium	50	1.0	50.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47925** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **47925** RunNo: **63528**
Prep Date: **10/3/2019** Analysis Date: **10/8/2019** SeqNo: **2170148** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **47925** RunNo: **63528**
Prep Date: **10/3/2019** Analysis Date: **10/8/2019** SeqNo: **2170150** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.46	0.020	0.5000	0	92.6	80	120			
Cadmium	0.48	0.0020	0.5000	0	95.6	80	120			
Chromium	0.47	0.0060	0.5000	0	94.4	80	120			
Lead	0.48	0.0050	0.5000	0	95.5	80	120			
Selenium	0.48	0.050	0.5000	0	96.3	80	120			
Silver	0.092	0.0050	0.1000	0	92.2	80	120			

Sample ID: **MB-47925** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **47925** RunNo: **63528**
Prep Date: **10/3/2019** Analysis Date: **10/8/2019** SeqNo: **2170241** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **47925** RunNo: **63528**
Prep Date: **10/3/2019** Analysis Date: **10/8/2019** SeqNo: **2170243** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.47	0.020	0.5000	0	94.0	80	120			
Cadmium	0.48	0.0020	0.5000	0	96.4	80	120			
Chromium	0.48	0.0060	0.5000	0	95.2	80	120			
Selenium	0.47	0.050	0.5000	0	93.5	80	120			
Silver	0.093	0.0050	0.1000	0	93.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47925** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **47925** RunNo: **63528**
Prep Date: **10/3/2019** Analysis Date: **10/8/2019** SeqNo: **2170263** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **47925** RunNo: **63528**
Prep Date: **10/3/2019** Analysis Date: **10/8/2019** SeqNo: **2170265** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.47	0.020	0.5000	0	94.7	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.6	80	120			
Chromium	0.48	0.0060	0.5000	0	96.4	80	120			
Lead	0.48	0.0050	0.5000	0	96.6	80	120			
Selenium	0.47	0.050	0.5000	0	93.4	80	120			
Silver	0.094	0.0050	0.1000	0	93.9	80	120			

Sample ID: **MB-47925** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **47925** RunNo: **63599**
Prep Date: **10/3/2019** Analysis Date: **10/10/2019** SeqNo: **2172999** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-47925** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **47925** RunNo: **63599**
Prep Date: **10/3/2019** Analysis Date: **10/10/2019** SeqNo: **2173001** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.45	0.020	0.5000	0	89.4	80	120			
Barium	0.45	0.020	0.5000	0	90.1	80	120			
Cadmium	0.44	0.0020	0.5000	0	88.6	80	120			
Chromium	0.44	0.0060	0.5000	0	88.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **LCS-47925** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **47925** RunNo: **63599**
Prep Date: **10/3/2019** Analysis Date: **10/10/2019** SeqNo: **2173001** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.46	0.050	0.5000	0	92.1	80	120			
Silver	0.088	0.0050	0.1000	0	88.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-R63747** SampType: **MBLK** TestCode: **CYANIDE, Reactive**
Client ID: **PBW** Batch ID: **R63747** RunNo: **63747**
Prep Date: Analysis Date: **10/15/2019** SeqNo: **2179127** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID: **LCS-R63747** SampType: **LCS** TestCode: **CYANIDE, Reactive**
Client ID: **LCSW** Batch ID: **R63747** RunNo: **63747**
Prep Date: Analysis Date: **10/15/2019** SeqNo: **2179128** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.101		0.1000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-R63747**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R63747**	RunNo: **63747**							
Prep Date:	Analysis Date: **10/7/2019**	SeqNo: **2179130**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID: **LCS-R63747**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R63747**	RunNo: **63747**							
Prep Date:	Analysis Date: **10/7/2019**	SeqNo: **2179131**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.47		0.5000	0	93.6	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **mb-1 alk** SampType: **mblk** TestCode: **SM2320B: Alkalinity**
Client ID: **PBW** Batch ID: **R63435** RunNo: **63435**
Prep Date: Analysis Date: **10/3/2019** SeqNo: **2166170** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk** SampType: **lcs** TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW** Batch ID: **R63435** RunNo: **63435**
Prep Date: Analysis Date: **10/3/2019** SeqNo: **2166171** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.64	20.00	80.00	0	99.6	90	110			

Sample ID: **mb-2 alk** SampType: **mblk** TestCode: **SM2320B: Alkalinity**
Client ID: **PBW** Batch ID: **R63435** RunNo: **63435**
Prep Date: Analysis Date: **10/3/2019** SeqNo: **2166193** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk** SampType: **lcs** TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW** Batch ID: **R63435** RunNo: **63435**
Prep Date: Analysis Date: **10/3/2019** SeqNo: **2166194** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.84	20.00	80.00	0	98.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **1910144-001CDUP** SampType: **DUP** TestCode: **Specific Gravity**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R63579** RunNo: **63579**
Prep Date: Analysis Date: **10/10/2019** SeqNo: **2172149** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9995	0						0.0600	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910144**
01-Nov-19

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID: **MB-47951**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **PBW**	Batch ID: **47951**	RunNo: **63462**							
Prep Date: **10/4/2019**	Analysis Date: **10/7/2019**	SeqNo: **2167775**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-47951**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **LCSW**	Batch ID: **47951**	RunNo: **63462**							
Prep Date: **10/4/2019**	Analysis Date: **10/7/2019**	SeqNo: **2167776**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **NAVAJO REFINING CO** Work Order Number: **1910144** RcptNo: **1**

Received By: Juan Rojas **10/2/2019 9:30:00 AM**
Completed By: **Leah Baca** **10/2/2019 1:17:37 PM** Leah Baca
Reviewed By: LB 10/3/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 3 :2
(<2 or >12 unless noted)
Adjusted? NO
Checked by: DAD 10/3/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.8	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
X Standard ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: -6-2=-8

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1910144	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
9/30/19	16:05	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
10-1-19	11:45	Brady Hubbard	carrier	10/2/19	9:30
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

JUL 23 2019 PM02:25

July 18, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7018 1130 0000 9712 6572

RE: 2019 2nd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4 HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the second quarter 2019 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for each well was 1249 psig for WDW-1, 1201 psig for WDW-2, 1047 psig for WDW-3 and 81 psig for WDW-4.The average flows were 135 gpm for WDW-1, 56 gpm for WDW-2, 55 gpm for WDW-3 and 237 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from April 1, 2019 to June 30, 2019. Navajo has disposed a total of 1,507,544 barrels of fluid into the four wells during the second quarter of 2019. The volume per well is:

- 422,400 barrels into WDW-1; 30-015-27592
- 173,795 barrels into WDW-2; 30-015-20894
- 172,834 barrels into WDW-3; 30-015-26575
- 738,515 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

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Received by OCD: 5/16/2022 2:12:41 PM

2019 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1											**Previous Quar**	43,846,301
Apr-19	1,240	135	148	107	540	726	404	138,857	152,229	110,057	**138,857**	43,985,158
May-19	1,283	140	149	123	587	729	459	148,800	158,366	130,731	**148,800**	44,133,958
Jun-19	1,223	131	146	100	397	518	193	134,743	150,171	102,857	**134,743**	44,268,701
Monthly Avg	1,249	135								**TOTAL**	422,400	
30-015-20894 WDW-2											**Previous Quar**	28,026,988
Apr-19	1,141	47	76	0	510	661	282	48,343	78,171	0	**48,343**	28,075,331
May-19	1,215	59	78	34	463	629	309	62,709	82,903	36,137	**62,709**	28,138,040
Jun-19	1,247	61	78	40	372	418	300	62,743	80,229	41,143	**62,743**	28,200,783
Monthly Avg	1,201	56								**TOTAL**	173,795	
30-015-26575 WDW-3											**Previous Quar**	19,657,009
Apr-19	1,047	51	117	9	653	750	549	52,457	120,343	9,257	**52,457**	19,709,466
May-19	1,064	61	111	10	541	652	387	64,834	117,977	10,629	**64,834**	19,774,300
Jun-19	1,031	54	111	1	397	515	300	55,543	114,171	1,029	**55,543**	19,829,843
Monthly Avg	1,047	55								**TOTAL**	172,834	
30-015-44677 WDW-4											**Previous Quar**	710,571
Apr-19	70	234	309	146	184	243	126	240,686	317,829	150,171	**240,686**	951,257
May-19	75	210	317	154	167	239	101	223,200	336,926	163,680	**223,200**	1,174,457
Jun-19	98	267	296	190	172	254	100	274,629	304,457	195,429	**274,629**	1,449,086
Monthly Avg	81	237								**TOTAL**	738,515	

	Q2 Disposal bbls	Max Flow gpm
WDW-1	422,400	148
WDW-2	173,795	77
WDW-3	172,834	113
WDW-4	738,515	307

	Total BBLS	Beginning Volume	Ending Volume
WDW1	422,400	43,846,301	44,268,701
WDW2	173,795	28,026,988	28,200,783
WDW3	172,834	19,657,009	19,829,843
WDW4	738,515	710,571	1,449,086
	1,507,544	92,240,869	

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 17, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX:

RE: Quarterly WDW 1 2 3 Inj Well OrderNo.: 1907003

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/28/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1907003**
Date Reported: **7/17/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1907003-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2 & 3 Effluent
Collection Date: 6/26/2019 2:30:00 PM
Received Date: 6/28/2019 10:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C TCLP						Analyst: **DAM**	
2-Methylphenol	ND	200		mg/L	1	7/5/2019 2:00:31 PM	45933
3+4-Methylphenol	ND	200		mg/L	1	7/5/2019 2:00:31 PM	45933
2,4-Dinitrotoluene	ND	0.13		mg/L	1	7/5/2019 2:00:31 PM	45933
Hexachlorobenzene	ND	0.13		mg/L	1	7/5/2019 2:00:31 PM	45933
Hexachlorobutadiene	ND	0.50		mg/L	1	7/5/2019 2:00:31 PM	45933
Hexachloroethane	ND	3.0		mg/L	1	7/5/2019 2:00:31 PM	45933
Nitrobenzene	ND	2.0		mg/L	1	7/5/2019 2:00:31 PM	45933
Pentachlorophenol	ND	100		mg/L	1	7/5/2019 2:00:31 PM	45933
Pyridine	ND	5.0		mg/L	1	7/5/2019 2:00:31 PM	45933
2,4,5-Trichlorophenol	ND	400		mg/L	1	7/5/2019 2:00:31 PM	45933
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	7/5/2019 2:00:31 PM	45933
Cresols, Total	ND	200		mg/L	1	7/5/2019 2:00:31 PM	45933
Surr: 2-Fluorophenol	63.5	15-82.5		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: Phenol-d5	46.8	15-74.2		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: 2,4,6-Tribromophenol	83.3	18.6-118		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: Nitrobenzene-d5	87.2	30.4-106		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: 2-Fluorobiphenyl	77.3	15-104		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: 4-Terphenyl-d14	78.0	15-133		%Rec	1	7/5/2019 2:00:31 PM	45933
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.002	0			1	7/2/2019 10:32:00 AM	R61110
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Fluoride	23	2.0	*	mg/L	20	7/1/2019 3:42:01 PM	R61084
Chloride	570	50	*	mg/L	100	7/10/2019 2:28:41 PM	R61309
Bromide	0.59	0.50		mg/L	5	7/1/2019 3:29:36 PM	R61084
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	7/1/2019 3:29:36 PM	R61084
Sulfate	2300	50	*	mg/L	100	7/10/2019 2:28:41 PM	R61309
Nitrate+Nitrite as N	1.2	1.0		mg/L	5	7/1/2019 3:54:26 PM	R61084
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	6100	5.0		µmhos/c	1	7/1/2019 10:22:40 PM	R61065
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	537.6	20.00		mg/L Ca	1	7/1/2019 10:22:40 PM	R61065
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	7/1/2019 10:22:40 PM	R61065
Total Alkalinity (as CaCO3)	537.6	20.00		mg/L Ca	1	7/1/2019 10:22:40 PM	R61065
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **CJS**	
Total Dissolved Solids	4570	40.0	*D	mg/L	1	7/9/2019 2:54:00 PM	45992
SM4500-H+B / 9040C: PH						Analyst: **JRR**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1907003**
Date Reported: **7/17/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1907003-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2 & 3 Effluent
Collection Date: 6/26/2019 2:30:00 PM
Received Date: 6/28/2019 10:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.80		H	pH units	1	7/1/2019 10:22:40 PM	R61065
EPA METHOD 7470: MERCURY						Analyst: **rde**	
Mercury	ND	0.00020		mg/L	1	7/11/2019 4:43:47 PM	46125
EPA METHOD 6010B: DISSOLVED METALS						Analyst: **bcv**	
Calcium	470	5.0		mg/L	5	7/3/2019 11:45:32 AM	A61162
Magnesium	140	5.0		mg/L	5	7/3/2019 11:45:32 AM	A61162
Potassium	69	5.0		mg/L	5	7/3/2019 11:45:32 AM	A61162
Sodium	640	10		mg/L	10	7/3/2019 12:00:27 PM	A61162
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **bcv**	
Arsenic	ND	0.020		mg/L	1	7/5/2019 10:53:46 AM	46005
Barium	0.048	0.020		mg/L	1	7/5/2019 10:03:23 AM	46005
Cadmium	ND	0.0020		mg/L	1	7/5/2019 10:03:23 AM	46005
Chromium	ND	0.0060		mg/L	1	7/5/2019 10:03:23 AM	46005
Lead	ND	0.0050		mg/L	1	7/5/2019 10:03:23 AM	46005
Selenium	ND	0.050		mg/L	1	7/5/2019 10:03:23 AM	46005
Silver	0.0053	0.0050		mg/L	1	7/5/2019 10:03:23 AM	46005
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	200	7/9/2019 4:50:00 AM	T61220
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	7/9/2019 4:50:00 AM	T61220
2-Butanone	ND	200		mg/L	200	7/9/2019 4:50:00 AM	T61220
Carbon Tetrachloride	ND	0.50		mg/L	200	7/9/2019 4:50:00 AM	T61220
Chloroform	ND	6.0		mg/L	200	7/9/2019 4:50:00 AM	T61220
1,4-Dichlorobenzene	ND	7.5		mg/L	200	7/9/2019 4:50:00 AM	T61220
1,1-Dichloroethene	ND	0.70		mg/L	200	7/9/2019 4:50:00 AM	T61220
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	7/9/2019 4:50:00 AM	T61220
Trichloroethene (TCE)	ND	0.50		mg/L	200	7/9/2019 4:50:00 AM	T61220
Vinyl chloride	ND	0.20		mg/L	200	7/9/2019 4:50:00 AM	T61220
Chlorobenzene	ND	100		mg/L	200	7/9/2019 4:50:00 AM	T61220
Surr: 1,2-Dichloroethane-d4	114	70-130		%Rec	200	7/9/2019 4:50:00 AM	T61220
Surr: 4-Bromofluorobenzene	97.3	70-130		%Rec	200	7/9/2019 4:50:00 AM	T61220
Surr: Dibromofluoromethane	104	70-130		%Rec	200	7/9/2019 4:50:00 AM	T61220
Surr: Toluene-d8	93.6	70-130		%Rec	200	7/9/2019 4:50:00 AM	T61220

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1907003**
Date Reported: **7/17/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1907003-002

Client Sample ID: TRIP BLANK
Collection Date:
Matrix: TRIP BLANK **Received Date:** 6/28/2019 10:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	1	7/9/2019 5:14:00 AM	T61220
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	7/9/2019 5:14:00 AM	T61220
2-Butanone	ND	200		mg/L	1	7/9/2019 5:14:00 AM	T61220
Carbon Tetrachloride	ND	0.50		mg/L	1	7/9/2019 5:14:00 AM	T61220
Chloroform	ND	6.0		mg/L	1	7/9/2019 5:14:00 AM	T61220
1,4-Dichlorobenzene	ND	7.5		mg/L	1	7/9/2019 5:14:00 AM	T61220
1,1-Dichloroethene	ND	0.70		mg/L	1	7/9/2019 5:14:00 AM	T61220
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	7/9/2019 5:14:00 AM	T61220
Trichloroethene (TCE)	ND	0.50		mg/L	1	7/9/2019 5:14:00 AM	T61220
Vinyl chloride	ND	0.20		mg/L	1	7/9/2019 5:14:00 AM	T61220
Chlorobenzene	ND	100		mg/L	1	7/9/2019 5:14:00 AM	T61220
Surr: 1,2-Dichloroethane-d4	112	70-130		%Rec	1	7/9/2019 5:14:00 AM	T61220
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	7/9/2019 5:14:00 AM	T61220
Surr: Dibromofluoromethane	105	70-130		%Rec	1	7/9/2019 5:14:00 AM	T61220
Surr: Toluene-d8	94.0	70-130		%Rec	1	7/9/2019 5:14:00 AM	T61220

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

1907003-001F WDW-1,2&3 EFFLUENT
Collected date/time: 06/26/19 14:30

SAMPLE RESULTS - 01

L1114999

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0269		0.00500	1	07/09/2019 20:24	WG1308181

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.47	T8	1	07/06/2019 11:52	WG1306715

Sample Narrative:
L1114999-01 WG1306715: 7.47 at 20.8C

Wet Chemistry by Method 9034-9030B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	ND		0.0500	1	07/03/2019 19:54	WG1305508

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	07/09/2019 12:16	WG1308093

1907003-001G WDW-1,2&3 EFFLUENT

Collected date/time: 06/26/19 14:30

SAMPLE RESULTS - 02

L1114999

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	mV				
ORP	50.0	T8	1	07/13/2019 10:12	WG1310279

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

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WG1310279

Wet Chemistry by Method 2580

QUALITY CONTROL SUMMARY

L1114999-02

ONE LAB. NATIONWIDE.

L1114999-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1114999-02 07/13/19 10:12 • (DUP) R3430311-2 07/13/19 10:12

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mV	mV		%		%
ORP	50.0	54.0	1	7.69		20

Laboratory Control Sample (LCS)

(LCS) R3430311-1 07/13/19 10:12

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mV	mV	%	%	
ORP	228	228	100	95.7-104	

GP
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

WG1308181

Wet Chemistry by Method 4500 CN E-2011

QUALITY CONTROL SUMMARY

L1114999-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3429064-1 07/09/19 19:47

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Reactive Cyanide	U		0.00180	0.00500

L1111966-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1111966-04 07/09/19 19:53 • (DUP) R3429064-3 07/09/19 19:54

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Reactive Cyanide	U	0.000	1	0.000		20

L1112351-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1112351-03 07/09/19 20:06 • (DUP) R3429064-6 07/09/19 20:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Reactive Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3429064-9 07/09/19 20:18

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Reactive Cyanide	0.100	0.110	110	85.0-115	

L1112351-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1112351-02 07/09/19 20:03 • (MS) R3429064-4 07/09/19 20:04 • (MSD) R3429064-5 07/09/19 20:05

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.107	0.0924	107	92.4	1	75.0-125			14.6	20

L1113239-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113239-01 07/09/19 20:15 • (MS) R3429064-7 07/09/19 20:16 • (MSD) R3429064-8 07/09/19 20:17

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.105	0.0832	105	83.2	1	75.0-125		J3	23.2	20

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

WG1306715

QUALITY CONTROL SUMMARY

L1114999-01

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 4500H+ B-2011

Laboratory Control Sample (LCS)

(LCS) R3428109-1 07/06/19 11:52

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
Corrosivity by pH	10.0	9.95	99.5	99.0-101	

Sample Narrative:

LCS: 9.95 at 22.8C

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

WG1305508

Wet Chemistry by Method 9034-9030B

QUALITY CONTROL SUMMARY

L1114999-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3427441-1 07/03/19 19:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Reactive Sulfide	U		0.00650	0.0500

Laboratory Control Sample (LCS)

(LCS) R3427441-2 07/03/19 19:48

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Reactive Sulfide	0.500	0.543	109	85.0-115	

L1114999-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1114999-01 07/03/19 19:54 • (MS) R3427441-5 07/03/19 19:54 • (MSD) R3427441-6 07/03/19 19:55

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Sulfide	1.00	ND	0.927	0.942	92.7	94.2	1	80.0-120			1.61	20

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

WG1308093

Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY

L1114999-01

ONE LAB. NATIONWIDE

L1114968-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1114968-01 07/09/19 12:16 • (DUP) R3428833-2 07/09/19 12:16

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	deg F	deg F		%		%
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R3428833-1 07/09/19 12:16

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	deg F	deg F	%	%	
Flashpoint	82.0	83.8	102	96.0-104	

Ss Cn Sr Qc Gl Sc

Page 1524 of 5828

GLOSSARY OF TERMS

ONE LAB. NATIONWIDE.

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
T8	Sample(s) received past/too close to holding time expiration.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R61084**	RunNo: **61084**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2069013**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R61084**	RunNo: **61084**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2069014**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	99.4	90	110			
Bromide	2.4	0.10	2.500	0	95.6	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.9	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	96.8	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R61309**	RunNo: **61309**							
Prep Date:	Analysis Date: **7/10/2019**	SeqNo: **2078288**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R61309**	RunNo: **61309**							
Prep Date:	Analysis Date: **7/10/2019**	SeqNo: **2078289**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Sulfate	9.8	0.50	10.00	0	98.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **100ng lcs2**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T61220**	RunNo: **61220**
Prep Date:	Analysis Date: **7/9/2019**	SeqNo: **2075609** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.022	0.00017	0.02000	0	109	70	130			
1,1-Dichloroethene	0.020	0.00021	0.02000	0	98.0	70	130			
Trichloroethene (TCE)	0.020	0.00017	0.02000	0	102	70	130			
Chlorobenzene	0.020	0.00019	0.02000	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	0.012		0.01000		117	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		102	70	130			
Surr: Dibromofluoromethane	0.011		0.01000		111	70	130			
Surr: Toluene-d8	0.0095		0.01000		94.9	70	130			

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T61220**	RunNo: **61220**
Prep Date:	Analysis Date: **7/9/2019**	SeqNo: **2075612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.011		0.01000		114	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		99.7	70	130			
Surr: Dibromofluoromethane	0.011		0.01000		107	70	130			
Surr: Toluene-d8	0.0093		0.01000		93.2	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **lcs-1 99.8uS eC** SampType: **lcs** TestCode: **SM2510B: Specific Conductance**

Client ID: **LCSW** Batch ID: **R61065** RunNo: **61065**

Prep Date: Analysis Date: **7/1/2019** SeqNo: **2068823** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.80	0	99.6	85	115			

Sample ID: **lcs-2 99.8uS eC** SampType: **lcs** TestCode: **SM2510B: Specific Conductance**

Client ID: **LCSW** Batch ID: **R61065** RunNo: **61065**

Prep Date: Analysis Date: **7/1/2019** SeqNo: **2068863** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.80	0	102	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB-46125**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **46125**	RunNo: **61319**							
Prep Date: **7/11/2019**	Analysis Date: **7/11/2019**	SeqNo: **2078629**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-46125**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **46125**	RunNo: **61319**							
Prep Date: **7/11/2019**	Analysis Date: **7/11/2019**	SeqNo: **2078630**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.6	80	120			

Sample ID: **1907003-001EMS**	SampType: **MS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **WDW-1, 2 & 3 Efflue**	Batch ID: **46125**	RunNo: **61319**							
Prep Date: **7/11/2019**	Analysis Date: **7/11/2019**	SeqNo: **2078632**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	.00005580	94.2	75	125			

Sample ID: **1907003-001EMSD**	SampType: **MSD**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **WDW-1, 2 & 3 Efflue**	Batch ID: **46125**	RunNo: **61319**							
Prep Date: **7/11/2019**	Analysis Date: **7/11/2019**	SeqNo: **2078633**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0045	0.00020	0.005000	.00005580	89.7	75	125	4.84	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A61162**	RunNo: **61162**
Prep Date:	Analysis Date: **7/3/2019**	SeqNo: **2072741** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A61162**	RunNo: **61162**
Prep Date:	Analysis Date: **7/3/2019**	SeqNo: **2072742** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	97.5	80	120			
Magnesium	49	1.0	50.00	0	97.1	80	120			
Potassium	48	1.0	50.00	0	96.8	80	120			
Sodium	49	1.0	50.00	0	98.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB-46005**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **46005**	RunNo: **61169**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-46005**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **46005**	RunNo: **61169**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.020	0.5000	0	95.9	80	120			
Cadmium	0.50	0.0020	0.5000	0	100	80	120			
Chromium	0.49	0.0060	0.5000	0	99.0	80	120			
Lead	0.49	0.0050	0.5000	0	97.9	80	120			
Selenium	0.48	0.050	0.5000	0	95.9	80	120			
Silver	0.10	0.0050	0.1000	0	101	80	120			

Sample ID: **MB-46005**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **46005**	RunNo: **61169**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073365** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								

Sample ID: **LCS-46005**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **46005**	RunNo: **61169**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073366** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.51	0.020	0.5000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R61065**	RunNo: **61065**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2068770**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R61065**	RunNo: **61065**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2068771**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.24	20.00	80.00	0	94.1	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R61065**	RunNo: **61065**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2068793**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R61065**	RunNo: **61065**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2068794**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.60	20.00	80.00	0	97.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB-45992**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **45992**	RunNo: **61248**
Prep Date: **7/3/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076089** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-45992**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **45992**	RunNo: **61248**
Prep Date: **7/3/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076090** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	988	20.0	1000	0	98.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1907003 RcptNo: 1

Received By: Jevon Campisi 6/28/2019 10:40:00 AM Jevon Campisi
Completed By: Leah Baca 7/1/2019 6:52:49 AM Leah Baca
Reviewed By: JC 7/1/19

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 3 1 1 >9 (<2 or >12 unless noted)
Adjusted? NO
Checked by: LB 7/1/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.2	Good	Yes			

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Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☑ Yes ☐ No

Sample Temperature: -0.2 +0.0CF=0.2 (not traceable)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1907003	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
6-27-19	10:00	Brad Hibbard	Courier	6-28-19	10:40
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade. Field details: 7.24 pH, 41.7°C 89°F, 20% humidity Wind: SSW 15 mph

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	Contaminant	SW-846 Method	Regulatory Level (mg/l)
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallow ~200 - 250 ft bgs

Need All

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Page 1538 of 5828

APR 30 2019 AM10:53

HOLLYFRONTIER.

April 24, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 5314

RE: 2019 1st Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3 and WDW-4, Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the first quarter 2019 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all four wells was 912 psig and the average flows were 187 gpm for WDW-1, 59 gpm for WDW-2, 63 gpm for WDW-3 and 223 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2019 to March 31, 2019. Navajo has disposed a total of 1,703,452 barrels of fluid into the four wells during the first quarter of 2019. The volume per well is:

- 584,606 barrels into WDW-1; 30-015-27592
- 190,046 barrels into WDW-2; 30-015-20894
- 218,229 barrels into WDW-3; 30-015-26575
- 710,571 barrels into WDW-4; 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

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2019 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	43,261,695
Jan-19	1,272	1,400	897	248	301	80	576	734	219	263,589	319,920	85,029	**263,589**	43,525,284
Feb-19	1,270	1,400	885	196	293	97	364	576	170	188,160	281,280	103,097	**188,160**	43,713,444
Mar-19	1,184	1,356	1,100	125	150	106	456	701	323	132,857	159,429	112,663	**132,857**	43,846,301
Monthly Avg	1,242			190								**TOTAL**	584,606	
30-015-20894 WDW-2													**Previous Quarter**	27,836,942
Jan-19	1,262	1,400	932	71	94	8	390	543	230	75,463	99,909	8,503	**75,463**	27,912,405
Feb-19	1,252	1,381	1,057	64	81	29	410	588	284	61,440	77,760	27,840	**61,440**	27,973,845
Mar-19	1,157	1,300	1,044	50	77	26	432	659	304	53,143	81,840	27,634	**53,143**	28,026,988
Monthly Avg	1,224			62								**TOTAL**	190,046	
30-015-26575 WDW-3													**Previous Quarter**	19,438,780
Jan-19	1,177	1,400	906	87	144	0	741	938	598	92,469	153,051	0	**92,469**	19,531,249
Feb-19	1,116	1,258	899	69	109	0	700	930	561	66,240	104,640	0	**66,240**	19,597,489
Mar-19	1,064	1,151	999	56	86	25	659	839	592	59,520	91,406	26,571	**59,520**	19,657,009
Monthly Avg	1,119			71								**TOTAL**	218,229	
30-015-44677 WDW-4													**Previous Quarter**	0
Jan-19	58	89	37	422	683	178	152	227	107	202,560	327,840	72,960	**202,560**	202,560
Feb-19	50	98	36	238	729	82	159	226	111	228,480	699,840	78,720	**228,480**	431,040
Mar-19	80	337	51	263	351	192	167	253	96	279,531	373,063	204,069	**279,531**	710,571
Monthly Avg	63			308								**TOTAL**	710,571	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	584,606	43,261,695	43,846,301
WDW2	190,046	27,836,942	28,026,988
WDW3	218,229	19,438,780	19,657,009
WDW4	710,571	0	710,571
	1,703,452	90,537,417	92,240,869

District I
1625 North French, Hobbs, NM 88241

District II
811 S. First St., Artesia, NM 88210

District III
1000 Rio Brazos, Aztec, NM 84710

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South Saint Francis Drive
Santa Fe, NM 87505

OPERATOR'S MONTHLY REPORT

Form C-115 First Page
Revised January 22, 2004
Instruction on Reverse Side
1 ☐ Amended Report

2 Operator NAVAJO REFINERY CO.	3 OGRID: 15694	1/2019
5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210		6 Page 1 of 4

		INJECTION			PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 CODE 1	9 Volume	10 Pressure	11 CODE 2	12 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 CODE 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	263,589	1,272	W												
30-015-20894 WDW - 2	D	75,463	1,262	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	92,469	1,177	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	202560	58	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

District I
1625 North French, Hobbs, NM 88241
District II
811 S. First St., Artesia, NM 88210
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96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	188,160	1,270	W												
30-015-20894 WDW - 2	D	61,440	1,252	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	66,240	1,116	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	228480	50	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

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2 Operator NAVAJO REFINERY CO.	3 OGRID: 15694	3/2019
5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210		6 Page 1 of 4

		INJECTION			PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 CODE 1	9 Volume	10 Pressure	11 CODE 2	12 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 CODE 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
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30-015-27592 WDW - 1	D	132,857	1,184	W												
30-015-20894 WDW - 2	D	53,143	1,157	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	59,520	1,064	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	279531	80	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

Page 1543 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 18, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX:

RE: Quarterly WDW 1 2 3 Inj Well OrderNo.: 1903D14

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/27/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

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Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report
Lab Order **1903D14**
Date Reported: **4/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1903D14-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 3/26/2019 8:15:00 AM
Received Date: 3/27/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **JME**	
Chlordane	ND	0.030		mg/L	1	4/16/2019 12:06:41 PM	43999
Surr: Decachlorobiphenyl	26.3	29.4-99.8	S	%Rec	1	4/16/2019 12:06:41 PM	43999
Surr: Tetrachloro-m-xylene	25.0	20.7-100		%Rec	1	4/16/2019 12:06:41 PM	43999
EPA METHOD 8270C TCLP						Analyst: **JDC**	
2-Methylphenol	ND	200		mg/L	1	4/13/2019 10:55:55 PM	44003
3+4-Methylphenol	ND	200		mg/L	1	4/13/2019 10:55:55 PM	44003
2,4-Dinitrotoluene	ND	0.13		mg/L	1	4/13/2019 10:55:55 PM	44003
Hexachlorobenzene	ND	0.13		mg/L	1	4/13/2019 10:55:55 PM	44003
Hexachlorobutadiene	ND	0.50		mg/L	1	4/13/2019 10:55:55 PM	44003
Hexachloroethane	ND	3.0		mg/L	1	4/13/2019 10:55:55 PM	44003
Nitrobenzene	ND	2.0		mg/L	1	4/13/2019 10:55:55 PM	44003
Pentachlorophenol	ND	100		mg/L	1	4/13/2019 10:55:55 PM	44003
Pyridine	ND	5.0		mg/L	1	4/13/2019 10:55:55 PM	44003
2,4,5-Trichlorophenol	ND	400		mg/L	1	4/13/2019 10:55:55 PM	44003
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	4/13/2019 10:55:55 PM	44003
Cresols, Total	ND	200		mg/L	1	4/13/2019 10:55:55 PM	44003
Surr: 2-Fluorophenol	45.0	15-82.5		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: Phenol-d5	35.3	15-74.2		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: 2,4,6-Tribromophenol	73.2	18.6-118		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: Nitrobenzene-d5	67.3	30.4-106		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: 2-Fluorobiphenyl	48.9	15-104		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: 4-Terphenyl-d14	51.6	15-133		%Rec	1	4/13/2019 10:55:55 PM	44003
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.001	0			1	4/3/2019 10:28:00 AM	R58847
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Fluoride	9.6	0.50	*	mg/L	5	4/1/2019 10:44:34 PM	R58816
Chloride	420	25	*	mg/L	50	4/8/2019 2:18:56 PM	R58998
Bromide	0.94	0.50		mg/L	5	4/1/2019 10:44:34 PM	R58816
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	4/1/2019 10:44:34 PM	R58816
Sulfate	1500	25	*	mg/L	50	4/8/2019 2:18:56 PM	R58998
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/1/2019 11:09:23 PM	R58816
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	4100	5.0		µmhos/c	1	4/3/2019 1:19:58 PM	R58867
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	488.6	20.00		mg/L Ca	1	4/3/2019 1:19:58 PM	R58867
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	4/3/2019 1:19:58 PM	R58867
Total Alkalinity (as CaCO3)	488.6	20.00		mg/L Ca	1	4/3/2019 1:19:58 PM	R58867

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Page 1544 of 5828

Page 1545 of 5828

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1903D14-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 3/26/2019 8:15:00 AM
Received Date: 3/27/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**CJS**
Total Dissolved Solids	3130	100	*D	mg/L	1	4/3/2019 5:30:00 PM	44042
EPA METHOD 7470: MERCURY						Analyst:	**pmf**
Mercury	ND	0.00020		mg/L	1	4/5/2019 12:09:40 PM	44137
EPA METHOD 6010B: DISSOLVED METALS						Analyst:	**ELS**
Calcium	330	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
Magnesium	100	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
Potassium	64	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
Sodium	360	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst:	**ELS**
Arsenic	ND	0.020		mg/L	1	4/3/2019 9:09:22 AM	44006
Barium	0.045	0.020		mg/L	1	4/3/2019 9:09:22 AM	44006
Cadmium	ND	0.0020		mg/L	1	4/3/2019 9:09:22 AM	44006
Chromium	ND	0.0060		mg/L	1	4/3/2019 9:09:22 AM	44006
Lead	ND	0.0050		mg/L	1	4/5/2019 10:10:57 AM	44006
Selenium	ND	0.050		mg/L	1	4/3/2019 9:09:22 AM	44006
Silver	ND	0.0050		mg/L	1	4/3/2019 9:09:22 AM	44006
TCLP VOLATILES BY 8260B						Analyst:	**RAA**
Benzene	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
2-Butanone	ND	200		mg/L	200	4/3/2019 12:15:00 AM	R58834
Carbon Tetrachloride	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
Chloroform	ND	6.0		mg/L	200	4/3/2019 12:15:00 AM	R58834
1,4-Dichlorobenzene	ND	7.5		mg/L	200	4/3/2019 12:15:00 AM	R58834
1,1-Dichloroethene	ND	0.70		mg/L	200	4/3/2019 12:15:00 AM	R58834
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	4/3/2019 12:15:00 AM	R58834
Trichloroethene (TCE)	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
Vinyl chloride	ND	0.20		mg/L	200	4/3/2019 12:15:00 AM	R58834
Chlorobenzene	ND	100		mg/L	200	4/3/2019 12:15:00 AM	R58834
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834
Surr: Dibromofluoromethane	101	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834
Surr: Toluene-d8	96.7	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report
Lab Order **1903D14**
Date Reported: **4/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW 1 2 3 Inj Well
Collection Date:
Lab ID: 1903D14-002 **Matrix:** TRIP BLANK **Received Date:** 3/27/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
2-Butanone	ND	200		mg/L	1	4/3/2019 1:27:00 AM	R58834
Carbon Tetrachloride	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
Chloroform	ND	6.0		mg/L	1	4/3/2019 1:27:00 AM	R58834
1,4-Dichlorobenzene	ND	7.5		mg/L	1	4/3/2019 1:27:00 AM	R58834
1,1-Dichloroethene	ND	0.70		mg/L	1	4/3/2019 1:27:00 AM	R58834
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	4/3/2019 1:27:00 AM	R58834
Trichloroethene (TCE)	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
Vinyl chloride	ND	0.20		mg/L	1	4/3/2019 1:27:00 AM	R58834
Chlorobenzene	ND	100		mg/L	1	4/3/2019 1:27:00 AM	R58834
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834
Surr: Dibromofluoromethane	97.9	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834
Surr: Toluene-d8	97.5	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 1547 of 5828

1903D14-001F WDW-1,2,&3 EFFLUENT
Collected date/time: 03/26/19 08:15

SAMPLE RESULTS - 01
L1084745

ONE LAB. NATIONWIDE

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0141		0.00500	1	04/06/2019 17:13	WG1261156

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.56	T8	1	04/02/2019 17:45	WG1259617

Sample Narrative:
L1084745-01 WG1259617: 7.56 at 14.8C

Wet Chemistry by Method 9034-9030B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	0.123		0.0500	1	04/02/2019 18:35	WG1259688

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	04/05/2019 22:16	WG1261310

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

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WG1261158

Wet Chemistry by Method 4500 CN E-2011

QUALITY CONTROL SUMMARY

L1084745-01

ONE LAB. NATIONWIDE

Method Blank (MB)

(MB) R3399162-1 04/06/19 16:41

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Reactive Cyanide	U		0.00180	0.00500

L1084328-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1084328-06 04/06/19 16:48 • (DUP) R3399162-3 04/06/19 16:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Reactive Cyanide	ND	0.000	1	0.000		20

L1084328-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1084328-14 04/06/19 17:07 • (DUP) R3399162-8 04/06/19 17:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Reactive Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3399162-2 04/06/19 16:42

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Reactive Cyanide	0.100	0.0978	97.8	85.0-115	

L1084328-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1084328-07 04/06/19 16:50 • (MS) R3399162-4 04/06/19 16:54 • (MSD) R3399162-5 04/06/19 16:55

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.0790	0.0859	79.0	85.9	1	75.0-125			8.37	20

L1084328-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1084328-13 04/06/19 17:02 • (MS) R3399162-6 04/06/19 17:05 • (MSD) R3399162-7 04/06/19 17:06

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.0801	0.0703	80.1	70.3	1	75.0-125		J6	13.0	20

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:
Hall Environmental Analysis Laboratory		L1084745	04/09/19 09:12

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WG1259617

Wet Chemistry by Method 4500H+ B-2011

QUALITY CONTROL SUMMARY

L1084745-01

ONE LAB. NATIONWIDE.

Laboratory Control Sample (LCS)

(LCS) R3397714-1 04/02/19 17:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	9.97	99.7	99.0-101	

Sample Narrative:

LCS: 9.97 at 17.6C

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WG1259688

Wet Chemistry by Method 9034-9030B

QUALITY CONTROL SUMMARY

L1084745-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3397727-1 04/02/19 18:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Reactive Sulfide	U		0.00650	0.0500

Laboratory Control Sample (LCS)

(LCS) R3397727-2 04/02/19 18:19

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Reactive Sulfide	0.500	0.476	95.2	85 0-115	

1 Cr
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:
Hall Environmental Analysis Laboratory		L1084745	04/09/19 09:12

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WG1261310
Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY
L1084745-01

ONE LAB. NATIONWIDE.

L1084808-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1084808-02 04/05/19 22:16 • (DUP) R3399058-2 04/05/19 22:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	deg F	deg F		%		%
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

L1085800-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1085800-01 04/05/19 22:16 • (DUP) R3399058-3 04/05/19 22:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	deg F	deg F		%		%
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R3399058-1 04/05/19 22:16

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	deg F	deg F	%	%	
Flashpoint	82.0	81.6	99.5	96.0-104	

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Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
TB	Sample(s) received past/too close to holding time expiration.

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Page 1553 of 5828

1903D14-001G WDW-1,2,&3 EFFLUENT
Collected date/time: 03/26/19 08:15

SAMPLE RESULTS - 01
L1084668

ONE LAB. NATIONWIDE

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	mV				
ORP	192	TB	1	04/06/2019 11:25	WG1261694

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

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WG1261694

Wet Chemistry by Method 2580

QUALITY CONTROL SUMMARY

L1084668-01

ONE LAB. NATIONWIDE

L1084668-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1084668-01 04/06/19 11:25 • (DUP) R3399096-2 04/06/19 11:25

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mV	mV		%		%
ORP	192	191	1	0.522		20

Laboratory Control Sample (LCS)

(LCS) R3399096-1 04/06/19 11:25

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mV	mV	%	%	
ORP	228	228	100	95.7-104	

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Page 1555 of 5828

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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Abbreviations and Definitions

Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
T8	Sample(s) received past/too close to holding time expiration.

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R58816	RunNo: 58816							
Prep Date:	Analysis Date: 4/1/2019	SeqNo: 1976714	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R58816	RunNo: 58816							
Prep Date:	Analysis Date: 4/1/2019	SeqNo: 1976715	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	101	90	110			
Bromide	2.4	0.10	2.500	0	95.1	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.6	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	98.1	90	110			

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R58998	RunNo: 58998							
Prep Date:	Analysis Date: 4/8/2019	SeqNo: 1985185	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R58998	RunNo: 58998							
Prep Date:	Analysis Date: 4/8/2019	SeqNo: 1985187	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.9	90	110			
Sulfate	10	0.50	10.00	0	100	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified at testcode

Page 1556 of 5828

Page 1557 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903D14-001BMS	SampType: MS	TestCode: EPA Method 8081: Pesticides TCLP
Client ID: WDW-1,2,&3 Effluen	Batch ID: 43999	RunNo: 59212
Prep Date: 4/1/2019	Analysis Date: 4/16/2019	SeqNo: 1993657 Units: %Rec

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.00088		0.002500		35.2	29.4	99.8			
Surr: Tetrachloro-m-xylene	0.00076		0.002500		30.6	20.7	100			

Sample ID: 1903D14-001BMSD	SampType: MSD	TestCode: EPA Method 8081: Pesticides TCLP
Client ID: WDW-1,2,&3 Effluen	Batch ID: 43999	RunNo: 59212
Prep Date: 4/1/2019	Analysis Date: 4/16/2019	SeqNo: 1993658 Units: %Rec

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0017		0.002500		66.0	29.4	99.8	0	0	
Surr: Tetrachloro-m-xylene	0.0015		0.002500		59.0	20.7	100	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 100ng lcs2	SampType: LCS	TestCode: TCLP Volatiles by 8260B							
Client ID: LCSW	Batch ID: R58834	RunNo: 58834							
Prep Date:	Analysis Date: 4/2/2019	SeqNo: 1978496	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50	0.02000	0	100	70	130			
1,1-Dichloroethene	ND	0.70	0.02000	0	95.1	70	130			
Trichloroethene (TCE)	ND	0.50	0.02000	0	90.3	70	130			
Chlorobenzene	ND	100	0.02000	0	95.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.011		0.01000		109	70	130			
Surr: 4-Bromofluorobenzene	0.0099		0.01000		99.2	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		103	70	130			
Surr: Toluene-d8	0.0097		0.01000		97.3	70	130			

Sample ID: rb2	SampType: MBLK	TestCode: TCLP Volatiles by 8260B							
Client ID: PBW	Batch ID: R58834	RunNo: 58834							
Prep Date:	Analysis Date: 4/2/2019	SeqNo: 1978497	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		104	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		100	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		99.5	70	130			
Surr: Toluene-d8	0.0099		0.01000		98.6	70	130			

Sample ID: 1903d14-001ams	SampType: MS	TestCode: TCLP Volatiles by 8260B							
Client ID: WDW-1,2,&3 Effluen	Batch ID: R58834	RunNo: 58834							
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978503	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.1	0.00017	4.000	0.02440	102	70	130			
1,1-Dichloroethene	4.1	0.00021	4.000	0	102	67.6	130			
Trichloroethene (TCE)	3.9	0.00017	4.000	0	97.2	70	130			
Chlorobenzene	4.2	0.00019	4.000	0.03160	105	70	130			
Surr: 1,2-Dichloroethane-d4	2.1		2.000		104	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Page 1559 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903d14-001ams	SampType: MS	TestCode: TCLP Volatiles by 8260B
Client ID: WDW-1,2,&3 Effluen	Batch ID: R58834	RunNo: 58834
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978503 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.9		2.000		96.7	70	130			
Surr: Dibromofluoromethane	1.9		2.000		96.5	70	130			
Surr: Toluene-d8	2.0		2.000		97.7	70	130			

Sample ID: 1903d14-001amsd	SampType: MSD	TestCode: TCLP Volatiles by 8260B
Client ID: WDW-1,2,&3 Effluen	Batch ID: R58834	RunNo: 58834
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978504 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.1	0.00017	4.000	0.02440	101	70	130	1.10	20	
1,1-Dichloroethene	4.0	0.00021	4.000	0	99.0	67.6	130	3.29	20	
Trichloroethene (TCE)	3.8	0.00017	4.000	0	95.6	70	130	1.68	20	
Chlorobenzene	4.0	0.00019	4.000	0.03160	99.7	70	130	5.04	20	
Surr: 1,2-Dichloroethane-d4	2.1		2.000		106	70	130	0	0	
Surr: 4-Bromofluorobenzene	2.0		2.000		102	70	130	0	0	
Surr: Dibromofluoromethane	2.0		2.000		100	70	130	0	0	
Surr: Toluene-d8	2.0		2.000		98.2	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **1903D14-001Bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **44003** RunNo: **59132**

Prep Date: **4/1/2019** Analysis Date: **4/13/2019** SeqNo: **1990636** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.056	0.0063	0.1000	0	56.5	23.9	129			
3+4-Methylphenol	0.10	0.0054	0.2000	0	51.9	15	167			
2,4-Dinitrotoluene	0.064	0.0058	0.1000	0	64.4	15	147			
Hexachlorobenzene	0.073	0.0062	0.1000	0	73.0	41.4	136			
Hexachlorobutadiene	0.023	0.0064	0.1000	0	23.4	16.2	134			
Hexachloroethane	0.024	0.0060	0.1000	0	23.9	20.6	124			
Nitrobenzene	0.059	0.0060	0.1000	0	59.0	39.5	134			
Pentachlorophenol	0.033	0.0053	0.1000	0	33.5	15	137			
Pyridine	0.016	0.0060	0.1000	0	16.0	15	129			
2,4,5-Trichlorophenol	0.070	0.0054	0.1000	0	70.4	15	158			
2,4,6-Trichlorophenol	0.069	0.0058	0.1000	0	68.7	15	153			
Cresols, Total	0.16	0.012	0.3000	0	53.4	10.6	179			
Surr: 2-Fluorophenol	0.085		0.2000		42.3	15	82.5			
Surr: Phenol-d5	0.067		0.2000		33.3	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		72.0	18.6	118			
Surr: Nitrobenzene-d5	0.068		0.1000		67.8	30.4	106			
Surr: 2-Fluorobiphenyl	0.046		0.1000		46.3	15	104			
Surr: 4-Terphenyl-d14	0.058		0.1000		57.7	15	133			

Sample ID: **1903D14-001Bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **44003** RunNo: **59132**

Prep Date: **4/1/2019** Analysis Date: **4/13/2019** SeqNo: **1990637** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.049	0.0063	0.1000	0	48.9	23.9	129	14.3	20	
3+4-Methylphenol	0.094	0.0054	0.2000	0	47.0	15	167	9.96	20	
2,4-Dinitrotoluene	0.055	0.0058	0.1000	0	54.9	15	147	16.0	23.2	
Hexachlorobenzene	0.063	0.0062	0.1000	0	62.5	41.4	136	15.5	20	
Hexachlorobutadiene	0.023	0.0064	0.1000	0	23.1	16.2	134	1.38	20	
Hexachloroethane	0.022	0.0060	0.1000	0	21.7	20.6	124	9.57	31.3	
Nitrobenzene	0.054	0.0060	0.1000	0	54.2	39.5	134	8.44	26.6	
Pentachlorophenol	0.028	0.0053	0.1000	0	28.2	15	137	16.9	27.9	
Pyridine	0.021	0.0060	0.1000	0	21.0	15	129	26.8	47.4	
2,4,5-Trichlorophenol	0.058	0.0054	0.1000	0	57.7	15	158	19.7	36.9	
2,4,6-Trichlorophenol	0.062	0.0058	0.1000	0	61.9	15	153	10.4	37.2	
Cresols, Total	0.14	0.012	0.3000	0	47.6	10.6	179	11.5	27.4	
Surr: 2-Fluorophenol	0.072		0.2000		36.0	15	82.5	0	0	
Surr: Phenol-d5	0.057		0.2000		28.6	15	74.2	0	0	
Surr: 2,4,6-Tribromophenol	0.13		0.2000		63.4	18.6	118	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 1561 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903D14-001Bmsd SampType: MSD TestCode: EPA Method 8270C TCLP

Client ID: WDW-1,2,&3 Effluen Batch ID: 44003 RunNo: 59132

Prep Date: 4/1/2019 Analysis Date: 4/13/2019 SeqNo: 1990637 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.062		0.1000		61.7	30.4	106	0	0	
Surr: 2-Fluorobiphenyl	0.041		0.1000		40.8	15	104	0	0	
Surr: 4-Terphenyl-d14	0.049		0.1000		49.1	15	133	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **lcs-1 99.0uS eC**	SampType: **LCS**			TestCode: **SM2510B: Specific Conductance**						
Client ID: **LCSW**	Batch ID: **R58867**			RunNo: **58867**						
Prep Date:	Analysis Date: **4/3/2019**			SeqNo: **1978677**		Units: **µmhos/cm**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.00	0	100	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 1563 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-44137	SampType: MBLK	TestCode: EPA Method 7470: Mercury							
Client ID: PBW	Batch ID: 44137	RunNo: 58933							
Prep Date: 4/4/2019	Analysis Date: 4/5/2019	SeqNo: 1981797	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LCS-44137	SampType: LCS	TestCode: EPA Method 7470: Mercury							
Client ID: LCSW	Batch ID: 44137	RunNo: 58933							
Prep Date: 4/4/2019	Analysis Date: 4/5/2019	SeqNo: 1981798	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0043	0.00020	0.005000	0	85.5	80	120			

Sample ID: LCSD-44137	SampType: LCSD	TestCode: EPA Method 7470: Mercury							
Client ID: LCSS02	Batch ID: 44137	RunNo: 58933							
Prep Date: 4/4/2019	Analysis Date: 4/5/2019	SeqNo: 1981844	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.7	80	120	15.3	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-A	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: PBW	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978089 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: LCS-A	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: LCSW	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978091 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.2	80	120			
Magnesium	50	1.0	50.00	0	99.5	80	120			
Potassium	49	1.0	50.00	0	98.4	80	120			
Sodium	48	1.0	50.00	0	96.3	80	120			

Sample ID: LCSD-A	SampType: LCSD	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: LCSS02	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978092 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	100	80	120	1.07	20	
Magnesium	50	1.0	50.00	0	101	80	120	1.09	20	
Potassium	50	1.0	50.00	0	99.4	80	120	1.05	20	
Sodium	49	1.0	50.00	0	98.6	80	120	2.32	20	

Sample ID: 1903D14-001DMS	SampType: MS	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978153 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	350	5.0	250.0	100.9	101	75	125			
Potassium	310	5.0	250.0	63.59	100	75	125			

Sample ID: 1903D14-001DMSD	SampType: MSD	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978154 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	360	5.0	250.0	100.9	102	75	125	0.849	20	
Potassium	320	5.0	250.0	63.59	101	75	125	0.298	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 1564 of 5828

Page 1565 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-44006	SampType: MBLK	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: PBW	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978079 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: LCS-44006	SampType: LCS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: LCSW	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978084 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.47	0.020	0.5000	0	94.0	80	120			
Barium	0.48	0.020	0.5000	0	96.7	80	120			
Cadmium	0.49	0.0020	0.5000	0	98.3	80	120			
Chromium	0.48	0.0060	0.5000	0	96.7	80	120			
Selenium	0.50	0.050	0.5000	0	99.3	80	120			
Silver	0.10	0.0050	0.1000	0	100	80	120			

Sample ID: 1903D14-001EMS	SampType: MS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978105 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0.01859	93.7	75	125			
Barium	0.50	0.020	0.5000	0.04539	90.9	75	125			
Cadmium	0.48	0.0020	0.5000	0	95.6	75	125			
Chromium	0.46	0.0060	0.5000	0	91.6	75	125			
Selenium	0.52	0.050	0.5000	0.04001	95.3	75	125			
Silver	0.11	0.0050	0.1000	0.003795	101	75	125			

Sample ID: 1903D14-001EMSD	SampType: MSD	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978106 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0.01859	94.3	75	125	0.602	20	
Barium	0.50	0.020	0.5000	0.04539	91.6	75	125	0.717	20	
Cadmium	0.48	0.0020	0.5000	0	95.7	75	125	0.0812	20	
Chromium	0.46	0.0060	0.5000	0	91.2	75	125	0.359	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Received by OCD: 5/16/2022 2:12:41 PM

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903D14-001EMSD SampType: MSD TestCode: EPA 6010B: Total Recoverable Metals

Client ID: WDW-1,2,&3 Effluen Batch ID: 44006 RunNo: 58849

Prep Date: 4/1/2019 Analysis Date: 4/3/2019 SeqNo: 1978106 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.53	0.050	0.5000	0.04001	97.3	75	125	1.89	20	
Silver	0.11	0.0050	0.1000	0.003795	103	75	125	1.41	20	

Sample ID: MB-44006 SampType: MBLK TestCode: EPA 6010B: Total Recoverable Metals

Client ID: PBW Batch ID: 44006 RunNo: 58923

Prep Date: 4/1/2019 Analysis Date: 4/5/2019 SeqNo: 1981494 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								

Sample ID: LCS-44006 SampType: LCS TestCode: EPA 6010B: Total Recoverable Metals

Client ID: LCSW Batch ID: 44006 RunNo: 58923

Prep Date: 4/1/2019 Analysis Date: 4/5/2019 SeqNo: 1981495 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.51	0.0050	0.5000	0	101	80	120			

Sample ID: 1903D14-001EMS SampType: MS TestCode: EPA 6010B: Total Recoverable Metals

Client ID: WDW-1,2,&3 Effluen Batch ID: 44006 RunNo: 58923

Prep Date: 4/1/2019 Analysis Date: 4/5/2019 SeqNo: 1981515 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.48	0.0050	0.5000	0	95.7	75	125			

Sample ID: 1903D14-001EMSD SampType: MSD TestCode: EPA 6010B: Total Recoverable Metals

Client ID: WDW-1,2,&3 Effluen Batch ID: 44006 RunNo: 58923

Prep Date: 4/1/2019 Analysis Date: 4/5/2019 SeqNo: 1981516 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.48	0.0050	0.5000	0	96.9	75	125	1.26	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 1567 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: mb-1 alk	SampType: MBLK	TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R58867	RunNo: 58867							
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978652	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-1 alk	SampType: LCS	TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R58867	RunNo: 58867							
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978653	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.56	20.00	80.00	0	95.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-44042	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids							
Client ID: PBW	Batch ID: 44042	RunNo: 58866							
Prep Date: 4/2/2019	Analysis Date: 4/3/2019	SeqNo: 1978621	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: LCS-44042	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids							
Client ID: LCSW	Batch ID: 44042	RunNo: 58866							
Prep Date: 4/2/2019	Analysis Date: 4/3/2019	SeqNo: 1978622	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 1569 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1903D14 RcptNo: 1

Received By: Yazmine Garduno 3/27/2019 8:40:00 AM

Completed By: Leah Baca 3/27/2019 1:57:18 PM

Reviewed By: ENH 3/29/19

Labeled by YG 3/29/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 4 (2) (<2 or >12 unless noted)

Adjusted? NO

Checked by: YG 3/29/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____

By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: ____

Client Instructions: ____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.1	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
X Standard ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☐ Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1903D14	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	~~-002~~					X	X		
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	~~-003~~		X						
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date	Time	Relinquished by	Received by	Date	Time
3.26.19	1:00	Brady Hubbard	courier		
		Brady Hubbard		3/27/19	8:41
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade. 7.32 pH, 31.0°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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HOLLYFRONTIER

January 23, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 7357

RE: 2018 4th Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3
HollyFrontier Navajo Refining LLC.

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for all three wells was 1245 psig and the average flows were 261 gpm for WDW-1, 79 gpm for WDW-2 and 115 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from October 1, 2018 to December 31, 2018. Navajo has disposed a total of 1,433,520 barrels of fluid into the three wells during the fourth quarter of 2018. The volume per well is:

- 822,549 barrels into WDW-1; 30-015-27592
- 248,228 barrels into WDW-2; 30-015-20894
- 362,743 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager

Electronic cc (w/enc.): R. Combs, L. Dade
Environmental File: NRC/ENV/INJ WELLS/REPORTS C-115/2018

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

Page 1572 of 5828

2018 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	42,439,146
Oct-18	1,291	1,400	1,200	290	328	157	517	930	203	308,229	348,617	215,760	308,229	42,747,375
Nov-18	1,237	1,400	1,066	251	299	161	423	609	221	258,171	307,543	165,600	258,171	43,005,546
Dec-18	1,240	1,400	903	241	297	84	347	538	200	256,149	315,669	89,280	256,149	43,261,695
Monthly Avg	1,256			261										
30-015-20894 WDW-2													**Previous Quarter**	27,588,714
Oct-18	1,276	1,400	1,169	89	180	58	435	565	316	94,594	191,314	61,645	94,954	27,683,308
Nov-18	1,240	1,400	1,174	76	90	62	434	571	274	78,171	92,571	63,771	78,171	27,761,479
Dec-18	1,225	1,400	908	71	84	1	478	585	273	75,463	89,280	1,063	75,463	27,836,942
Monthly Avg	1,247			79										
30-015-26575 WDW-3													**Previous Quarter**	19,076,037
Oct-18	1,251	1,400	1,136	125	146	80	738	932	490	132,857	155,177	85,029	132,857	19,208,894
Nov-18	1,230	1,400	1,133	115	140	76	736	822	599	118,286	144,000	78,171	118,286	19,327,180
Dec-18	1,217	1,400	914	105	124	2	713	812	607	111,600	131,794	2,126	111,600	19,438,780
Monthly Avg	1,233			115										
AVG:	1,245			152										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	43,261,695	42,439,146	822,549
WDW2	27,836,942	27,588,714	248,228
WDW3	19,438,780	19,076,037	362,743
	90,537,417	89,103,897	1,433,520

G:\Environmental\Injection Wells\Reports C-115 and Quarterly\2018\
4Q INJECTION 2018.xlsx

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 18, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 3 Inj Well OrderNo.: 1812E95

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/29/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **JME**
Chlordane	ND	0.030		mg/L	1	1/9/2019 9:47:37 AM
Surr: Decachlorobiphenyl	42.3	47.2-117	S	%Rec	1	1/9/2019 9:47:37 AM
Surr: Tetrachloro-m-xylene	42.3	26.4-126		%Rec	1	1/9/2019 9:47:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Fluoride	20	0.50	*	mg/L	5	1/4/2019 1:02:43 PM
Chloride	660	25	*	mg/L	50	1/15/2019 12:03:59 AM
Bromide	1.5	0.50		mg/L	5	1/4/2019 1:02:43 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	1/4/2019 1:02:43 PM
Sulfate	1900	25	*	mg/L	50	1/15/2019 12:03:59 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/4/2019 6:24:12 PM
EPA METHOD 7470: MERCURY						Analyst: **pmf**
Mercury	ND	0.00020		mg/L	1	1/10/2019 1:48:58 PM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: **rde**
Calcium	66	1.0		mg/L	1	1/4/2019 1:29:10 PM
Magnesium	21	1.0		mg/L	1	1/4/2019 1:29:10 PM
Potassium	94	1.0		mg/L	1	1/4/2019 1:29:10 PM
Sodium	950	10		mg/L	10	1/4/2019 1:35:13 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **rde**
Arsenic	0.085	0.020		mg/L	1	1/9/2019 4:36:22 PM
Barium	0.020	0.020		mg/L	1	1/9/2019 4:36:22 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2019 4:36:22 PM
Chromium	0.0061	0.0060		mg/L	1	1/9/2019 4:36:22 PM
Lead	ND	0.0050		mg/L	1	1/9/2019 4:36:22 PM
Selenium	ND	0.050		mg/L	1	1/9/2019 4:36:22 PM
Silver	ND	0.0050		mg/L	1	1/9/2019 4:36:22 PM
EPA METHOD 8270C TCLP						Analyst: **DAM**
2-Methylphenol	ND	200		mg/L	1	1/9/2019 12:34:44 PM
3+4-Methylphenol	ND	200		mg/L	1	1/9/2019 12:34:44 PM
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/9/2019 12:34:44 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/9/2019 12:34:44 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/9/2019 12:34:44 PM
Hexachloroethane	ND	3.0		mg/L	1	1/9/2019 12:34:44 PM
Nitrobenzene	ND	2.0		mg/L	1	1/9/2019 12:34:44 PM
Pentachlorophenol	ND	100		mg/L	1	1/9/2019 12:34:44 PM
Pyridine	ND	5.0		mg/L	1	1/9/2019 12:34:44 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/9/2019 12:34:44 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/9/2019 12:34:44 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C TCLP						Analyst: **DAM**
Cresols, Total	ND	200		mg/L	1	1/9/2019 12:34:44 PM
Surr: 2-Fluorophenol	58.1	15-73.6		%Rec	1	1/9/2019 12:34:44 PM
Surr: Phenol-d5	41.9	15-63.4		%Rec	1	1/9/2019 12:34:44 PM
Surr: 2,4,6-Tribromophenol	75.6	15-119		%Rec	1	1/9/2019 12:34:44 PM
Surr: Nitrobenzene-d5	78.7	33.5-111		%Rec	1	1/9/2019 12:34:44 PM
Surr: 2-Fluorobiphenyl	57.5	31.8-101		%Rec	1	1/9/2019 12:34:44 PM
Surr: 4-Terphenyl-d14	66.2	17.2-84.7		%Rec	1	1/9/2019 12:34:44 PM
TCLP VOLATILES BY 8260B						Analyst: **DJF**
Benzene	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
2-Butanone	ND	200		mg/L	200	1/3/2019 12:42:43 AM
Carbon Tetrachloride	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
Chloroform	ND	6.0		mg/L	200	1/3/2019 12:42:43 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	200	1/3/2019 12:42:43 AM
1,1-Dichloroethene	ND	0.70		mg/L	200	1/3/2019 12:42:43 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	1/3/2019 12:42:43 AM
Trichloroethene (TCE)	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
Vinyl chloride	ND	0.20		mg/L	200	1/3/2019 12:42:43 AM
Chlorobenzene	ND	100		mg/L	200	1/3/2019 12:42:43 AM
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: 4-Bromofluorobenzene	94.4	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: Dibromofluoromethane	107	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: Toluene-d8	102	70-130		%Rec	200	1/3/2019 12:42:43 AM
CORROSIVITY						Analyst: **SUB**
pH	6.93			su	1	1/4/2019
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>170			°F	1	1/5/2019
OXIDATION REDUCTION POTENTIAL						Analyst: **SUB**
Oxidation-Reduction Potential	200			mV	1	1/4/2019
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	0.0196	0.00500		mg/L	1	1/7/2019
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	0.093	0.0050		mg/L	1	1/9/2019
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5600	5.0		µmhos/c	1	1/2/2019 3:11:27 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	149.5	20.00		mg/L Ca	1	1/2/2019 3:11:27 PM
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	1/2/2019 3:11:27 PM
Total Alkalinity (as CaCO3)	149.5	20.00		mg/L Ca	1	1/2/2019 3:11:27 PM
SPECIFIC GRAVITY						Analyst: **JRR**
Specific Gravity	1.001	0			1	1/8/2019 10:12:00 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3880	100	*D	mg/L	1	1/7/2019 10:44:00 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**
18-Jan-19

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R56793**	RunNo: **56793**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900898** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R56793**	RunNo: **56793**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900899** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			
Bromide	2.4	0.10	2.500	0	94.6	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.1	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.5	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R56999**	RunNo: **56999**
Prep Date:	Analysis Date: **1/14/2019**	SeqNo: **1906790** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R56999**	RunNo: **56999**
Prep Date:	Analysis Date: **1/14/2019**	SeqNo: **1906791** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.2	90	110			
Sulfate	10	0.50	10.00	0	99.5	90	110			

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID MB-42425	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: PBW	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902962	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0015		0.002500		59.2	47.2	117			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		54.6	26.4	126			

Sample ID LCS-42425	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902963	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0017		0.002500		69.4	47.2	117			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		61.6	26.4	126			

Sample ID LCSD-42425	SampType: LCSD	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSS02	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902964	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0014		0.002500		54.4	47.2	117	0	0	
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.6	26.4	126	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **rb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T56703**	RunNo: **56703**
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898710** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		100	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		99.8	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		104	70	130			
Surr: Toluene-d8	0.010		0.01000		105	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T56703**	RunNo: **56703**
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898711** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.017	0.0050	0.02000	0	84.3	70	130			
1,1-Dichloroethene	0.019	0.0050	0.02000	0	96.7	70	130			
Trichloroethene (TCE)	0.016	0.0050	0.02000	0	81.2	70	130			
Chlorobenzene	0.019	0.0050	0.02000	0	93.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.0093		0.01000		92.6	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		105	70	130			
Surr: Dibromofluoromethane	0.0099		0.01000		99.1	70	130			
Surr: Toluene-d8	0.010		0.01000		99.5	70	130			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **1812e95-001bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903284** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.052	0.0010	0.1000	0	51.5	23.9	129			
3+4-Methylphenol	0.11	0.0010	0.2000	0	52.6	15	167			
2,4-Dinitrotoluene	0.045	0.0010	0.1000	0	45.0	15	147			
Hexachlorobenzene	0.050	0.0010	0.1000	0	49.6	41.4	136			
Hexachlorobutadiene	0.024	0.0010	0.1000	0	24.5	16.2	134			
Hexachloroethane	0.018	0.0010	0.1000	0	18.1	20.6	124			S
Nitrobenzene	0.054	0.0010	0.1000	0	53.7	39.5	134			
Pentachlorophenol	0.048	0.0010	0.1000	0	47.7	15	137			
Pyridine	0.0025	0.0010	0.1000	0	2.46	15	129			S
2,4,5-Trichlorophenol	0.058	0.0010	0.1000	0	58.2	15	158			
2,4,6-Trichlorophenol	0.068	0.0010	0.1000	0	68.5	15	153			
Cresols, Total	0.16	0.0010	0.3000	0	52.2	10.6	179			
Surr: 2-Fluorophenol	0.080		0.2000		40.1	15	73.6			
Surr: Phenol-d5	0.066		0.2000		33.1	15	63.4			
Surr: 2,4,6-Tribromophenol	0.12		0.2000		58.2	15	119			
Surr: Nitrobenzene-d5	0.054		0.1000		53.9	33.5	111			
Surr: 2-Fluorobiphenyl	0.038		0.1000		37.7	31.8	101			
Surr: 4-Terphenyl-d14	0.051		0.1000		50.9	17.2	84.7			

Sample ID **1812e95-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903285** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.068	0.0010	0.1000	0	68.2	23.9	129	27.9	20	R
3+4-Methylphenol	0.14	0.0010	0.2000	0	70.7	15	167	29.3	20	R
2,4-Dinitrotoluene	0.063	0.0010	0.1000	0	63.0	15	147	33.3	23.2	R
Hexachlorobenzene	0.073	0.0010	0.1000	0	73.2	41.4	136	38.5	20	R
Hexachlorobutadiene	0.042	0.0010	0.1000	0	42.3	16.2	134	53.2	20	R
Hexachloroethane	0.032	0.0010	0.1000	0	32.2	20.6	124	56.1	31.3	R
Nitrobenzene	0.073	0.0010	0.1000	0	73.2	39.5	134	30.7	26.6	R
Pentachlorophenol	0.070	0.0010	0.1000	0	69.8	15	137	37.7	27.9	R
Pyridine	0.0043	0.0010	0.1000	0	4.26	15	129	53.6	47.4	RS
2,4,5-Trichlorophenol	0.075	0.0010	0.1000	0	75.3	15	158	25.6	36.9	
2,4,6-Trichlorophenol	0.096	0.0010	0.1000	0	95.8	15	153	33.2	37.2	
Cresols, Total	0.21	0.0010	0.3000	0	69.9	10.6	179	28.8	27.4	R
Surr: 2-Fluorophenol	0.10		0.2000		52.4	15	73.6	0	0	
Surr: Phenol-d5	0.082		0.2000		41.2	15	63.4	0	0	
Surr: 2,4,6-Tribromophenol	0.16		0.2000		81.4	15	119	0	0	

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **1812e95-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903285** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.077		0.1000		76.9	33.5	111	0	0	
Surr: 2-Fluorobiphenyl	0.062		0.1000		62.0	31.8	101	0	0	
Surr: 4-Terphenyl-d14	0.078		0.1000		78.4	17.2	84.7	0	0	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID	lcs-1 99.0uS eC	SampType:	LCS		TestCode:	SM2510B: Specific Conductance				
Client ID:	LCSW	Batch ID:	R56730		RunNo:	56730				
Prep Date:		Analysis Date:	1/2/2019		SeqNo:	1898774	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.00	0	100	80	120			

Sample ID	lcs-2 99.0uS eC	SampType:	LCS		TestCode:	SM2510B: Specific Conductance				
Client ID:	LCSW	Batch ID:	R56730		RunNo:	56730				
Prep Date:		Analysis Date:	1/2/2019		SeqNo:	1898798	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-42524**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **42524**	RunNo: **56898**							
Prep Date: **1/9/2019**	Analysis Date: **1/10/2019**	SeqNo: **1903938**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-42524**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **42524**	RunNo: **56898**							
Prep Date: **1/9/2019**	Analysis Date: **1/10/2019**	SeqNo: **1903939**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.7	80	120			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID MB-A	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: PBW	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900123	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID LCS-A	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: LCSW	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900124	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	51	1.0	50.00	0	103	80	120			
Potassium	51	1.0	50.00	0	102	80	120			
Sodium	51	1.0	50.00	0	101	80	120			

Sample ID 1812E95-001DMS	SampType: MS	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: WDW-1,2,&3 Effluen	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900141	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	73	1.0	50.00	20.95	104	75	125			

Sample ID 1812E95-001DMSD	SampType: MSD	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: WDW-1,2,&3 Effluen	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900142	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	72	1.0	50.00	20.95	101	75	125	1.57	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID	MB-42405	SampType:	MBLK	TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW	Batch ID:	42405	RunNo:	56870				
Prep Date:	1/2/2019	Analysis Date:	1/9/2019	SeqNo:	1903095	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-42405	SampType:	LCS	TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSW	Batch ID:	42405	RunNo:	56870				
Prep Date:	1/2/2019	Analysis Date:	1/9/2019	SeqNo:	1903096	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0	97.5	80	120			
Barium	0.48	0.020	0.5000	0	96.3	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.1	80	120			
Chromium	0.49	0.0060	0.5000	0	98.0	80	120			
Lead	0.48	0.0050	0.5000	0	95.0	80	120			
Selenium	0.45	0.050	0.5000	0	90.8	80	120			
Silver	0.097	0.0050	0.1000	0	97.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-R56892**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/7/2019**	SeqNo: **1903741**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID **LCS-R56892**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/7/2019**	SeqNo: **1903742**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.101		0.1000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-R56892**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/9/2019**	SeqNo: **1903744**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID **LCS-R56892**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/9/2019**	SeqNo: **1903745**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.45		0.5000	0	90.6	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R56730**	RunNo: **56730**							
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898751**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R56730**	RunNo: **56730**							
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898752**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.96	20.00	80.00	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-42426**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **42426**	RunNo: **56796**
Prep Date: **1/3/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901042** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-42426**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **42426**	RunNo: **56796**
Prep Date: **1/3/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901043** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1812E95 RcptNo: 1

Received By: Andy Freeman 12/29/2018 11:00:00 AM

Completed By: Erin Melendrez 12/31/2018 9:08:51 AM

Reviewed By: DAD 12/31/18

Labeled by: JAB 12/31/18

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Courier		

Log In

3.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4.	Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
6.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7.	Are samples (except VOA and ONG) properly preserved?	Yes ☐	No ☑	
8.	Was preservative added to bottles?	Yes ☑	No ☐	NA ☐
9.	VOA vials have zero headspace?	Yes ☑	No ☐	HNO3 See remarks No VOA Vials ☐
10.	Were any sample containers received broken?	Yes ☐	No ☑	2 JAB 12/31/18
11.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 1; 2 (<2 or >12 unless noted)
12.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? Yes
13.	Is it clear what analyses were requested?	Yes ☑	No ☐	
14.	Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: JAB 12/31/18

Special Handling (if applicable)

15.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks.

For dissolved metals analysis: Poured off and filter approx. 125mLs into separate container from extra bottle and preserved with 0.4mLs HNO3 for preffered pH. Held 24 hours prior to analysis

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P O Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251641

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.7 °

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1812E95	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals. only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A									
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X										
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X											
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X															
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X														
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X													

Date:	Time:	Relinquished by:	Received by:	Date Time
12-27-18	12:00	Brad Hilliard		12/27/18 1100
Date:	Time:	Relinquished by:	Received by:	Date Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade. Field pH: 7.28 Field temp: 31.5°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	**Contaminant**	**SW-846 Method**	**Regulatory Level (mg/l)**
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

Shallower 200 - 250 ft bgs

Need All

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HOLLYFRONTIER.

October 29, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 7012

RE: 2018 3rd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, HollyFrontier Navajo Refining LLC.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1285 psig and the average flows were 220 gpm for WDW-1, 92 gpm for WDW-2 and 118 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2018 to September 30, 2018. We have disposed a total of 1,510,625 barrels of fluid into the three wells during the third quarter of 2018. The volume per well is:

- 693,900 barrels into WDW-1; 30-015-27592
- 357,879 barrels into WDW-2; 30-015-20894
- 458,846 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

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Page 1595 of 5828

2018 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												**Previous Quarter**		41,745,246
Jul-18	1,378	1,400	1,315	248	341	73	385	491	195	8,503	10,526	4,320	263,593	42,008,839
Aug-18	1,304	1,400	936	221	657	41	443	836	136	7,577	10,629	5,726	234,887	42,243,726
Sep-18	1,224	1,400	920	190	535	49	397	705	93	6,514	11,623	7,954	195,420	42,439,146
Monthly Avg	1,302			220										
30-015-20894 WDW-2												**Previous Quarter**		27,230,835
Jul-18	1,349	1,400	960	101	114	0	440	1,102	260	3,463	3,909	0	107,349	27,338,184
Aug-18	1,305	1,400	942	96	118	0	415	646	316	3,291	4,046	0	138,222	27,476,406
Sep-18	1,211	1,400	926	78	135	1	419	549	330	2,674	4,629	34	112,308	27,588,714
Monthly Avg	1,286			80										
30-015-26575 WDW-3												**Previous Quarter**		18,617,191
Jul-18	1,338	1,400	1,298	135	142	117	363	454	174	4,629	4,869	4,011	143,486	18,760,677
Aug-18	1,258	1,400	948	116	156	0	570	931	239	3,977	5,349	0	167,040	18,927,717
Sep-18	1,195	1,400	931	103	138	2	639	849	325	3,531	4,731	69	148,320	19,076,037
Monthly Avg	1,264			112								**Total Injected fluids:**		
AVG:	1,285			158										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	42,439,146	41,745,246	693,900
WDW2	27,588,714	27,230,835	357,879
WDW3	19,076,037	18,617,191	458,846
	89,103,897	87,593,272	1,510,625

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 15, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 and 3 Inj Well OrderNo.: 1809619

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/12/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1809619**
Date Reported: **10/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1809619-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2018 9:24:00 AM
Received Date: 9/12/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JDC**	
Specific Gravity	0.9997	0			1	9/14/2018 2:05:00 PM	R54162
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	25	2.0	*	mg/L	20	9/13/2018 3:30:00 AM	R54103
Chloride	420	50		mg/L	100	10/2/2018 7:04:14 PM	R54600
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Bromide	0.90	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	9/13/2018 3:30:00 AM	R54103
Sulfate	2400	50		mg/L	100	10/2/2018 7:04:14 PM	R54600
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5500	5.0		µmhos/c	1	9/18/2018 12:32:37 PM	R54265
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	119.6	20.00		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
Total Alkalinity (as CaCO3)	119.6	20.00		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4180	40.0	*D	mg/L	1	8/18/2019 7:19:00 PM	40386
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.07		H	pH units	1	9/18/2018 12:32:37 PM	R54265
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	9/13/2018 12:27:55 PM	40321
MERCURY, TCLP						Analyst: **rde**	
Mercury	ND	0.020		mg/L	1	10/3/2018 3:45:28 PM	40779
EPA METHOD 6010B: TCLP METALS						Analyst: **pmf**	
Arsenic	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Barium	ND	100		mg/L	1	10/2/2018 3:33:44 PM	40718
Cadmium	ND	1.0		mg/L	1	10/2/2018 3:33:44 PM	40718
Chromium	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Lead	ND	5.0		mg/L	1	10/2/2018 3:33:44 PM	40718
Selenium	ND	1.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Silver	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
EPA 6010B: METALS						Analyst: **ELS**	
Aluminum	5.3	0.10		mg/L	5	10/11/2018 8:56:07 AM	40718
Antimony	ND	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Arsenic	0.050	0.020		mg/L	1	10/11/2018 8:04:22 AM	40718

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1809619**
Date Reported: **10/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1809619-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2018 9:24:00 AM
Received Date: 9/12/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: METALS						Analyst: **ELS**	
Barium	0.022	0.020		mg/L	1	10/10/2018 11:36:58 AM	40718
Beryllium	ND	0.0030		mg/L	1	10/10/2018 11:36:58 AM	40718
Cadmium	ND	0.0020		mg/L	1	10/10/2018 11:36:58 AM	40718
Calcium	63	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Chromium	ND	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Cobalt	ND	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Copper	0.013	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Iron	3.6	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Lead	ND	0.0050		mg/L	1	10/10/2018 11:36:58 AM	40718
Magnesium	21	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Manganese	0.13	0.0020		mg/L	1	10/10/2018 11:36:58 AM	40718
Nickel	0.023	0.010		mg/L	1	10/10/2018 11:36:58 AM	40718
Potassium	75	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Selenium	ND	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Silver	ND	0.0050		mg/L	1	10/10/2018 11:36:58 AM	40718
Sodium	1300	50		mg/L	50	10/10/2018 11:42:09 AM	40718
Thallium	ND	0.050		mg/L	1	10/10/2018 12:31:48 PM	40718
Vanadium	0.052	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Zinc	0.066	0.020		mg/L	1	10/10/2018 11:36:58 AM	40718

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-001	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001D / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1,1,2-Tetrachloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,1-Trichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,2-Trichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-Dichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-Dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2,3-Trichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dibromo-3-chloropropane(DBCP)	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dibromoethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichlorobenzene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,3-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,4-Dichlorobenzene	ND	ug/L	0.5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2,2-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2-Butanone	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2-hexanone	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acetone	886	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acetonitrile	130	ug/L	100	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acrolein	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acrylonitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Allyl Chloride	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Benzene	161	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromochloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromodichloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromoform	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0026; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Sample Number 180919003-001 **Sampling Date** 9/11/2018 **Date/Time Received** 9/14/201811:23 AM
Client Sample ID 1809619-001D / WDW-1,2,&3 EFFLUENT **Sampling Time** 9:24 AM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Bromomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Carbon disulfide	11.8	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Carbon Tetrachloride	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chlorobenzene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroform	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroprene	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
cis-1,2-dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
cis-1,3-Dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dibromochloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dibromomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dichlorodifluoromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Ethyl methacrylate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Ethylbenzene	89.9	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Iodomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Isobutanol	ND	ug/L	1000	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
m+p-Xylene	197	ug/L	10	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methacrylonitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl ethyl ketone (MEK)	35.8	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl isobutyl ketone (MIBK)	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl Methacrylate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methylene chloride	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
o-Xylene	114	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Propionitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Styrene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Tetrachloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Toluene	378	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C586; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1809619
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-001	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001D / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
trans-1,2-Dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
trans-1,3-Dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
trans-1-4-Dichloro-2-butene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Trichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Trichlorofiouromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Vinyl acetate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Vinyl Chloride	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Epichlorohydrin	ND	ug/L	50	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Surrogate Data

Sample Number 180919003-001

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260C	108.2	70-130
1,2-Dichlorobenzene-d4	EPA 8260C	99.6	70-130
4-Bromofluorobenzene	EPA 8260C	98.0	70-130
4-Bromofluorobenzene	EPA 8260C	104.0	70-130
Toluene-d8	EPA 8260C	98.4	70-130
Toluene-d8	EPA 8260C	99.6	70-130

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Trichloroethene	9.40	ug/L	10	94.0	80-120	9/25/2018	9/25/2018
Toluene	9.79	ug/L	10	97.9	80-120	9/25/2018	9/25/2018
Tetrachloroethene	9.13	ug/L	10	91.3	80-120	9/25/2018	9/25/2018
o-Xylene	9.64	ug/L	10	96.4	80-120	9/25/2018	9/25/2018
Ethylbenzene	9.92	ug/L	10	99.2	80-120	9/25/2018	9/25/2018
Chlorobenzene	9.78	ug/L	10	97.8	80-120	9/25/2018	9/25/2018
Benzene	9.79	ug/L	10	97.9	80-120	9/25/2018	9/25/2018
1,1-Dichloroethene	9.57	ug/L	10	95.7	80-120	9/25/2018	9/25/2018

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Trichloroethene	9.69	ug/L	10	96.9	3.0	0-25	9/25/2018	9/25/2018
Toluene	10.1	ug/L	10	101.0	3.1	0-25	9/25/2018	9/25/2018
Tetrachloroethene	9.48	ug/L	10	94.8	3.8	0-25	9/25/2018	9/25/2018
o-Xylene	10.3	ug/L	10	103.0	6.6	0-25	9/25/2018	9/25/2018
Ethylbenzene	10.2	ug/L	10	102.0	2.8	0-25	9/25/2018	9/25/2018
Chlorobenzene	10.4	ug/L	10	104.0	6.1	0-25	9/25/2018	9/25/2018
Benzene	10.4	ug/L	10	104.0	6.0	0-25	9/25/2018	9/25/2018
1,1-Dichloroethene	9.87	ug/L	10	98.7	3.1	0-25	9/25/2018	9/25/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,1,1,2-Tetrachloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,1-Trichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,2,2-Tetrachloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,2-Trichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-Dichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-Dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2,3-Trichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dibromo-3-chloropropane(DBCP)	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dibromoethane	ND	ug/L	0.5	9/25/2018	9/25/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87693; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2-Dichlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,3-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,4-Dichlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
2,2-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
2-Butanone	ND	ug/L	2.5	9/25/2018	9/25/2018
2-hexanone	ND	ug/L	0.5	9/25/2018	9/25/2018
Acetone	ND	ug/L	2.5	9/25/2018	9/25/2018
Acetonitrile	ND	ug/L	0.5	9/25/2018	9/25/2018
Acrolein	ND	ug/L	2.5	9/25/2018	9/25/2018
Acrylonitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Allyl Chloride	ND	ug/L	0.5	9/25/2018	9/25/2018
Benzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromochloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromodichloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromoform	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Carbon disulfide	ND	ug/L	0.5	9/25/2018	9/25/2018
Carbon Tetrachloride	ND	ug/L	0.5	9/25/2018	9/25/2018
Chlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroform	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroprene	ND	ug/L	0.5	9/25/2018	9/25/2018
cis-1,2-dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
cis-1,3-Dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
Dibromochloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Dibromomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Dichlorodifluoromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Ethyl methacrylate	ND	ug/L	2.5	9/25/2018	9/25/2018
Ethylbenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Iodomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Isobutanol	ND	ug/L	10	9/25/2018	9/25/2018
m+p-Xylene	ND	ug/L	1	9/25/2018	9/25/2018
Methacrylonitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Methyl ethyl ketone (MEK)	ND	ug/L	2.5	9/25/2018	9/25/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Methyl isobutyl ketone (MIBK)	ND	ug/L	2.5	9/25/2018	9/25/2018
Methyl Methacrylate	ND	ug/L	2.5	9/25/2018	9/25/2018
Methylene chloride	ND	ug/L	2.5	9/25/2018	9/25/2018
o-Xylene	ND	ug/L	0.5	9/25/2018	9/25/2018
Propionitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Styrene	ND	ug/L	0.5	9/25/2018	9/25/2018
Tetrachloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
Toluene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1,2-Dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1,3-Dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1-4-Dichloro-2-butene	ND	ug/L	0.5	9/25/2018	9/25/2018
Trichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
Trichlorofluoromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Vinyl acetate	ND	ug/L	0.5	9/25/2018	9/25/2018
Vinyl Chloride	ND	ug/L	0.5	9/25/2018	9/25/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Sample Number 180919003-002 **Sampling Date** 9/11/2018 **Date/Time Received** 9/14/201811:23 AM
Client Sample ID 1809619-001E / WDW-1,2,&3 EFFLUENT **Extraction Date** 9/18/2018
Matrix Water **Sampling Time** 9:24 AM
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2,4-Trichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2-Diphenyl hydrazine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3,5-TNB	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3-DNB	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Dioxane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Naphthoquinone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1-Methylnaphthalene	56.5	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1-Naphthylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,2-Oxybis(1-chloropropane)	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dimethylphenol	123	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
2,4-Dinitrotoluene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,6-Dichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Acetylaminofluorene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Chlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Methylnaphthalene	59.6	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Methylphenol	585	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Naphthylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Nitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Picoline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3,3-Dimethylbenzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3+4-Methylphenol	1060	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3-Methylcholanthrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Aminobiphenyl	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
4-Chloro-3-methylphenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Chloroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitroquinoline-1-oxide	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
5-Nitro-o-toluidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
7,12-Dimethylbenz(a)anthracene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
a,a-Dimethylphenethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acenaphthene	ND	ug/L	5	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acenaphthylene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acetophenone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Aniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Anthracene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Aramite	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo(ghi)perylene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Benzo[k]fluoranthene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzyl alcohol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Chloroethyl)ether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Butylbenzylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Carbazole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Chlorobenzilate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Chrysene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Diallate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Diethylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dimethoate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dimethylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
diphenylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Disulfoton	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ethyl methanesulfonate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Ethyl parathion	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Famphur	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Fluoranthene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Fluorene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorobenzene	ND	ug/L	10	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachloroethane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachloropropene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachorophene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isodrin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isophorone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isosafrole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Kepone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methapyrilene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methyl methanesulfonate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methyl parathion	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Naphthalene	123	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Nitrosodimethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-nitrosodibutylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosodiethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitroso-di-n-propylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosodiphenylamine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosomethylethylamine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosomorpholine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosopiperadine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosopyrrolidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
o,o,o-Triethyl phosphorothioate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
o-Toluidine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
p-(Dimethylamino)azobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachloroethane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachloronitrobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenacetin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenanthrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenol	5330	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Sample Number 180919003-002 **Sampling Date** 9/11/2018 **Date/Time Received** 9/14/201811:23 AM
Client Sample ID 1809619-001E / WDW-1,2,&3 EFFLUENT **Extraction Date** 9/18/2018
Matrix Water **Sampling Time** 9:24 AM
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Phorate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
p-Phenylenediamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pronamide	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pyrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pyridine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Safrole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Sulfotep	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Thionazin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

Surrogate Data

Sample Number 180919003-002

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	100.4	63-122
2-Fluorobiphenyl	EPA 8270D	82.8	58-127
2-Fluorophenol	EPA 8270D	85.6	44-119
Nitrobenzene-d5	EPA 8270D	77.6	58-120
Phenol-d5	EPA 8270D	71.6	52-115
Terphenyl-d14	EPA 8270D	58.8	22-133

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Pyrene	4.75	ug/L	5	95.0	45-138	9/18/2018	9/26/2018
Phenol	4.17	ug/L	5	83.4	45-134	9/18/2018	9/26/2018
Pentachlorophenol	4.06	ug/L	5	81.2	22-138	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	4.57	ug/L	5	91.4	46-140	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	5.26	ug/L	5	105.2	43-142	9/18/2018	9/26/2018
Acenaphthene	4.50	ug/L	5	90.0	36-122	9/18/2018	9/26/2018
4-Nitrophenol	4.96	ug/L	5	99.2	19-137	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	4.78	ug/L	5	95.6	42-139	9/18/2018	9/26/2018
2-Chlorophenol	4.39	ug/L	5	87.8	50-131	9/18/2018	9/26/2018
2,4-Dinitrotoluene	4.75	ug/L	5	95.0	49-134	9/18/2018	9/26/2018
1,4-Dichlorobenzene	3.74	ug/L	5	74.8	28-108	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	3.84	ug/L	5	76.8	33-109	9/18/2018	9/26/2018

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Pyrene	4.84	ug/L	5	96.8	1.9	0-36	9/18/2018	9/26/2018
Phenol	4.39	ug/L	5	87.8	5.1	0-35	9/18/2018	9/26/2018
Pentachlorophenol	4.09	ug/L	5	81.8	0.7	0-47	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	4.96	ug/L	5	99.2	8.2	0-38	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	5.37	ug/L	5	107.4	2.1	0-50	9/18/2018	9/26/2018
Acenaphthene	4.71	ug/L	5	94.2	4.6	0-23	9/18/2018	9/26/2018
4-Nitrophenol	5.25	ug/L	5	105.0	5.7	0-50	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	4.90	ug/L	5	98.0	2.5	0-33	9/18/2018	9/26/2018
2-Chlorophenol	4.74	ug/L	5	94.8	7.7	0-50	9/18/2018	9/26/2018
2,4-Dinitrotoluene	4.98	ug/L	5	99.6	4.7	0-47	9/18/2018	9/26/2018
1,4-Dichlorobenzene	4.07	ug/L	5	81.4	8.5	0-27	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	3.99	ug/L	5	79.8	3.8	0-27	9/18/2018	9/26/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2,4,5-Tetrachlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

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Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,2-Diphenyl hydrazine	ND	ug/L	5	9/18/2018	9/26/2018
1,3,5-TNB	ND	ug/L	5	9/18/2018	9/26/2018
1,3-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,3-DNB	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Dioxane	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Naphthoquinone	ND	ug/L	5	9/18/2018	9/26/2018
1-Methylnaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
1-Naphthylamine	ND	ug/L	5	9/18/2018	9/26/2018
2,2-Oxybis(1-chloropropane)	ND	ug/L	5	9/18/2018	9/26/2018
2,3,4,6-Tetrachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,3,5,6-Tetrachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4,5-Trichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4,6-Trichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dimethylphenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dinitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dinitrotoluene	ND	ug/L	5	9/18/2018	9/26/2018
2,6-Dichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,6-Dinitrotoluene	ND	ug/L	5	9/18/2018	9/26/2018
2-Acetylaminofluorene	ND	ug/L	5	9/18/2018	9/26/2018
2-Chloronaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
2-Chlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Methylnaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
2-Methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Naphthylamine	ND	ug/L	5	9/18/2018	9/26/2018
2-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
2-Nitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Picoline	ND	ug/L	5	9/18/2018	9/26/2018
3,3'-Dichlorobenzidine	ND	ug/L	5	9/18/2018	9/26/2018
3,3-Dimethylbenzidine	ND	ug/L	5	9/18/2018	9/26/2018
3+4-Methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
3-Methylcholanthrene	ND	ug/L	5	9/18/2018	9/26/2018
3-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4,6-Dinitro-2-methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Aminobiphenyl	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

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Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1809619
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
4-Bromophenyl-phenylether	ND	ug/L	5	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Chloroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4-Chlorophenyl-phenylether	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitroquinoline-1-oxide	ND	ug/L	5	9/18/2018	9/26/2018
5-Nitro-o-toluidine	ND	ug/L	5	9/18/2018	9/26/2018
7,12-Dimethylbenz(a)anthracene	ND	ug/L	5	9/18/2018	9/26/2018
a,a-Dimethylphenethylamine	ND	ug/L	5	9/18/2018	9/26/2018
Acenaphthene	ND	ug/L	5	9/18/2018	9/26/2018
Acenaphthylene	ND	ug/L	5	9/18/2018	9/26/2018
Acetophenone	ND	ug/L	5	9/18/2018	9/26/2018
Aniline	ND	ug/L	5	9/18/2018	9/26/2018
Anthracene	ND	ug/L	5	9/18/2018	9/26/2018
Aramite	ND	ug/L	5	9/18/2018	9/26/2018
Benzidine	ND	ug/L	5	9/18/2018	9/26/2018
Benzo(ghi)perylene	ND	ug/L	5	9/18/2018	9/26/2018
Benzo[a]anthracene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[a]pyrene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[b]fluoranthene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[k]fluoranthene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzyl alcohol	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Chloroethoxy)methane	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Chloroethyl)ether	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-chloroisopropyl)ether	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	ND	ug/L	5	9/18/2018	9/26/2018
Butylbenzylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Carbazole	ND	ug/L	5	9/18/2018	9/26/2018
Chlorobenzilate	ND	ug/L	5	9/18/2018	9/26/2018
Chrysene	ND	ug/L	0.1	9/18/2018	9/26/2018
Diallate	ND	ug/L	5	9/18/2018	9/26/2018
Dibenz[a,h]anthracene	ND	ug/L	0.1	9/18/2018	9/26/2018
Dibenzofuran	ND	ug/L	5	9/18/2018	9/26/2018
Diethylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Dimethoate	ND	ug/L	5	9/18/2018	9/26/2018
Dimethylphthalate	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Di-n-butylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Di-n-octylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
diphenylamine	ND	ug/L	5	9/18/2018	9/26/2018
Disulfoton	ND	ug/L	5	9/18/2018	9/26/2018
Ethyl methanesulfonate	ND	ug/L	5	9/18/2018	9/26/2018
Ethyl parathion	ND	ug/L	5	9/18/2018	9/26/2018
Famphur	ND	ug/L	5	9/18/2018	9/26/2018
Fluoranthene	ND	ug/L	5	9/18/2018	9/26/2018
Fluorene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachlorobenzene	ND	ug/L	1	9/18/2018	9/26/2018
Hexachlorobutadiene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachlorocyclopentadiene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachloroethane	ND	ug/L	5	9/18/2018	9/26/2018
Hexachloropropene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachorophene	ND	ug/L	5	9/18/2018	9/26/2018
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.1	9/18/2018	9/26/2018
Isodrin	ND	ug/L	5	9/18/2018	9/26/2018
Isophorone	ND	ug/L	5	9/18/2018	9/26/2018
Isosafrole	ND	ug/L	5	9/18/2018	9/26/2018
Kepone	ND	ug/L	5	9/18/2018	9/26/2018
Methapyrilene	ND	ug/L	5	9/18/2018	9/26/2018
Methyl methanesulfonate	ND	ug/L	5	9/18/2018	9/26/2018
Methyl parathion	ND	ug/L	5	9/18/2018	9/26/2018
Naphthalene	ND	ug/L	5	9/18/2018	9/26/2018
Nitrobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Nitrosodimethylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-nitrosodibutylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosodiethylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosodiphenylamine	ND	ug/L	2	9/18/2018	9/26/2018
n-Nitrosomethylethylamine	ND	ug/L	2	9/18/2018	9/26/2018
n-Nitrosomorpholine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosopiperadine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosopyrrolidine	ND	ug/L	5	9/18/2018	9/26/2018
o,o,o-Triethyl phosphorothioate	ND	ug/L	5	9/18/2018	9/26/2018
o-Toluidine	ND	ug/L	2	9/18/2018	9/26/2018
p-(Dimethylamino)azobenzene	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

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Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Pentachlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Pentachloroethane	ND	ug/L	5	9/18/2018	9/26/2018
Pentachloronitrobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Pentachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
Phenacetin	ND	ug/L	5	9/18/2018	9/26/2018
Phenanthrene	ND	ug/L	1	9/18/2018	9/26/2018
Phenol	ND	ug/L	5	9/18/2018	9/26/2018
Phorate	ND	ug/L	5	9/18/2018	9/26/2018
p-Phenylenediamine	ND	ug/L	5	9/18/2018	9/26/2018
Pronamide	ND	ug/L	5	9/18/2018	9/26/2018
Pyrene	ND	ug/L	5	9/18/2018	9/26/2018
Pyridine	ND	ug/L	5	9/18/2018	9/26/2018
Safrole	ND	ug/L	5	9/18/2018	9/26/2018
Sulfotep	ND	ug/L	5	9/18/2018	9/26/2018
Thionazin	ND	ug/L	5	9/18/2018	9/26/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

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Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-003	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/2018 11:23 AM
Client Sample ID	1809619-001F / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/L	0.1	9/21/2018 1:00:00 PM	BKP	SW846 CH7	
Flashpoint	>200	°F		9/26/2018 4:45:00 PM	GPB	EPA 1010	
pH	7.28	ph Units		9/26/2018 1:40:00 PM	LAC	SM 4500pH-B	
Reactive sulfide	2.00	mg/L	0.19	10/1/2018 2:00:00 PM	ETL	SW846 CH7	

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

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Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Reactive sulfide	0.180	mg/L	0.2	90.0	70-130	10/1/2018	10/1/2018
Cyanide (reactive)	0.520	mg/L	0.5	104.0	80-120	9/20/2018	9/25/2018

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
180925019-001	Reactive sulfide	0.385	0.693	mg/L	0.385	80.0	70-130	10/1/2018	10/1/2018
180919003-003	Cyanide (reactive)	ND	4.91	mg/L	5	98.2	80-120	9/20/2018	9/25/2018

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide (reactive)	4.76	mg/L	5	95.2	3.1	0-25	9/20/2018	9/25/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide (reactive)	ND	mg/L	1	9/20/2018	9/25/2018
Reactive sulfide	ND	mg/L	0.1	10/1/2018	10/1/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0026; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R54103**	RunNo: **54103**
Prep Date:	Analysis Date: **9/13/2018**	SeqNo: **1788975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R54103**	RunNo: **54103**
Prep Date:	Analysis Date: **9/13/2018**	SeqNo: **1788976** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	99.5	90	110			
Bromide	2.5	0.10	2.500	0	98.9	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	101	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R54600**	RunNo: **54600**
Prep Date:	Analysis Date: **10/2/2018**	SeqNo: **1811003** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R54600**	RunNo: **54600**
Prep Date:	Analysis Date: **10/2/2018**	SeqNo: **1811004** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.8	90	110			
Sulfate	9.3	0.50	10.00	0	93.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **lcs-1 98.6uS eC**	SampType: **LCS**	TestCode: **SM2510B: Specific Conductance**	
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**	
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795469**	Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	98.30	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40321**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789572** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-40321**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789573** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	80	120			

Sample ID **1809619-001BMS**	SampType: **MS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789583** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0055	0.00020	0.005000	.00006886	110	75	125			

Sample ID **1809619-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789584** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0057	0.00020	0.005000	.00006886	112	75	125	2.54	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-40779**	SampType: **MBLK**		TestCode: **MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID: **40779**		RunNo: **54613**					
Prep Date:	**10/3/2018**	Analysis Date: **10/3/2018**		SeqNo: **1811409**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-40779**	SampType: **LCS**		TestCode: **MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID: **40779**		RunNo: **54613**					
Prep Date:	**10/3/2018**	Analysis Date: **10/3/2018**		SeqNo: **1811410**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	96.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1809619

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID MB-40718	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810218 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Chromium	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID LCS-40718	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810220 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	96.8	80	120			
Chromium	ND	5.0	0.5000	0	101	80	120			
Selenium	ND	1.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	106	80	120			

Sample ID 1809619-001CMS	SampType: MS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810226 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02964	98.4	75	125			
Chromium	ND	5.0	0.5000	0.0009400	97.2	75	125			
Selenium	ND	1.0	0.5000	0	107	75	125			
Silver	ND	5.0	0.1000	0.001420	109	75	125			

Sample ID 1809619-001CMSD	SampType: MSD	TestCode: EPA Method 6010B: TCLP Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810227 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02964	98.8	75	125	0	20	
Chromium	ND	5.0	0.5000	0.0009400	97.1	75	125	0	20	
Selenium	ND	1.0	0.5000	0	108	75	125	0	20	
Silver	ND	5.0	0.1000	0.001420	109	75	125	0	20	

Sample ID MB-40718	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810246 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-40718**	SampType: **MBLK**			TestCode: **EPA Method 6010B: TCLP Metals**					
Client ID:	**PBW**	Batch ID: **40718**			RunNo: **54590**					
Prep Date:	**10/1/2018**	Analysis Date: **10/2/2018**			SeqNo: **1810246**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Cadmium	ND	1.0								
Lead	ND	5.0								

Sample ID	**LCS-40718**	SampType: **LCS**			TestCode: **EPA Method 6010B: TCLP Metals**					
Client ID:	**LCSW**	Batch ID: **40718**			RunNo: **54590**					
Prep Date:	**10/1/2018**	Analysis Date: **10/2/2018**			SeqNo: **1810248**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	96.7	80	120			
Cadmium	ND	1.0	0.5000	0	103	80	120			
Lead	ND	5.0	0.5000	0	100	80	120			

Sample ID	**1809619-001CMS**	SampType: **MS**			TestCode: **EPA Method 6010B: TCLP Metals**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **40718**			RunNo: **54590**					
Prep Date:	**10/1/2018**	Analysis Date: **10/2/2018**			SeqNo: **1810254**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.09061	93.5	75	125			
Cadmium	ND	1.0	0.5000	0	103	75	125			
Lead	ND	5.0	0.5000	0	98.2	75	125			

Sample ID	**1809619-001CMSD**	SampType: **MSD**			TestCode: **EPA Method 6010B: TCLP Metals**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **40718**			RunNo: **54590**					
Prep Date:	**10/1/2018**	Analysis Date: **10/2/2018**			SeqNo: **1810255**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.09061	93.0	75	125	0	20	
Cadmium	ND	1.0	0.5000	0	99.7	75	125	0	20	
Lead	ND	5.0	0.5000	0	93.1	75	125	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40718** SampType: **MBLK** TestCode: **EPA 6010B: Metals**

Client ID: **PBW** Batch ID: **40718** RunNo: **54775**

Prep Date: **10/1/2018** Analysis Date: **10/10/2018** SeqNo: **1818830** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-40718** SampType: **LCS** TestCode: **EPA 6010B: Metals**

Client ID: **LCSW** Batch ID: **40718** RunNo: **54775**

Prep Date: **10/1/2018** Analysis Date: **10/10/2018** SeqNo: **1818832** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.50	0.050	0.5000	0	100	80	120			
Barium	0.52	0.020	0.5000	0	104	80	120			
Beryllium	0.52	0.0030	0.5000	0	105	80	120			
Cadmium	0.52	0.0020	0.5000	0	104	80	120			
Calcium	48	1.0	50.00	0	95.2	80	120			
Chromium	0.51	0.0060	0.5000	0	102	80	120			
Cobalt	0.51	0.0060	0.5000	0	101	80	120			
Copper	0.51	0.0060	0.5000	0	103	80	120			
Iron	0.50	0.050	0.5000	0	99.6	80	120			
Lead	0.51	0.0050	0.5000	0	101	80	120			
Magnesium	50	1.0	50.00	0	99.4	80	120			
Manganese	0.47	0.0020	0.5000	0	95.0	80	120			
Nickel	0.51	0.010	0.5000	0	102	80	120			
Potassium	49	1.0	50.00	0	97.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	LCS-40718	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	40718		RunNo:	54775				
Prep Date:	10/1/2018	Analysis Date:	10/10/2018		SeqNo:	1818832	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.50	0.050	0.5000	0	99.2	80	120			
Silver	0.11	0.0050	0.1000	0	110	80	120			
Sodium	51	1.0	50.00	0	102	80	120			
Vanadium	0.49	0.050	0.5000	0	98.2	80	120			
Zinc	0.49	0.020	0.5000	0	98.7	80	120			

Sample ID	MB-40718	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	40718		RunNo:	54775				
Prep Date:	10/1/2018	Analysis Date:	10/10/2018		SeqNo:	1818855	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	ND	0.050								

Sample ID	LCS-40718	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	40718		RunNo:	54775				
Prep Date:	10/1/2018	Analysis Date:	10/10/2018		SeqNo:	1818857	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.52	0.050	0.5000	0	103	80	120			

Sample ID	MB-40718	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	40718		RunNo:	54800				
Prep Date:	10/1/2018	Analysis Date:	10/11/2018		SeqNo:	1820075	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Arsenic	ND	0.020								

Sample ID	LCS-40718	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	40718		RunNo:	54800				
Prep Date:	10/1/2018	Analysis Date:	10/11/2018		SeqNo:	1820077	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.54	0.020	0.5000	0	108	80	120			
Arsenic	0.48	0.020	0.5000	0	96.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795420**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795421**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.20	20.00	80.00	0	97.7	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795444**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795445**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.92	20.00	80.00	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **1809619-001A** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R54162** RunNo: **54162**

Prep Date: Analysis Date: **9/14/2018** SeqNo: **1790677** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9995	0						0.0200	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40386**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **40386**	RunNo: **54232**
Prep Date: **9/17/2018**	Analysis Date: **8/18/2019**	SeqNo: **1793445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-40386**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **40386**	RunNo: **54232**
Prep Date: **9/17/2018**	Analysis Date: **8/18/2019**	SeqNo: **1793446** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	999	20.0	1000	0	99.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1809619 RcptNo: 1

Received By: Jazzmine Burkhead 9/12/2018 8:40:00 AM

Completed By: Ashley Gallegos 9/12/2018 12:31:07 PM

Reviewed By: 9/12/18

Labeled by: JAB 09/12/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1;2 (<2 or >12 unless noted)

Adjusted?

Checked by: JAB 09/12/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
X Standard ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler: ✓

On Ice: ☑ Yes ☐ No

Sample Temperature: 0.1+0.2(n) = 4.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1809019	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X		
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/11/18	5:30	Brady Hibbard	[signature]	09/12/18	08:40
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH=7.03
37.3°C

Courier

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

JUL 12 2018 PM01:17

HOLLYFRONTIER.

July 10, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 6664

RE: 2018 2nd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1265 psig and the average flows were 281 gpm for WDW-1, 80 gpm for WDW-2 and 112 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2018 to June 30, 2018. We have disposed a total of 1,870,028 barrels of fluid into the three wells during the second quarter of 2018. The volume per well is:

- 1,108,783 barrels into WDW-1; 30-015-27592
- 320,640 barrels into WDW-2; 30-015-20894
- 440,605 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Lewis R. (Randy) Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Released to Imaging: 7/12/2024 10:49:45 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 28, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 and 3 Inj Well OrderNo.: 1806778

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/13/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JRR**
Fluoride	9.5	0.50	*	mg/L	5	6/13/2018 7:04:58 PM
Chloride	570	25		mg/L	50	6/18/2018 9:58:46 PM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	6/13/2018 7:04:58 PM
Bromide	1.6	0.50		mg/L	5	6/13/2018 7:04:58 PM
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	6/13/2018 7:04:58 PM
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	6/13/2018 7:04:58 PM
Sulfate	2100	25		mg/L	50	6/18/2018 9:58:46 PM
EPA METHOD 7470: MERCURY						Analyst: **rde**
Mercury	ND	0.00020		mg/L	1	6/22/2018 4:48:51 PM
MERCURY, TCLP						Analyst: **rde**
Mercury	ND	0.020		mg/L	1	6/22/2018 3:44:25 PM
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**
Arsenic	ND	5.0		mg/L	1	6/24/2018 6:29:55 PM
Barium	ND	100		mg/L	1	6/21/2018 9:34:34 AM
Cadmium	ND	1.0		mg/L	1	6/21/2018 9:34:34 AM
Chromium	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
Lead	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
Selenium	ND	1.0		mg/L	1	6/21/2018 12:16:01 PM
Silver	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
EPA 6010B: METALS						Analyst: **MED**
Aluminum	0.27	0.020		mg/L	1	6/24/2018 6:58:28 PM
Antimony	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Arsenic	ND	0.020		mg/L	1	6/24/2018 6:58:28 PM
Barium	0.028	0.020		mg/L	1	6/24/2018 6:58:28 PM
Beryllium	ND	0.0030		mg/L	1	6/24/2018 6:58:28 PM
Cadmium	ND	0.0020		mg/L	1	6/24/2018 6:58:28 PM
Calcium	110	5.0		mg/L	5	6/25/2018 1:17:11 PM
Chromium	ND	0.0060		mg/L	1	6/24/2018 6:58:28 PM
Cobalt	ND	0.0060		mg/L	1	6/24/2018 6:58:28 PM
Copper	ND	0.0060		mg/L	1	6/25/2018 12:25:43 PM
Iron	0.30	0.050		mg/L	1	6/24/2018 6:58:28 PM
Lead	ND	0.0050		mg/L	1	6/24/2018 6:58:28 PM
Magnesium	34	1.0		mg/L	1	6/25/2018 1:18:27 PM
Manganese	0.047	0.0020		mg/L	1	6/24/2018 6:58:28 PM
Nickel	ND	0.010		mg/L	1	6/24/2018 6:58:28 PM
Potassium	41	1.0		mg/L	1	6/25/2018 1:18:27 PM
Selenium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: METALS						Analyst: **MED**
Silver	ND	0.0050		mg/L	1	6/24/2018 6:58:28 PM
Sodium	1000	50		mg/L	50	6/25/2018 1:15:55 PM
Thallium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Vanadium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Zinc	ND	0.020		mg/L	1	6/24/2018 6:58:28 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
Benzene	ND	0.50		µg/L	1	6/19/2018
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/19/2018
2-Butanone	ND	5.0		µg/L	1	6/19/2018
Carbon Tetrachloride	ND	0.50		µg/L	1	6/19/2018
Chlorobenzene	ND	0.50		µg/L	1	6/19/2018
Chloroform	ND	0.50		µg/L	1	6/19/2018
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/19/2018
1,1-Dichloroethene	ND	0.50		µg/L	1	6/19/2018
Hexachlorobutadiene	ND	0.50		µg/L	1	6/19/2018
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/19/2018
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/19/2018
Vinyl chloride	ND	0.50		µg/L	1	6/19/2018
Surr: 1,2-Dichlorobenzene-d4	103	70-130		%Rec	1	6/19/2018
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	6/19/2018
Surr: Toluene-d8	102	70-130		%Rec	1	6/19/2018
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
2,4,5-Trichlorophenol	ND	50		µg/L	1	6/20/2018
2,4,6-Trichlorophenol	ND	50		µg/L	1	6/20/2018
2,4-Dinitrotoluene	ND	50		µg/L	1	6/20/2018
2-Methylphenol	ND	50		µg/L	1	6/20/2018
Hexachlorobenzene	ND	10		µg/L	1	6/20/2018
Hexachlorobutadiene	ND	50		µg/L	1	6/20/2018
Hexachloroethane	ND	50		µg/L	1	6/20/2018
Nitrobenzene	ND	50		µg/L	1	6/20/2018
Pentachlorophenol	ND	50		µg/L	1	6/20/2018
Phenol	ND	50		µg/L	1	6/20/2018
Pyridine	ND	50		µg/L	1	6/20/2018
Surr: 2,4,6-Tribromophenol	93.4	63-122		%Rec	1	6/20/2018
Surr: 2-Fluorobiphenyl	86.0	58-127		%Rec	1	6/20/2018
Surr: 2-Fluorophenol	81.8	44-119		%Rec	1	6/20/2018
Surr: Nitrobenzene-d5	88.8	58-120		%Rec	1	6/20/2018
Surr: Phenol-d5	101	52-115		%Rec	1	6/20/2018

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
Surr: Terphenyl-d14	106	20-133		%Rec	1	6/20/2018
CORROSIVITY						Analyst: **SUB**
pH	8.05			pH Units	1	6/19/2018
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>200			°F	1	6/18/2018
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	ND	0.100		mg/L	1	6/20/2018
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	ND	0.20		mg/L	1	6/19/2018
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5900	5.0		µmhos/c	1	6/18/2018 5:39:09 PM
SM4500-H+B / 9040C: PH						Analyst: **JRR**
pH	7.96		H	pH units	1	6/18/2018 5:39:09 PM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	237.5	20.00		mg/L Ca	1	6/18/2018 5:39:09 PM
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	6/18/2018 5:39:09 PM
Total Alkalinity (as CaCO3)	237.5	20.00		mg/L Ca	1	6/18/2018 5:39:09 PM
SPECIFIC GRAVITY						Analyst: **SRM**
Specific Gravity	1.006	0			1	6/18/2018 7:15:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **sat**
Total Dissolved Solids	4100	100	*D	mg/L	1	6/15/2018 1:01:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R51968**	RunNo: **51968**
Prep Date:	Analysis Date: **6/13/2018**	SeqNo: **1699258** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R51968**	RunNo: **51968**
Prep Date:	Analysis Date: **6/13/2018**	SeqNo: **1699259** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.7	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.9	90	110			
Bromide	2.3	0.10	2.500	0	90.2	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.4	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	92.0	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A52074**	RunNo: **52074**
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1704016** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.500								
Sulfate	ND	0.500								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A52074**	RunNo: **52074**
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1704017** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.89	0.500	5.000	0	97.9	90	110			
Sulfate	9.64	0.500	10.00	0	96.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711983** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
2-Butanone	ND	2.5								
Benzene	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroform	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.50								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711984** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	9.9	0	10.00	0	98.6	80	120			
Benzene	9.7	0	10.00	0	96.6	80	120			
Chlorobenzene	9.5	0	10.00	0	94.8	80	120			
Tetrachloroethene (PCE)	9.3	0	10.00	0	93.0	80	120			
Trichloroethene (TCE)	9.7	0	10.00	0	96.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711986** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2-Methylphenol	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenol	ND	5.0								
Pyridine	ND	5.0								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711987** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	3.6	0	5.000	0	71.4	22	138			
Phenol	4.6	0	5.000	0	92.8	45	134			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **lcs-1 ~20uS eC** SampType: **LCS** TestCode: **SM2510B: Specific Conductance**

Client ID: **LCSW** Batch ID: **R52062** RunNo: **52062**

Prep Date: Analysis Date: **6/18/2018** SeqNo: **1703214** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	22	5.0	19.98	0	113	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-38840**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**38840**	RunNo:	**52177**					
Prep Date:	**6/22/2018**	Analysis Date:	**6/22/2018**	SeqNo:	**1709180**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-38840**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**38840**	RunNo:	**52177**					
Prep Date:	**6/22/2018**	Analysis Date:	**6/22/2018**	SeqNo:	**1709181**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.7	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-38837**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**38837**	RunNo:	**52174**					
Prep Date:	**6/22/2018**	Analysis Date:	**6/22/2018**	SeqNo:	**1709087**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-38837**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**38837**	RunNo:	**52174**					
Prep Date:	**6/22/2018**	Analysis Date:	**6/22/2018**	SeqNo:	**1709088**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	103	80	120			

Sample ID	**TCLP#1-3752**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**38837**	RunNo:	**52174**					
Prep Date:	**6/22/2018**	Analysis Date:	**6/22/2018**	SeqNo:	**1709107**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	MB-38797	SampType:	MBLK	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	PBW	Batch ID:	38797	RunNo:	52127					
Prep Date:	6/20/2018	Analysis Date:	6/21/2018	SeqNo:	1707267	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Silver	ND	5.0								

Sample ID	LCS-38797	SampType:	LCS	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	LCSW	Batch ID:	38797	RunNo:	52127					
Prep Date:	6/20/2018	Analysis Date:	6/21/2018	SeqNo:	1707268	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	104	80	120			
Cadmium	ND	1.0	0.5000	0	103	80	120			
Chromium	ND	5.0	0.5000	0	101	80	120			
Lead	ND	5.0	0.5000	0	103	80	120			
Silver	ND	5.0	0.1000	0	110	80	120			

Sample ID	LCSD-38797	SampType:	LCSD	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	LCSS02	Batch ID:	38797	RunNo:	52127					
Prep Date:	6/20/2018	Analysis Date:	6/21/2018	SeqNo:	1707269	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	104	80	120	0	20	
Cadmium	ND	1.0	0.5000	0	103	80	120	0	20	
Chromium	ND	5.0	0.5000	0	101	80	120	0	20	
Lead	ND	5.0	0.5000	0	104	80	120	0	20	
Silver	ND	5.0	0.1000	0	111	80	120	0	20	

Sample ID	MB-38797	SampType:	MBLK	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	PBW	Batch ID:	38797	RunNo:	52127					
Prep Date:	6/20/2018	Analysis Date:	6/21/2018	SeqNo:	1707278	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0								

Sample ID	LCS-38797	SampType:	LCS	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	LCSW	Batch ID:	38797	RunNo:	52127					
Prep Date:	6/20/2018	Analysis Date:	6/21/2018	SeqNo:	1707279	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707279** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0	0.5000	0	97.2	80	120			

Sample ID **LCSD-38797**	SampType: **LCSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707280** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0	0.5000	0	105	80	120	0	20	

Sample ID **MB-38797**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709602** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709603** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	93.7	80	120			

Sample ID **LCSD-38797**	SampType: **LCSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.3	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38830**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**
Client ID: **PBW**	Batch ID: **38830**	RunNo: **52182**
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709613** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-38830**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSW**	Batch ID: **38830**	RunNo: **52182**
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709614** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	110	80	120			
Antimony	0.46	0.050	0.5000	0	92.9	80	120			
Arsenic	0.47	0.020	0.5000	0	95.0	80	120			
Barium	0.50	0.020	0.5000	0	101	80	120			
Beryllium	0.53	0.0030	0.5000	0	106	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.4	80	120			
Chromium	0.47	0.0060	0.5000	0	94.5	80	120			
Cobalt	0.47	0.0060	0.5000	0	94.6	80	120			
Iron	0.51	0.050	0.5000	0	102	80	120			
Lead	0.47	0.0050	0.5000	0	94.5	80	120			
Manganese	0.49	0.0020	0.5000	0	97.7	80	120			
Nickel	0.49	0.010	0.5000	0	98.2	80	120			
Selenium	0.45	0.050	0.5000	0	89.1	80	120			
Silver	0.11	0.0050	0.1000	0	111	80	120			
Thallium	0.50	0.050	0.5000	0	99.6	80	120			
Vanadium	0.50	0.050	0.5000	0	99.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **LCS-38830**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **38830**	RunNo: **52182**							
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709614**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.46	0.020	0.5000	0	91.6	80	120			

Sample ID **1806778-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Metals**							
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **38830**	RunNo: **52182**							
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709617**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.86	0.020	0.5000	0.2671	119	75	125			
Antimony	0.46	0.050	0.5000	0	91.6	75	125			
Arsenic	0.47	0.020	0.5000	0	94.1	75	125			
Barium	0.52	0.020	0.5000	0.02756	97.7	75	125			
Beryllium	0.49	0.0030	0.5000	0	98.7	75	125			
Cadmium	0.49	0.0020	0.5000	0	97.2	75	125			
Chromium	0.46	0.0060	0.5000	0	92.0	75	125			
Cobalt	0.45	0.0060	0.5000	0.001940	89.7	75	125			
Iron	0.78	0.050	0.5000	0.3011	96.1	75	125			
Lead	0.47	0.0050	0.5000	0	93.4	75	125			
Manganese	0.51	0.0020	0.5000	0.04674	92.9	75	125			
Nickel	0.48	0.010	0.5000	0.009450	94.8	75	125			
Selenium	0.50	0.050	0.5000	0.03875	92.8	75	125			
Silver	0.12	0.0050	0.1000	0.001780	116	75	125			
Thallium	0.47	0.050	0.5000	0	94.3	75	125			
Vanadium	0.53	0.050	0.5000	0.03973	97.1	75	125			
Zinc	0.46	0.020	0.5000	0.01812	89.2	75	125			

Sample ID **1806778-001BMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Metals**							
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **38830**	RunNo: **52182**							
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709618**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.87	0.020	0.5000	0.2671	120	75	125	0.456	20	
Antimony	0.44	0.050	0.5000	0	88.1	75	125	3.91	20	
Arsenic	0.47	0.020	0.5000	0	93.5	75	125	0.578	20	
Barium	0.51	0.020	0.5000	0.02756	96.9	75	125	0.792	20	
Beryllium	0.49	0.0030	0.5000	0	97.5	75	125	1.14	20	
Cadmium	0.48	0.0020	0.5000	0	95.5	75	125	1.78	20	
Chromium	0.45	0.0060	0.5000	0	91.0	75	125	1.12	20	
Cobalt	0.44	0.0060	0.5000	0.001940	88.0	75	125	1.87	20	
Iron	0.79	0.050	0.5000	0.3011	97.2	75	125	0.718	20	
Lead	0.46	0.0050	0.5000	0	91.2	75	125	2.36	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	1806778-001BMSD	SampType:	MSD	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52182					
Prep Date:	6/21/2018	Analysis Date:	6/24/2018	SeqNo:	1709618	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.51	0.0020	0.5000	0.04674	93.2	75	125	0.328	20	
Nickel	0.47	0.010	0.5000	0.009450	93.0	75	125	1.82	20	
Selenium	0.50	0.050	0.5000	0.03875	92.2	75	125	0.590	20	
Silver	0.12	0.0050	0.1000	0.001780	116	75	125	0.356	20	
Thallium	0.47	0.050	0.5000	0	94.9	75	125	0.636	20	
Vanadium	0.53	0.050	0.5000	0.03973	97.6	75	125	0.477	20	
Zinc	0.46	0.020	0.5000	0.01812	87.8	75	125	1.53	20	

Sample ID	MB-38830	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710333	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.0060								

Sample ID	LCS-38830	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710334	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.47	0.0060	0.5000	0	94.0	80	120			

Sample ID	1806778-001BMS	SampType:	MS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710337	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.50	0.0060	0.5000	0	101	75	125			

Sample ID	1806778-001BMSD	SampType:	MSD	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710338	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.50	0.0060	0.5000	0	101	75	125	0.300	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	MB-38830	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710647	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	LCS-38830	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710648	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.9	80	120			
Magnesium	48	1.0	50.00	0	97.0	80	120			
Potassium	48	1.0	50.00	0	96.4	80	120			
Sodium	49	1.0	50.00	0	97.4	80	120			

Sample ID	1806778-001BMS	SampType:	MS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710653	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	82	1.0	50.00	34.10	95.8	75	125			
Potassium	89	1.0	50.00	40.69	96.0	75	125			

Sample ID	1806778-001BMSD	SampType:	MSD	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710654	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	84	1.0	50.00	34.10	98.9	75	125	1.93	20	
Potassium	90	1.0	50.00	40.69	98.4	75	125	1.36	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711993** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711994** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.505		0.5000	0	101	80	20			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**							
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711996**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.10								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**							
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711997**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703175**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703176**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.04	20.00	80.00	0	96.3	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703199**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703200**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.28	20.00	80.00	0	99.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specifed

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**1806778-001ADUP**	SampType: **DUP**		TestCode: **Specific Gravity**						
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **R52078**		RunNo: **52078**						
Prep Date:		Analysis Date: **6/18/2018**		SeqNo: **1704219**		Units:				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity		1.001	0						0.508	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38675**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **PBW**	Batch ID: **38675**	RunNo: **52038**							
Prep Date: **6/14/2018**	Analysis Date: **6/15/2018**	SeqNo: **1702120**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-38675**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **LCSW**	Batch ID: **38675**	RunNo: **52038**							
Prep Date: **6/14/2018**	Analysis Date: **6/15/2018**	SeqNo: **1702121**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1806778 RcptNo: 1

Received By: Jazzmine Burkhead 6/13/2018 9:45:00 AM
Completed By: Ashley Gallegos 6/13/2018 11:22:33 AM
Reviewed By: ENM 6/13/18 labeled by: JB 06/13/18

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 2;3 (<2 or >12 unless noted)
Adjusted? No
Checked by: JB

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.3	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standar X Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.3 + 0.0(CF) = 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1800178	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6-12-18	4:00	Brady Hubbard		Courier JS	06/13/18	09:45
Date:	Time:	Relinquished by:	Received by:		Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH= 7.55, 45.4°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	Contaminant	SW-846 Method	Regulatory Level (mg/l)
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallow to 200 - 250 ft bgs

Need All

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2018 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												**Previous Quarter**		40,636,463
Apr-18	1,215	1,400	1,160	266	307	126	386	687	244	9,120	10,526	4,320	273,463	40,909,926
May-18	1,224	1,400	1,195	270	310	167	400	892	174	9,257	10,629	5,726	388,800	41,298,726
Jun-18	1,342	1,400	1,374	308	339	232	528	696	297	10,560	11,623	7,954	446,520	41,745,246
Monthly Avg	1,260			281										
30-015-20894 WDW-2												**Previous Quarter**		26,910,195
Apr-18	1,221	1,400	1,160	61	92	1	315	411	211	2,091	3,154	34	62,880	26,973,075
May-18	1,260	1,400	1,177	77	91	61	310	467	219	2,640	3,120	2,091	110,880	27,083,955
Jun-18	1,359	1,400	1,081	102	111	78	341	548	241	3,497	3,806	2,674	146,880	27,230,835
Monthly Avg	1,280			80										
30-015-26575 WDW-3												**Previous Quarter**		18,176,586
Apr-18	1,210	1,400	1,160	102	132	84	451	596	273	3,497	4,526	2,880	105,085	18,281,671
May-18	1,255	1,400	1,155	108	125	89	374	544	275	3,703	4,286	3,051	155,520	18,437,191
Jun-18	1,302	1,400	1,082	125	141	66	527	701	187	4,286	4,834	2,263	180,000	18,617,191
Monthly Avg	1,256			112								**Total Injected fluids:**		
AVG:	1266			158										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	1,108,783	40,636,463	41,745,246
WDW2	320,640	26,910,195	27,230,835
WDW3	440,605	18,176,586	18,617,191
	1,870,028	85,723,244	87,593,272

HOLLYFRONTIER.

May 8, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 6510

RE: 2018 1st Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1298 psig and the average flows were 133 gpm for WDW-1, 112 gpm for WDW-2 and 99 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits. The Mewbourne WDW-1; 30-015-27592, did have repairs due to well issues starting 01/08/2018. Repairs were made and C-103 submitted, MIT was witnessed on 3/7/2018 and well returned to service on 3/8/2018.

This report covers the period from January 1, 2018 to March 31, 2018. We have disposed a total of 1,424,202 barrels of fluid into the three wells during the first quarter of 2018. The volume per well is:

- 540,144 barrels into WDW-1; 30-015-27592
- 317,136 barrels into WDW-2; 30-015-20894
- 566,922 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2018 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												**Previous Quarter**		40,096,319
Jan-18	1,361	1,400	1,364	134	144	80	1,142	1,393	213	4,152	4,937	2,743	174,384	40,270,703
Feb-18	1,305	1,400	1,195	128	142	96	1,297	1,393	1,192	4,389	4,869	3,291	184,320	40,455,023
Mar-18	1,183	1,400	1,374	126	454	96	504	1,270	331	3,160	15,566	3,291	181,440	40,636,463
Monthly Avg	1,363			133										
30-015-20894 WDW-2												**Previous Quarter**		26,593,059
Jan-18	1,389	1,400	1,344	114	351	107	479	730	308	3,548	12,034	3,669	140,016	26,733,075
Feb-18	1,312	1,400	1,177	75	118	69	361	447	279	2,571	4,046	2,366	108,000	26,841,075
Mar-18	1,263	1,400	1,081	48	111	54	335	468	232	1,477	3,806	1,851	69,120	26,910,195
Monthly Avg	1,300			112										
30-015-26575 WDW-3												**Previous Quarter**		17,609,664
Jan-18	1,340	1,400	1,248	152	162	119	555	663	430	4,721	5,554	4,080	198,282	17,807,946
Feb-18	1,282	1,400	1,155	133	159	100	535	593	441	4,560	5,451	3,429	191,520	17,999,466
Mar-18	1,251	1,400	1,082	123	157	53	467	587	380	3,808	5,383	1,817	177,120	18,176,586
Monthly Avg	1232			99								**Total Injected fluids:**		85,723,244

	Total BBLS	Beginning Volume	Ending Volume
WDW1	540,144	40,096,319	40,636,463
WDW2	317,136	26,593,059	26,910,195
WDW3	566,922	17,609,664	18,176,586
	1,424,202		
		84,299,042	85,723,244

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 15, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1, 2 and 3 Inj Well OrderNo.: 1802968

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/16/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **MAB**	
Chlordane	ND	0.30		mg/L	10	2/22/2018 10:33:17 AM	36636
Surr: Decachlorobiphenyl	63.2	41.2-177		%Rec	10	2/22/2018 10:33:17 AM	36636
Surr: Tetrachloro-m-xylene	64.4	29-171		%Rec	10	2/22/2018 10:33:17 AM	36636
EPA METHOD 8270C TCLP						Analyst: **DAM**	
2-Methylphenol	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
3+4-Methylphenol	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
Phenol	ND	200		mg/L	10	3/13/2018 8:51:59 PM	36637
2,4-Dinitrotoluene	ND	0.13		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachlorobenzene	ND	0.13		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachlorobutadiene	ND	0.50		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachloroethane	ND	3.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Nitrobenzene	ND	2.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Pentachlorophenol	ND	100		mg/L	1	3/5/2018 11:38:07 AM	36637
Pyridine	ND	5.0		mg/L	1	3/5/2018 11:38:07 AM	36637
2,4,5-Trichlorophenol	ND	400		mg/L	1	3/5/2018 11:38:07 AM	36637
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Cresols, Total	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
Surr: 2-Fluorophenol	62.3	15-73.6		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: Phenol-d5	51.2	15-63.4		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 2,4,6-Tribromophenol	91.6	15-119		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: Nitrobenzene-d5	88.7	33.5-111		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 2-Fluorobiphenyl	85.5	31.8-101		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 4-Terphenyl-d14	53.0	17.2-84.7		%Rec	1	3/5/2018 11:38:07 AM	36637
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>170			°F	1	2/20/2018	R49787
OXIDATION REDUCTION POTENTIAL						Analyst: **SUB**	
Oxidation-Reduction Potential	140			mV	1	2/21/2018	R49787
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	0.38	0.050		mg/L	1	2/20/2018	R49787
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9980	0			1	2/20/2018 12:44:00 PM	R49250
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.50	0.50		mg/L	5	2/27/2018 4:16:33 PM	R49460
Chloride	420	25		mg/L	50	3/4/2018 3:17:41 PM	R49545
Bromide	1.2	0.50		mg/L	5	2/27/2018 4:16:33 PM	R49460
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	2/27/2018 4:16:33 PM	R49460

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Sulfate	1200	25		mg/L	50	3/2/2018 9:09:19 PM	R49522
Nitrate+Nitrite as N	ND	1.0		mg/L	5	2/28/2018 12:07:17 PM	R49476
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	4600	5.0		µmhos/cm	1	2/22/2018 12:59:56 PM	R49344
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	286.5	20.00		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
Carbonate (As CaCO3)	36.16	2.000		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
Total Alkalinity (as CaCO3)	322.6	20.00		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3040	20.0	*	mg/L	1	2/21/2018 7:01:00 PM	36630
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	0.0493	0.00500		mg/L	1	2/23/2018	R49787
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	8.59		*H	pH units	1	2/22/2018 12:59:56 PM	R49344
EPA METHOD 7470: MERCURY						Analyst: **rde**	
Mercury	ND	0.00020		mg/L	1	2/21/2018 10:33:26 AM	36616
MERCURY, TCLP						Analyst: **rde**	
Mercury	ND	0.020		mg/L	1	3/8/2018 3:33:51 PM	36908
EPA METHOD 6010B: TCLP METALS						Analyst: **JLF**	
Arsenic	ND	5.0		mg/L	1	3/13/2018 11:04:59 AM	36855
Barium	ND	100		mg/L	1	3/7/2018 7:32:52 PM	36855
Cadmium	ND	1.0		mg/L	1	3/7/2018 7:32:52 PM	36855
Chromium	ND	5.0		mg/L	1	3/12/2018 2:53:01 PM	36855
Lead	ND	5.0		mg/L	1	3/7/2018 7:32:52 PM	36855
Selenium	ND	1.0		mg/L	1	3/13/2018 1:28:45 PM	36855
Silver	ND	5.0		mg/L	1	3/7/2018 7:32:52 PM	36855
EPA 6010B: METALS						Analyst: **JLF**	
Aluminum	1.3	0.020		mg/L	1	3/7/2018 7:34:50 PM	36855
Antimony	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Arsenic	ND	0.020		mg/L	1	3/13/2018 11:03:41 AM	36855
Barium	ND	0.020		mg/L	1	3/7/2018 7:34:50 PM	36855
Beryllium	ND	0.0030		mg/L	1	3/7/2018 7:34:50 PM	36855
Cadmium	ND	0.0020		mg/L	1	3/7/2018 7:34:50 PM	36855
Calcium	67	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Chromium	ND	0.0060		mg/L	1	3/12/2018 2:50:53 PM	36855

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: METALS						Analyst: **JLF**	
Cobalt	ND	0.0060		mg/L	1	3/12/2018 2:50:53 PM	36855
Copper	ND	0.0060		mg/L	1	3/7/2018 7:34:50 PM	36855
Iron	0.59	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Lead	ND	0.0050		mg/L	1	3/7/2018 7:34:50 PM	36855
Magnesium	21	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Manganese	0.041	0.0020		mg/L	1	3/7/2018 7:34:50 PM	36855
Nickel	ND	0.010		mg/L	1	3/7/2018 7:34:50 PM	36855
Potassium	84	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Selenium	0.10	0.050		mg/L	1	3/13/2018 1:27:28 PM	36855
Silver	ND	0.0050		mg/L	1	3/7/2018 7:34:50 PM	36855
Sodium	820	20		mg/L	20	3/7/2018 7:38:57 PM	36855
Thallium	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Vanadium	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Zinc	ND	0.020		mg/L	1	3/13/2018 11:03:41 AM	36855
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
2-Butanone	ND	200		mg/L	200	2/21/2018 9:53:00 PM	T49300
Carbon Tetrachloride	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Chloroform	ND	6.0		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,4-Dichlorobenzene	ND	7.5		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,1-Dichloroethene	ND	0.70		mg/L	200	2/21/2018 9:53:00 PM	T49300
Hexachlorobutadiene	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	2/21/2018 9:53:00 PM	T49300
Trichloroethene (TCE)	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Vinyl chloride	ND	0.20		mg/L	200	2/21/2018 9:53:00 PM	T49300
Chlorobenzene	ND	100		mg/L	200	2/21/2018 9:53:00 PM	T49300
Surr: 1,2-Dichloroethane-d4	84.8	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: 4-Bromofluorobenzene	78.7	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: Dibromofluoromethane	88.2	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: Toluene-d8	77.3	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R49460**	RunNo: **49460**
Prep Date:	Analysis Date: **2/27/2018**	SeqNo: **1597256** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R49460**	RunNo: **49460**
Prep Date:	Analysis Date: **2/27/2018**	SeqNo: **1597257** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.1	90	110			
Bromide	2.4	0.10	2.500	0	95.9	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.3	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R49476**	RunNo: **49476**
Prep Date:	Analysis Date: **2/28/2018**	SeqNo: **1598370** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R49476**	RunNo: **49476**
Prep Date:	Analysis Date: **2/28/2018**	SeqNo: **1598371** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.2	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R49522**	RunNo: **49522**
Prep Date:	Analysis Date: **3/2/2018**	SeqNo: **1600511** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS-b**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R49522**	RunNo: **49522**
Prep Date:	Analysis Date: **3/2/2018**	SeqNo: **1600513** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.2	0.50	10.00	0	91.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R49545**	RunNo: **49545**
Prep Date:	Analysis Date: **3/4/2018**	SeqNo: **1601219** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R49545**	RunNo: **49545**
Prep Date:	Analysis Date: **3/4/2018**	SeqNo: **1601220** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36636**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592030** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0013		0.002500		52.0	41.2	177			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.9	29	171			

Sample ID **LCS-36636**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592031** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0019		0.002500		74.9	41.2	177			
Surr: Tetrachloro-m-xylene	0.0019		0.002500		77.6	29	171			

Sample ID **LCSD-36636**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592036** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0019		0.002500		77.8	41.2	177	0	0	
Surr: Tetrachloro-m-xylene	0.0019		0.002500		77.2	29	171	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T49300**	RunNo: **49300**
Prep Date:	Analysis Date: **2/21/2018**	SeqNo: **1590903** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.024	0.010	0.02000	0	118	70	130			
1,1-Dichloroethene	0.026	0.010	0.02000	0	128	70	130			
Trichloroethene (TCE)	0.022	0.010	0.02000	0	110	70	130			
Chlorobenzene	0.020	0.010	0.02000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	0.0088		0.01000		88.4	70	130			
Surr: 4-Bromofluorobenzene	0.0080		0.01000		79.5	70	130			
Surr: Dibromofluoromethane	0.0091		0.01000		90.8	70	130			
Surr: Toluene-d8	0.0078		0.01000		78.2	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T49300**	RunNo: **49300**
Prep Date:	Analysis Date: **2/21/2018**	SeqNo: **1590905** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0089		0.01000		88.9	70	130			
Surr: 4-Bromofluorobenzene	0.0076		0.01000		76.1	70	130			
Surr: Dibromofluoromethane	0.0092		0.01000		91.7	70	130			
Surr: Toluene-d8	0.0077		0.01000		77.3	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001ems** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611310** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.14	0.0010	0.1000	0	142	23.9	129			S
3+4-Methylphenol	0.34	0.0010	0.2000	0.01344	165	15	167			
2,4-Dinitrotoluene	0.081	0.0010	0.1000	0	81.2	15	147			
Hexachlorobenzene	0.089	0.0010	0.1000	0	89.1	41.4	136			
Hexachlorobutadiene	0.085	0.0010	0.1000	0	84.9	16.2	134			
Hexachloroethane	0.068	0.0010	0.1000	0	67.6	20.6	124			
Nitrobenzene	0.084	0.0010	0.1000	0	84.4	39.5	134			
Pentachlorophenol	0.084	0.0010	0.1000	0	83.6	15	137			
Pyridine	0.022	0.0010	0.1000	0	21.5	15	129			
2,4,5-Trichlorophenol	0.095	0.0010	0.1000	0	95.2	15	158			
2,4,6-Trichlorophenol	0.096	0.0010	0.1000	0	96.0	15	153			
Cresols, Total	0.93	0.0010	0.3000	0.05632	291	10.6	179			S
Surr: 2-Fluorophenol	0.12		0.2000		57.8	15	73.6			
Surr: Phenol-d5	0.097		0.2000		48.7	15	63.4			
Surr: 2,4,6-Tribromophenol	0.18		0.2000		91.0	15	119			
Surr: Nitrobenzene-d5	0.085		0.1000		84.8	33.5	111			
Surr: 2-Fluorobiphenyl	0.084		0.1000		84.3	31.8	101			
Surr: 4-Terphenyl-d14	0.052		0.1000		52.0	17.2	84.7			

Sample ID **1802968-001emsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611311** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.12	0.0010	0.1000	0	119	23.9	129	17.4	20	
3+4-Methylphenol	0.29	0.0010	0.2000	0.01344	138	15	167	17.1	20	
2,4-Dinitrotoluene	0.069	0.0010	0.1000	0	69.1	15	147	16.1	23.2	
Hexachlorobenzene	0.077	0.0010	0.1000	0	76.6	41.4	136	15.1	20	
Hexachlorobutadiene	0.075	0.0010	0.1000	0	74.8	16.2	134	12.6	20	
Hexachloroethane	0.058	0.0010	0.1000	0	58.4	20.6	124	14.7	31.3	
Nitrobenzene	0.073	0.0010	0.1000	0	72.8	39.5	134	14.7	26.6	
Pentachlorophenol	0.071	0.0010	0.1000	0	71.4	15	137	15.7	27.9	
Pyridine	0.022	0.0010	0.1000	0	21.7	15	129	1.02	47.4	
2,4,5-Trichlorophenol	0.074	0.0010	0.1000	0	74.5	15	158	24.4	36.9	
2,4,6-Trichlorophenol	0.079	0.0010	0.1000	0	78.9	15	153	19.6	37.2	
Cresols, Total	0.79	0.0010	0.3000	0.05632	246	10.6	179	15.6	27.4	S
Surr: 2-Fluorophenol	0.098		0.2000		48.8	15	73.6	0	0	
Surr: Phenol-d5	0.079		0.2000		39.7	15	63.4	0	0	
Surr: 2,4,6-Tribromophenol	0.16		0.2000		77.7	15	119	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- PQL Practical Quanitative Limit
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001emsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611311** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.070		0.1000		70.4	33.5	111	0	0	
Surr: 2-Fluorobiphenyl	0.065		0.1000		64.8	31.8	101	0	0	
Surr: 4-Terphenyl-d14	0.043		0.1000		43.1	17.2	84.7	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	**lcs-1 ~20uS eC**	SampType: **LCS**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**LCSW**	Batch ID: **R49344**		RunNo: **49344**						
Prep Date:		Analysis Date: **2/22/2018**		SeqNo: **1592912**		Units: **µmhos/cm**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	22	5.0	19.96	0	112	80	120			

Sample ID	**1802968-001a dup**	SampType: **DUP**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **R49344**		RunNo: **49344**						
Prep Date:		Analysis Date: **2/22/2018**		SeqNo: **1592915**		Units: **µmhos/cm**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	4600	5.0						0.0261	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	**MB-36616**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**36616**	RunNo:	**49292**					
Prep Date:	**2/20/2018**	Analysis Date:	**2/21/2018**	SeqNo:	**1590635**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-36616**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**36616**	RunNo:	**49292**					
Prep Date:	**2/20/2018**	Analysis Date:	**2/21/2018**	SeqNo:	**1590636**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	**MB-36908**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**36908**	RunNo:	**49646**					
Prep Date:	**3/8/2018**	Analysis Date:	**3/8/2018**	SeqNo:	**1605458**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-36908**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**36908**	RunNo:	**49646**					
Prep Date:	**3/8/2018**	Analysis Date:	**3/8/2018**	SeqNo:	**1605459**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.6	80	120			

Sample ID	**LCSD-36908**	SampType:	**LCSD**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSS02**	Batch ID:	**36908**	RunNo:	**49646**					
Prep Date:	**3/8/2018**	Analysis Date:	**3/8/2018**	SeqNo:	**1605460**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.7	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604968 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0								
Selenium	ND	1.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604970 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0	0.5000	0	106	80	120			
Selenium	ND	1.0	0.5000	0	97.7	80	120			

Sample ID LCSD-36855	SampType: LCSD	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSS02	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604971 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0	0.5000	0	104	80	120	0	20	
Selenium	ND	1.0	0.5000	0	106	80	120	0	20	

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604981 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Lead	ND	5.0								
Silver	ND	5.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604983 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	102	80	120			
Lead	ND	5.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID LCSD-36855	SampType: LCSD	TestCode: EPA Method 6010B: TCLP Metals							
Client ID: LCSS02	Batch ID: 36855	RunNo: 49620							
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604984	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	102	80	120	0	20	
Lead	ND	5.0	0.5000	0	101	80	120	0	20	
Silver	ND	5.0	0.1000	0	102	80	120	0	20	

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals							
Client ID: PBW	Batch ID: 36855	RunNo: 49727							
Prep Date: 3/6/2018	Analysis Date: 3/12/2018	SeqNo: 1608232	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals							
Client ID: LCSW	Batch ID: 36855	RunNo: 49727							
Prep Date: 3/6/2018	Analysis Date: 3/12/2018	SeqNo: 1608237	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0	0.5000	0	97.3	80	120			

Sample ID LCSD-36855	SampType: LCSD	TestCode: EPA Method 6010B: TCLP Metals							
Client ID: LCSS02	Batch ID: 36855	RunNo: 49727							
Prep Date: 3/6/2018	Analysis Date: 3/12/2018	SeqNo: 1608238	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0	0.5000	0	99.4	80	120	0	20	

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals							
Client ID: PBW	Batch ID: 36855	RunNo: 49740							
Prep Date: 3/6/2018	Analysis Date: 3/13/2018	SeqNo: 1608916	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals							
Client ID: LCSW	Batch ID: 36855	RunNo: 49740							
Prep Date: 3/6/2018	Analysis Date: 3/13/2018	SeqNo: 1608918	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **LCSD-36855**	SampType: **LCSD**			TestCode: **EPA Method 6010B: TCLP Metals**						
Client ID: **LCSS02**	Batch ID: **36855**			RunNo: **49740**						
Prep Date: **3/6/2018**	Analysis Date: **3/13/2018**			SeqNo: **1608919**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	102	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36855**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**
Client ID: **PBW**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605015** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605017** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	111	80	120			
Beryllium	0.52	0.0030	0.5000	0	105	80	120			
Cadmium	0.53	0.0020	0.5000	0	106	80	120			
Calcium	47	1.0	50.00	0	94.2	80	120			
Cobalt	0.49	0.0060	0.5000	0	98.0	80	120			
Copper	0.52	0.0060	0.5000	0	104	80	120			
Iron	0.49	0.050	0.5000	0	98.5	80	120			
Magnesium	48	1.0	50.00	0	96.3	80	120			
Manganese	0.50	0.0020	0.5000	0	99.8	80	120			
Nickel	0.51	0.010	0.5000	0	101	80	120			
Potassium	47	1.0	50.00	0	94.7	80	120			
Selenium	0.49	0.050	0.5000	0	97.7	80	120			
Vanadium	0.52	0.050	0.5000	0	103	80	120			
Zinc	0.49	0.020	0.5000	0	98.5	80	120			

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605018** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605018**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	110	80	120	0.806	20	
Beryllium	0.52	0.0030	0.5000	0	105	80	120	0.0553	20	
Cadmium	0.52	0.0020	0.5000	0	104	80	120	1.39	20	
Calcium	47	1.0	50.00	0	94.4	80	120	0.153	20	
Cobalt	0.49	0.0060	0.5000	0	97.0	80	120	1.02	20	
Copper	0.52	0.0060	0.5000	0	103	80	120	1.22	20	
Iron	0.49	0.050	0.5000	0	98.7	80	120	0.110	20	
Magnesium	48	1.0	50.00	0	95.3	80	120	0.952	20	
Manganese	0.50	0.0020	0.5000	0	99.8	80	120	0.00601	20	
Nickel	0.51	0.010	0.5000	0	101	80	120	0.00395	20	
Potassium	47	1.0	50.00	0	93.4	80	120	1.31	20	
Selenium	0.53	0.050	0.5000	0	106	80	120	8.29	20	
Vanadium	0.52	0.050	0.5000	0	103	80	120	0.240	20	
Zinc	0.49	0.020	0.5000	0	98.7	80	120	0.254	20	

Sample ID **MB-36855**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**							
Client ID: **PBW**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605019**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Barium	ND	0.020								
Lead	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605021**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.50	0.050	0.5000	0	101	80	120			
Barium	0.51	0.020	0.5000	0	102	80	120			
Lead	0.50	0.0050	0.5000	0	101	80	120			
Silver	0.10	0.0050	0.1000	0	101	80	120			
Sodium	47	1.0	50.00	0	94.6	80	120			
Thallium	0.49	0.050	0.5000	0	98.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	LCSD-36855	SampType:	LCSD	TestCode:	EPA 6010B: Metals					
Client ID:	LCSS02	Batch ID:	36855	RunNo:	49620					
Prep Date:	3/6/2018	Analysis Date:	3/7/2018	SeqNo:	1605022	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.51	0.050	0.5000	0	102	80	120	1.00	20	
Barium	0.51	0.020	0.5000	0	102	80	120	0.114	20	
Lead	0.51	0.0050	0.5000	0	101	80	120	0.131	20	
Silver	0.10	0.0050	0.1000	0	102	80	120	0.913	20	
Sodium	46	1.0	50.00	0	92.7	80	120	2.00	20	
Thallium	0.51	0.050	0.5000	0	102	80	120	3.95	20	

Sample ID	MB-36855	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	36855	RunNo:	49727					
Prep Date:	3/6/2018	Analysis Date:	3/12/2018	SeqNo:	1608906	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060								

Sample ID	LCS-36855	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	36855	RunNo:	49727					
Prep Date:	3/6/2018	Analysis Date:	3/12/2018	SeqNo:	1608908	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.49	0.0060	0.5000	0	97.3	80	120			

Sample ID	LCSD-36855	SampType:	LCSD	TestCode:	EPA 6010B: Metals					
Client ID:	LCSS02	Batch ID:	36855	RunNo:	49727					
Prep Date:	3/6/2018	Analysis Date:	3/12/2018	SeqNo:	1608909	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.50	0.0060	0.5000	0	99.4	80	120	2.07	20	

Sample ID	MB-36855	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	36855	RunNo:	49740					
Prep Date:	3/6/2018	Analysis Date:	3/13/2018	SeqNo:	1608962	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								

Sample ID	LCS-36855	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	36855	RunNo:	49740					
Prep Date:	3/6/2018	Analysis Date:	3/13/2018	SeqNo:	1608964	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49740**							
Prep Date: **3/6/2018**	Analysis Date: **3/13/2018**	SeqNo: **1608964**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.52	0.020	0.5000	0	105	80	120			

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49740**							
Prep Date: **3/6/2018**	Analysis Date: **3/13/2018**	SeqNo: **1608965**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.51	0.020	0.5000	0	102	80	120	2.38	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001a dup** SampType: **DUP** TestCode: **SM4500-H+B / 9040C: pH**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R49344** RunNo: **49344**

Prep Date: Analysis Date: **2/22/2018** SeqNo: **1592953** Units: **pH units**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.57									*H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-R49787**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R49787**	RunNo: **49787**							
Prep Date:	Analysis Date: **2/23/2018**	SeqNo: **1610825**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID **LCS-R49787**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R49787**	RunNo: **49787**							
Prep Date:	Analysis Date: **2/23/2018**	SeqNo: **1610826**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.107		0.1000	0	107	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-R49787**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R49787**	RunNo: **49787**							
Prep Date:	Analysis Date: **2/20/2018**	SeqNo: **1610828**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID **LCS-R49787**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R49787**	RunNo: **49787**							
Prep Date:	Analysis Date: **2/20/2018**	SeqNo: **1610829**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.50		0.5000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592876**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592877**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.16	20.00	80.00	0	99.0	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592900**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592901**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.04	20.00	80.00	0	100	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36630**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **36630**	RunNo: **49297**
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**	SeqNo: **1590748** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-36630**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **36630**	RunNo: **49297**
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**	SeqNo: **1590749** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1802968 RcptNo: 1

Received By: Sophia Campuzano 2/16/2018 9:30:00 AM Sophia Campuzano
Completed By: Anne Thorne 2/19/2018 7:17:43 AM Anne Thorne
Reviewed By:

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 4 2 (<2 or >12 unless noted)
Adjusted? _____
Checked by: AT 02/19/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks: Custody seals intact on sample bottles / AT 02/19/18

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turnaround Time: X Standard Rush

Project Name: Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager: Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: X Yes ☐ No

Sample Temperature: 0.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1802968	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
2/14/18	1:11	Liquid	WDW-1, 2, & 3 Effluent	15	H2SO4/HNO3/HCL	001	X	X	X	X	X	X	X	X

Relinquished by:	Date	Time	Received by:	Date	Time
Brady Hibbard	2.15.18	10:00	courier	02/16/18	0930
Brady Hibbard					

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH: 8.15
Temp: 42.7°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Received by OCD: 5/16/2022 2:12:41 PM

The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	Contaminant	SW-846 Method	Regulatory Level (mg/l)
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D006	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallower 200 - 250 ftbgs

Need All

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HOLLYFRONTIER.

April 20, 2017

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 6274

RE: 2017 1st Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2017 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1315 psig and the average flows were 129 gpm for WDW-1, 107 gpm for WDW-2 and 140 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2017 to March 31, 2017. We have disposed a total of 1,162,526 barrels of fluid into the three wells during the first quarter of 2017. The volume per well is:

- 398,023 barrels into WDW-1
- 332,126 barrels into WDW-2
- 432,377 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-748-5487.

Respectfully,

Scott Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R. O'Brien, R Orosco, R Combs, M. Holder, L Dade
Environmental File: Injection Wells/Reports C-115 & Quarterly/2017/1st quarter/2017-4-20 1st QTR Inj. Rpt. for Wells WDW-1,2,3

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2017 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	38,368,242
Jan-17	1,390	1,400	1,364	130	144	80	414	690	175	4,028	4,937	2,743	138,103	38,506,345
Feb-17	1,318	1,400	1,195	120	142	96	247	446	134	3,370	4,869	3,291	115,543	38,621,888
Mar-17	1,272	1,400	1,374	136	454	96	419	639	123	4,211	15,566	3,291	144,377	38,766,265
30-015-20894 WDW-2													**Previous Quarter**	25,195,125
Jan-17	1,383	1,400	1,344	132	351	107	249	394	103	4,101	12,034	3,669	140,606	25,335,731
Feb-17	1,313	1,400	1,177	100	118	69	274	407	175	2,801	4,046	2,366	96,034	25,431,765
Mar-17	1,267	1,400	1,081	90	111	54	330	561	192	2,785	3,806	1,851	95,486	25,527,251
30-015-26575 WDW-3													**Previous Quarter**	15,743,225
Jan-17	1,344	1,400	1,248	151	162	119	712	800	629	4,684	5,554	4,080	160,594	15,903,819
Feb-17	1,301	1,400	1,155	142	159	100	714	804	600	3,970	5,451	3,429	136,114	16,039,933
Mar-17	1,246	1,400	1,082	128	157	53	679	859	568	3,957	5,383	1,817	135,669	16,175,602
													Total Injected fluids:	80,469,118

	Monthly Avg.	Monthly Avg.
WDW-1	1,327	129
WDW-2	1,321	107
WDW-3	1,297	140

	Total BBLS	Beginning Volume	Ending Volume
WDW1	398,023	38,368,242	38,766,265
WDW2	332,126	25,195,125	25,527,251
WDW3	432,377	15,743,225	16,175,602
	1,162,526	79,306,592	80,469,118

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 28, 2017

Micki Schultz

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1701255

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/9/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **LGT**
Fluoride	4.2	0.50	*	mg/L	5	1/9/2017 10:45:27 PM
Chloride	800	25		mg/L	50	1/11/2017 1:20:45 AM
Bromide	2.7	0.50		mg/L	5	1/9/2017 10:45:27 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	1/9/2017 10:45:27 PM
Sulfate	1300	25		mg/L	50	1/11/2017 1:20:45 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/10/2017 12:24:43 AM
EPA METHOD 7470: MERCURY						Analyst: **MED**
Mercury	ND	0.00020		mg/L	1	1/10/2017 12:31:08 PM
MERCURY, TCLP						Analyst: **pmf**
Mercury	ND	0.10		mg/L	5	1/11/2017 5:09:34 PM
EPA METHOD 6010B: TCLP METALS						Analyst: **pmf**
Arsenic	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Barium	ND	100		mg/L	1	1/20/2017 12:57:03 PM
Cadmium	ND	1.0		mg/L	1	1/20/2017 12:57:03 PM
Chromium	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Lead	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Selenium	ND	1.0		mg/L	1	1/20/2017 12:57:03 PM
Silver	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
EPA 6010B: METALS						Analyst: **pmf**
Aluminum	0.62	0.020		mg/L	1	1/18/2017 2:20:24 PM
Antimony	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Arsenic	0.026	0.020		mg/L	1	1/18/2017 2:20:24 PM
Barium	0.025	0.020		mg/L	1	1/18/2017 2:20:24 PM
Beryllium	ND	0.0030		mg/L	1	1/18/2017 2:20:24 PM
Cadmium	ND	0.0020		mg/L	1	1/18/2017 2:20:24 PM
Calcium	99	5.0		mg/L	5	1/18/2017 3:52:07 PM
Chromium	ND	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Cobalt	ND	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Copper	0.011	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Iron	1.3	0.050		mg/L	1	1/18/2017 2:20:24 PM
Lead	ND	0.0050		mg/L	1	1/18/2017 2:20:24 PM
Magnesium	31	1.0		mg/L	1	1/18/2017 2:20:24 PM
Manganese	0.13	0.0020		mg/L	1	1/18/2017 2:20:24 PM
Nickel	0.011	0.010		mg/L	1	1/18/2017 2:20:24 PM
Potassium	31	1.0		mg/L	1	1/18/2017 2:20:24 PM
Selenium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Silver	ND	0.0050		mg/L	1	1/18/2017 2:20:24 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: METALS						Analyst: **pmf**
Sodium	950	20		mg/L	20	1/20/2017 1:05:10 PM
Thallium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Vanadium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Zinc	ND	0.020		mg/L	1	1/18/2017 2:20:24 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
2-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Acetonitrile	ND	2.5		µg/L	1	1/16/2017
Allyl chloride	ND	0.50		µg/L	1	1/16/2017
Chloroprene	ND	0.50		µg/L	1	1/16/2017
Cyclohexane	ND	2.0		µg/L	1	1/16/2017
Diethyl ether	ND	2.0		µg/L	1	1/16/2017
Diisopropyl ether	ND	2.0		µg/L	1	1/16/2017
Epichlorohydrin	ND	5.0		µg/L	1	1/16/2017
Ethyl acetate	ND	2.0		µg/L	1	1/16/2017
Ethyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Ethyl tert-butyl ether	ND	2.0		µg/L	1	1/16/2017
Freon-113	ND	2.0		µg/L	1	1/16/2017
Isobutanol	ND	10		µg/L	1	1/16/2017
Isopropyl acetate	ND	2.0		µg/L	1	1/16/2017
Methacrylonitrile	ND	2.5		µg/L	1	1/16/2017
Methyl acetate	ND	2.0		µg/L	1	1/16/2017
Methyl ethyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl isobutyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Methylcyclohexane	ND	2.0		µg/L	1	1/16/2017
n-Amyl acetate	ND	2.0		µg/L	1	1/16/2017
n-Hexane	ND	2.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
Pentachloroethane	ND	5.0		µg/L	1	1/16/2017
p-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Propionitrile	ND	2.5		µg/L	1	1/16/2017
Tetrahydrofuran	ND	0.50		µg/L	1	1/16/2017
Benzene	ND	0.50		µg/L	1	1/16/2017
Toluene	ND	0.50		µg/L	1	1/16/2017
Ethylbenzene	ND	0.50		µg/L	1	1/16/2017
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	1/16/2017
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

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Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	1/16/2017
Naphthalene	ND	0.50		µg/L	1	1/16/2017
Acetone	8.4	2.5		µg/L	1	1/16/2017
Bromobenzene	ND	0.50		µg/L	1	1/16/2017
Bromodichloromethane	ND	0.50		µg/L	1	1/16/2017
Bromoform	ND	0.50		µg/L	1	1/16/2017
Bromomethane	ND	0.50		µg/L	1	1/16/2017
2-Butanone	ND	2.5		µg/L	1	1/16/2017
Carbon disulfide	0.56	0.50		µg/L	1	1/16/2017
Carbon Tetrachloride	ND	0.50		µg/L	1	1/16/2017
Chlorobenzene	ND	0.50		µg/L	1	1/16/2017
Chloroethane	5.9	0.50		µg/L	1	1/16/2017
Chloroform	ND	0.50		µg/L	1	1/16/2017
Chloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
4-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
cis-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	1/16/2017
Dibromochloromethane	ND	0.50		µg/L	1	1/16/2017
Dibromomethane	ND	0.50		µg/L	1	1/16/2017
1,2-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,3-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,4-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
Dichlorodifluoromethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,3-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
2,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	0.50		µg/L	1	1/16/2017
2-Hexanone	ND	0.50		µg/L	1	1/16/2017
Isopropylbenzene	ND	0.50		µg/L	1	1/16/2017
Methylene Chloride	ND	2.5		µg/L	1	1/16/2017
n-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
n-Propylbenzene	ND	0.50		µg/L	1	1/16/2017
sec-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
Styrene	ND	0.50		µg/L	1	1/16/2017

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Hall Environmental Analysis Laboratory, Inc.

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Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
tert-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	1/16/2017
trans-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
Trichloroethene (TCE)	ND	0.50		µg/L	1	1/16/2017
Trichlorofluoromethane	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichloropropane	ND	0.50		µg/L	1	1/16/2017
Vinyl chloride	ND	0.50		µg/L	1	1/16/2017
mp-Xylenes	ND	1.0		µg/L	1	1/16/2017
o-Xylene	ND	0.50		µg/L	1	1/16/2017
tert-Amyl methyl ether	ND	2.0		µg/L	1	1/16/2017
tert-Butyl alcohol	ND	10		µg/L	1	1/16/2017
Acrolein	ND	2.5		µg/L	1	1/16/2017
Acrylonitrile	ND	2.5		µg/L	1	1/16/2017
Bromochloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chloroethyl vinyl ether	ND	4.0		µg/L	1	1/16/2017
Iodomethane	ND	0.50		µg/L	1	1/16/2017
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	1/16/2017
Vinyl acetate	ND	0.50		µg/L	1	1/16/2017
1,4-Dioxane	ND	20		µg/L	1	1/16/2017
Surr: 1,2-Dichlorobenzene-d4	103	70-130		%Rec	1	1/16/2017
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	1/16/2017
Surr: Toluene-d8	106	70-130		%Rec	1	1/16/2017
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
1,1-Biphenyl	ND	0.50		µg/L	1	1/16/2017
Atrazine	ND	0.50		µg/L	1	1/16/2017
Benzaldehyde	1.4	0.50		µg/L	1	1/16/2017
Caprolactam	ND	0.50		µg/L	1	1/16/2017
N-Nitroso-di-n-butylamine	ND	0.50		µg/L	1	1/16/2017
Acetophenone	ND	5.0		µg/L	1	1/16/2017
1-Methylnaphthalene	ND	5.0		µg/L	1	1/16/2017
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dichlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dimethylphenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dinitrophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dinitrotoluene	ND	5.0		µg/L	1	1/16/2017
2,6-Dinitrotoluene	ND	5.0		µg/L	1	1/16/2017
2-Chloronaphthalene	ND	5.0		µg/L	1	1/16/2017
2-Chlorophenol	ND	5.0		µg/L	1	1/16/2017
2-Methylnaphthalene	ND	5.0		µg/L	1	1/16/2017
2-Methylphenol	ND	5.0		µg/L	1	1/16/2017
2-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
2-Nitrophenol	ND	5.0		µg/L	1	1/16/2017
3,3´-Dichlorobenzidine	ND	5.0		µg/L	1	1/16/2017
3-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	1/16/2017
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	1/16/2017
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	1/16/2017
4-Chloroaniline	ND	5.0		µg/L	1	1/16/2017
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	1/16/2017
4-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
4-Nitrophenol	ND	5.0		µg/L	1	1/16/2017
Acenaphthene	ND	5.0		µg/L	1	1/16/2017
Acenaphthylene	ND	5.0		µg/L	1	1/16/2017
Anthracene	ND	5.0		µg/L	1	1/16/2017
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	1/16/2017
Benz(a)anthracene	ND	0.50		µg/L	1	1/16/2017
Benzo(a)pyrene	ND	0.50		µg/L	1	1/16/2017
Benzo(b)fluoranthene	ND	0.50		µg/L	1	1/16/2017
Benzo(k)fluoranthene	ND	0.50		µg/L	1	1/16/2017
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	1/16/2017
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	1/16/2017
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	1/16/2017
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	1/16/2017
Butyl benzyl phthalate	ND	5.0		µg/L	1	1/16/2017
Carbazole	ND	5.0		µg/L	1	1/16/2017
Chrysene	ND	0.50		µg/L	1	1/16/2017
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	1/16/2017
Dibenzofuran	ND	5.0		µg/L	1	1/16/2017
Diethyl phthalate	ND	5.0		µg/L	1	1/16/2017

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
Dimethyl phthalate	ND	5.0		µg/L	1	1/16/2017
Di-n-butyl phthalate	ND	5.0		µg/L	1	1/16/2017
Di-n-octyl phthalate	ND	5.0		µg/L	1	1/16/2017
Fluoranthene	ND	5.0		µg/L	1	1/16/2017
Fluorene	ND	5.0		µg/L	1	1/16/2017
Hexachlorobenzene	ND	1.0		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	5.0		µg/L	1	1/16/2017
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	1/16/2017
Hexachloroethane	ND	5.0		µg/L	1	1/16/2017
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	1/16/2017
Isophorone	ND	5.0		µg/L	1	1/16/2017
Naphthalene	ND	5.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	1/16/2017
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	1/16/2017
Pentachlorophenol	ND	5.0		µg/L	1	1/16/2017
Phenanthrene	ND	5.0		µg/L	1	1/16/2017
Phenol	ND	5.0		µg/L	1	1/16/2017
Pyrene	ND	5.0		µg/L	1	1/16/2017
o-Toluidine	ND	2.0		µg/L	1	1/16/2017
Pyridine	ND	5.0		µg/L	1	1/16/2017
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	1/16/2017
Surr: 2,4,6-Tribromophenol	134	63-110	S	%Rec	1	1/16/2017
Surr: 2-Fluorobiphenyl	88.4	58-112		%Rec	1	1/16/2017
Surr: 2-Fluorophenol	88.2	47-109		%Rec	1	1/16/2017
Surr: Nitrobenzene-d5	99.6	58-110		%Rec	1	1/16/2017
Surr: Phenol-d5	97.0	52-105		%Rec	1	1/16/2017
Surr: Terphenyl-d14	23.9	22-133		%Rec	1	1/16/2017
CORROSIVITY						Analyst: **SUB**
pH	7.47			pH Units	1	1/12/2017
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>200			°F	1	1/12/2017
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	0.0802	0.0100		mg/L	1	1/18/2017
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	0.50	0.50		mg/L	1	1/16/2017
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5300	1.0		µmhos/cm	1	1/9/2017 3:38:00 PM
SM4500-H+B: PH						Analyst: **JRR**
pH	7.51	1.68	H	pH units	1	1/9/2017 3:38:00 PM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	165.9	20.00		mg/L CaCO3	1	1/11/2017 4:55:22 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	1/11/2017 4:55:22 PM
Total Alkalinity (as CaCO3)	165.9	20.00		mg/L CaCO3	1	1/11/2017 4:55:22 PM
SPECIFIC GRAVITY						Analyst: **LGT**
Specific Gravity	1.000	0			1	1/10/2017 12:21:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3310	40.0	*D	mg/L	1	1/11/2017 5:59:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well **Collection Date:** 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
2-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Acetonitrile	ND	2.5		µg/L	1	1/16/2017
Allyl chloride	ND	0.50		µg/L	1	1/16/2017
Chloroprene	ND	0.50		µg/L	1	1/16/2017
Cyclohexane	ND	2.0		µg/L	1	1/16/2017
Diethyl ether	ND	2.0		µg/L	1	1/16/2017
Diisopropyl ether	ND	2.0		µg/L	1	1/16/2017
Epichlorohydrin	ND	5.0		µg/L	1	1/16/2017
Ethyl acetate	ND	2.0		µg/L	1	1/16/2017
Ethyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Ethyl tert-butyl ether	ND	2.0		µg/L	1	1/16/2017
Freon-113	ND	2.0		µg/L	1	1/16/2017
Isobutanol	ND	10		µg/L	1	1/16/2017
Isopropyl acetate	ND	2.0		µg/L	1	1/16/2017
Methacrylonitrile	ND	2.5		µg/L	1	1/16/2017
Methyl acetate	ND	2.0		µg/L	1	1/16/2017
Methyl ethyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl isobutyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Methylcyclohexane	ND	2.0		µg/L	1	1/16/2017
n-Amyl acetate	ND	2.0		µg/L	1	1/16/2017
n-Hexane	ND	2.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
Pentachloroethane	ND	5.0		µg/L	1	1/16/2017
p-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Propionitrile	ND	2.5		µg/L	1	1/16/2017
Tetrahydrofuran	ND	0.50		µg/L	1	1/16/2017
Benzene	ND	0.50		µg/L	1	1/16/2017
Toluene	ND	0.50		µg/L	1	1/16/2017
Ethylbenzene	ND	0.50		µg/L	1	1/16/2017
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	1/16/2017
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	1/16/2017
Naphthalene	ND	0.50		µg/L	1	1/16/2017
Acetone	ND	2.5		µg/L	1	1/16/2017
Bromobenzene	ND	0.50		µg/L	1	1/16/2017
Bromodichloromethane	ND	0.50		µg/L	1	1/16/2017

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Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
Bromoform	ND	0.50		µg/L	1	1/16/2017
Bromomethane	ND	0.50		µg/L	1	1/16/2017
2-Butanone	ND	2.5		µg/L	1	1/16/2017
Carbon disulfide	ND	0.50		µg/L	1	1/16/2017
Carbon Tetrachloride	ND	0.50		µg/L	1	1/16/2017
Chlorobenzene	ND	0.50		µg/L	1	1/16/2017
Chloroethane	ND	0.50		µg/L	1	1/16/2017
Chloroform	ND	0.50		µg/L	1	1/16/2017
Chloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
4-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
cis-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	1/16/2017
Dibromochloromethane	ND	0.50		µg/L	1	1/16/2017
Dibromomethane	ND	0.50		µg/L	1	1/16/2017
1,2-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,3-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,4-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
Dichlorodifluoromethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,3-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
2,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	0.50		µg/L	1	1/16/2017
2-Hexanone	ND	0.50		µg/L	1	1/16/2017
Isopropylbenzene	ND	0.50		µg/L	1	1/16/2017
Methylene Chloride	ND	2.5		µg/L	1	1/16/2017
n-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
n-Propylbenzene	ND	0.50		µg/L	1	1/16/2017
sec-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
Styrene	ND	0.50		µg/L	1	1/16/2017
tert-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	1/16/2017
trans-1,2-DCE	ND	0.50		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well **Collection Date:** 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
Trichloroethene (TCE)	ND	0.50		µg/L	1	1/16/2017
Trichlorofluoromethane	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichloropropane	ND	0.50		µg/L	1	1/16/2017
Vinyl chloride	ND	0.50		µg/L	1	1/16/2017
mp-Xylenes	ND	1.0		µg/L	1	1/16/2017
o-Xylene	ND	0.50		µg/L	1	1/16/2017
tert-Amyl methyl ether	ND	2.0		µg/L	1	1/16/2017
tert-Butyl alcohol	ND	10		µg/L	1	1/16/2017
Acrolein	ND	2.5		µg/L	1	1/16/2017
Acrylonitrile	ND	2.5		µg/L	1	1/16/2017
Bromochloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chloroethyl vinyl ether	ND	4.0		µg/L	1	1/16/2017
Iodomethane	ND	0.50		µg/L	1	1/16/2017
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	1/16/2017
Vinyl acetate	ND	0.50		µg/L	1	1/16/2017
1,4-Dioxane	ND	20		µg/L	1	1/16/2017
Surr: 1,2-Dichlorobenzene-d4	101	70-130		%Rec	1	1/16/2017
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	1/16/2017
Surr: Toluene-d8	104	70-130		%Rec	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**

28-Feb-17

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R39919**	RunNo: **39919**
Prep Date:	Analysis Date: **1/9/2017**	SeqNo: **1251098** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R39919**	RunNo: **39919**
Prep Date:	Analysis Date: **1/9/2017**	SeqNo: **1251099** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.8	90	110			
Bromide	2.5	0.10	2.500	0	99.5	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.9	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R39952**	RunNo: **39952**
Prep Date:	Analysis Date: **1/10/2017**	SeqNo: **1251860** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R39952**	RunNo: **39952**
Prep Date:	Analysis Date: **1/10/2017**	SeqNo: **1251861** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.2	90	110			
Sulfate	9.4	0.50	10.00	0	94.5	90	110			

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279689** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,1-Dichloropropene	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
2-Butanone	ND	2.5								
2-Hexanone	ND	0.50								
Acetone	ND	2.5								
Acetonitrile	ND	2.5								
Acrolein	ND	2.5								
Acrylonitrile	ND	2.5								
Allyl chloride	ND	0.50								
Benzene	ND	0.50								
Bromochloromethane	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
Chloroprene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
Dichlorodifluoromethane	ND	0.50								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**		TestCode: **EPA Method 8260B: VOLATILES**		
Client ID: **PBW**	Batch ID: **R40852**		RunNo: **40852**		
Prep Date:	Analysis Date: **1/16/2017**		SeqNo: **1279689**	Units: **µg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Ethyl methacrylate	ND	2.5								
Ethylbenzene	ND	0.50								
Iodomethane	ND	0.50								
Isobutanol	ND	10								
mp-Xylenes	ND	1.0								
Methacrylonitrile	ND	2.5								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	2.5								
Methylene Chloride	ND	2.5								
o-Xylene	ND	0.50								
Propionitrile	ND	2.5								
Styrene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
Toluene	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
Vinyl acetate	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
Vinyl chloride	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dioxane	ND	20								
2-Chloroethyl vinyl ether	ND	4.0								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
Bromobenzene	ND	0.50								
Cyclohexane	ND	2.0								
Diethyl ether	ND	2.0								
Diisopropyl ether	ND	2.0								
Epichlorohydrin	ND	5.0								
Ethyl acetate	ND	2.0								
Ethyl tert-butyl ether	ND	2.0								
Freon-113	ND	2.0								
Hexachlorobutadiene	ND	0.50								

Qualifiers:

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279689** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Isopropyl acetate	ND	2.0								
Isopropylbenzene	ND	0.50								
Methyl acetate	ND	2.0								
Methylcyclohexane	ND	2.0								
Methyl tert-butyl ether (MTBE)	ND	10								
n-Amyl acetate	ND	2.0								
Naphthalene	ND	0.50								
n-Butylbenzene	ND	0.50								
n-Hexane	ND	2.0								
Nitrobenzene	ND	5.0								
n-Propylbenzene	ND	0.50								
Pentachloroethane	ND	5.0								
p-isopropyltoluene	ND	0.50								
sec-Butylbenzene	ND	0.50								
tert-Amyl methyl ether	ND	2.0								
tert-Butyl alcohol	ND	10								
tert-Butylbenzene	ND	0.50								
Tetrahydrofuran	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
2,2-Dichloropropane	ND	0.50								
2-isopropyltoluene	ND	0.50								

Sample ID **LCS-R40852**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279690** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	2.1		2.000	0	107	80	120			
Benzene	2.0		2.000	0	102	80	120			
Chlorobenzene	1.9		2.000	0	96.5	80	120			
Ethylbenzene	2.0		2.000	0	99.2	80	120			
o-Xylene	2.0		2.000	0	102	80	120			
Tetrachloroethene (PCE)	1.9		2.000	0	95.0	80	120			
Toluene	2.1		2.000	0	106	80	120			
Trichloroethene (TCE)	2.1		2.000	0	103	80	120			
Cyclohexane	3.9		4.000	0	96.5	70	130			
n-Hexane	3.8		4.000	0	94.0	70	130			
Tetrahydrofuran	1.7		2.000	0	84.4	70	130			

Qualifiers:

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**		TestCode: **EPA 8270C: Semivolatiles/Mod**		
Client ID: **PBW**	Batch ID: **R40852**		RunNo: **40852**		
Prep Date:	Analysis Date: **1/16/2017**		SeqNo: **1279692**	Units: **µg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	0.50								
Atrazine	ND	0.50								
Benzaldehyde	ND	0.50								
Caprolactam	ND	0.50								
N-Nitroso-di-n-butylamine	ND	0.50								
Acetophenone	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2,3,4,6-Tetrachlorophenol	ND	0.50								
2,4,5-Trichlorophenol	ND	0.50								
2,4,6-Trichlorophenol	ND	0.50								
2,4-Dichlorophenol	ND	0.50								
2,4-Dimethylphenol	ND	0.50								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
2-Chloronaphthalene	ND	0.50								
2-Chlorophenol	ND	0.50								
2-Methylnaphthalene	ND	0.50								
2-Methylphenol	ND	0.50								
2-Nitroaniline	ND	0.50								
2-Nitrophenol	ND	0.50								
3,3′-Dichlorobenzidine	ND	0.50								
3-Nitroaniline	ND	0.50								
4,6-Dinitro-2-methylphenol	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.50								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
4-Chlorophenyl phenyl ether	ND	0.50								
4-Nitroaniline	ND	0.50								
4-Nitrophenol	ND	0.50								
Acenaphthene	ND	0.50								
Acenaphthylene	ND	0.50								
Anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								
Benzo(k)fluoranthene	ND	0.50								
Bis(2-chloroethoxy)methane	ND	0.50								

Qualifiers:

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279692** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroethyl)ether	ND	0.50								
Bis(2-chloroisopropyl)ether	ND	0.50								
Bis(2-ethylhexyl)phthalate	ND	0.50								
Butyl benzyl phthalate	ND	0.50								
Carbazole	ND	0.50								
Chrysene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Dibenzofuran	ND	0.50								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.50								
Di-n-butyl phthalate	ND	0.50								
Di-n-octyl phthalate	ND	0.50								
Fluoranthene	ND	0.50								
Fluorene	ND	0.50								
Hexachlorobenzene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
Hexachlorocyclopentadiene	ND	0.50								
Hexachloroethane	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Isophorone	ND	0.50								
Naphthalene	ND	0.50								
Nitrobenzene	ND	0.50								
N-Nitrosodi-n-propylamine	ND	0.50								
N-Nitrosodiphenylamine	ND	0.50								
Pentachlorophenol	ND	0.50								
Phenanthrene	ND	0.50								
Phenol	ND	0.50								
Pyrene	ND	0.50								
o-Toluidine	ND	0.50								
Pyridine	ND	0.50								
1,2,4,5-Tetrachlorobenzene	ND	0.50								

Sample ID **LCS-R40852**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279693** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	3.9	0.50	5.000	0	78.8	49	145			
2-Chlorophenol	4.1		5.000	0	81.6	50	131			

Qualifiers:

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R40852**	SampType: **LCS**		TestCode: **EPA 8270C: Semivolatiles/Mod**		
Client ID: **LCSW**	Batch ID: **R40852**		RunNo: **40852**		
Prep Date:	Analysis Date: **1/16/2017**		SeqNo: **1279693**	Units: **µg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chloro-3-methylphenol	4.6		5.000	0	93.0	42	139			
4-Nitrophenol	2.8		5.000	0	55.8	19	137			
Acenaphthene	4.5		5.000	0	89.6	36	131			
Bis(2-ethylhexyl)phthalate	4.6		5.000	0	91.6	43	148			
N-Nitrosodi-n-propylamine	4.8		5.000	0	96.4	46	135			
Pentachlorophenol	4.4		5.000	0	87.2	22	138			
Phenol	3.6		5.000	0	71.0	45	134			
Pyrene	4.8		5.000	0	95.6	45	139			

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-29607**	SampType: **MBLK**			TestCode: **EPA Method 7470: Mercury**						
Client ID: **PBW**	Batch ID: **29607**			RunNo: **39928**						
Prep Date: **1/9/2017**	Analysis Date: **1/10/2017**			SeqNo: **1251289**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-29607**	SampType: **LCS**			TestCode: **EPA Method 7470: Mercury**						
Client ID: **LCSW**	Batch ID: **29607**			RunNo: **39928**						
Prep Date: **1/9/2017**	Analysis Date: **1/10/2017**			SeqNo: **1251290**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**

28-Feb-17

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29638**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252475**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-29638**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252476**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.7	80	120			

Sample ID	**1701255-001CMS**	SampType:	**MS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252485**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.10	0.005000	0	116	75	125			

Sample ID	**1701255-001CMSD**	SampType:	**MSD**	TestCode:	**MERCURY, TCLP**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252486**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.10	0.005000	0	114	75	125	0	20	

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29669**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**PBW**	Batch ID:	**29669**	RunNo:	**40172**					
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259320**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID	**LCS-29669**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**LCSW**	Batch ID:	**29669**	RunNo:	**40172**					
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259321**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.6	80	120			
Barium	ND	100	0.5000	0	97.4	80	120			
Cadmium	ND	1.0	0.5000	0	101	80	120			
Chromium	ND	5.0	0.5000	0	97.3	80	120			
Lead	ND	5.0	0.5000	0	98.1	80	120			
Selenium	ND	1.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001BMS** SampType: **MS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258095** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.3	0.020	0.5000	0.6211	130	75	125			S
Antimony	0.53	0.050	0.5000	0	106	75	125			
Arsenic	0.57	0.020	0.5000	0.02614	109	75	125			
Barium	0.53	0.020	0.5000	0.02451	102	75	125			
Beryllium	0.52	0.0030	0.5000	0	104	75	125			
Cadmium	0.53	0.0020	0.5000	0	105	75	125			
Chromium	0.50	0.0060	0.5000	0	99.5	75	125			
Cobalt	0.50	0.0060	0.5000	0.001980	100	75	125			
Copper	0.59	0.0060	0.5000	0.01121	117	75	125			
Iron	1.8	0.050	0.5000	1.346	91.7	75	125			
Lead	0.51	0.0050	0.5000	0	102	75	125			
Magnesium	80	1.0	50.00	30.99	98.8	75	125			
Manganese	0.64	0.0020	0.5000	0.1301	101	75	125			
Nickel	0.51	0.010	0.5000	0.01117	99.1	75	125			
Potassium	80	1.0	50.00	30.50	98.6	75	125			
Selenium	0.52	0.050	0.5000	0	105	75	125			
Silver	0.11	0.0050	0.1000	0	107	75	125			
Thallium	0.56	0.050	0.5000	0.04293	104	75	125			
Vanadium	0.53	0.050	0.5000	0.004290	106	75	125			
Zinc	0.52	0.020	0.5000	0.01969	99.7	75	125			

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.3	0.020	0.5000	0.6211	134	75	125	1.38	20	S
Antimony	0.53	0.050	0.5000	0	105	75	125	0.685	20	
Arsenic	0.57	0.020	0.5000	0.02614	108	75	125	1.24	20	
Barium	0.53	0.020	0.5000	0.02451	102	75	125	0.204	20	
Beryllium	0.52	0.0030	0.5000	0	104	75	125	0.557	20	
Cadmium	0.53	0.0020	0.5000	0	105	75	125	0.243	20	
Chromium	0.50	0.0060	0.5000	0	99.2	75	125	0.346	20	
Cobalt	0.50	0.0060	0.5000	0.001980	99.9	75	125	0.559	20	
Copper	0.59	0.0060	0.5000	0.01121	116	75	125	0.300	20	
Iron	1.8	0.050	0.5000	1.346	98.2	75	125	1.79	20	
Lead	0.51	0.0050	0.5000	0	102	75	125	0.513	20	
Magnesium	80	1.0	50.00	30.99	98.0	75	125	0.479	20	
Manganese	0.64	0.0020	0.5000	0.1301	101	75	125	0.130	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	0.51	0.010	0.5000	0.01117	99.0	75	125	0.142	20	
Potassium	79	1.0	50.00	30.50	97.5	75	125	0.698	20	
Selenium	0.55	0.050	0.5000	0	111	75	125	5.59	20	
Silver	0.11	0.0050	0.1000	0	108	75	125	0.214	20	
Thallium	0.57	0.050	0.5000	0.04293	106	75	125	1.14	20	
Vanadium	0.53	0.050	0.5000	0.004290	105	75	125	0.120	20	
Zinc	0.52	0.020	0.5000	0.01969	99.9	75	125	0.172	20	

Sample ID **1701255-001BPS** SampType: **PS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: Analysis Date: **1/18/2017** SeqNo: **1258097** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.2	0.020	0.5000	0.6211	124	80	120			S

Sample ID **1701255-001BMS** SampType: **MS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258099** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	150	5.0	50.00	98.98	97.6	75	125			

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258100** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	150	5.0	50.00	98.98	103	75	125	1.92	20	

Sample ID **MB-29669** SampType: **MBLK** TestCode: **EPA 6010B: Metals**
Client ID: **PBW** Batch ID: **29669** RunNo: **40172**
Prep Date: **1/12/2017** Analysis Date: **1/20/2017** SeqNo: **1259232** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-29669**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**							
Client ID: **PBW**	Batch ID: **29669**	RunNo: **40172**							
Prep Date: **1/12/2017**	Analysis Date: **1/20/2017**	SeqNo: **1259232**	Units: **mg/L**						

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-29669**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **29669**	RunNo: **40172**							
Prep Date: **1/12/2017**	Analysis Date: **1/20/2017**	SeqNo: **1259233**	Units: **mg/L**						

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	111	80	120			
Antimony	0.52	0.050	0.5000	0	104	80	120			
Arsenic	0.50	0.020	0.5000	0	99.6	80	120			
Barium	0.49	0.020	0.5000	0	97.4	80	120			
Beryllium	0.51	0.0030	0.5000	0	102	80	120			
Cadmium	0.50	0.0020	0.5000	0	101	80	120			
Calcium	48	1.0	50.00	0	96.9	80	120			
Chromium	0.49	0.0060	0.5000	0	97.3	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.8	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.49	0.050	0.5000	0	97.1	80	120			
Lead	0.49	0.0050	0.5000	0	98.1	80	120			
Magnesium	49	1.0	50.00	0	98.3	80	120			
Manganese	0.48	0.0020	0.5000	0	96.2	80	120			
Nickel	0.48	0.010	0.5000	0	96.2	80	120			
Potassium	48	1.0	50.00	0	95.5	80	120			
Selenium	0.51	0.050	0.5000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**LCS-29669**	SampType:	**LCS**	TestCode:	**EPA 6010B: Metals**		
Client ID:	**LCSW**	Batch ID:	**29669**	RunNo:	**40172**		
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259233**	Units:	**mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.10	0.0050	0.1000	0	101	80	120			
Sodium	49	1.0	50.00	0	97.6	80	120			
Thallium	0.53	0.050	0.5000	0	106	80	120			
Vanadium	0.50	0.050	0.5000	0	100	80	120			
Zinc	0.48	0.020	0.5000	0	95.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-R40852**	SampType:	**MBLK**		TestCode:	**CYANIDE, Reactive**				
Client ID:	**PBW**	Batch ID:	**R40852**		RunNo:	**40852**				
Prep Date:		Analysis Date:	**1/18/2017**		SeqNo:	**1279635**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.0100								

Sample ID	**LCS-R40852**	SampType:	**LCS**		TestCode:	**CYANIDE, Reactive**				
Client ID:	**LCSW**	Batch ID:	**R40852**		RunNo:	**40852**				
Prep Date:		Analysis Date:	**1/18/2017**		SeqNo:	**1279636**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.486		0.5000	0	97.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-R40852**	SampType:	**MBLK**	TestCode:	**SULFIDE, Reactive**					
Client ID:	**PBW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/16/2017**	SeqNo:	**1279640**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.50								

Sample ID	**LCS-R40852**	SampType:	**LCS**	TestCode:	**SULFIDE, Reactive**					
Client ID:	**LCSW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/16/2017**	SeqNo:	**1279641**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**mb-1**	SampType:	**mblk**	TestCode:	**SM2320B: Alkalinity**					
Client ID:	**PBW**	Batch ID:	**R39972**	RunNo:	**39972**					
Prep Date:		Analysis Date:	**1/11/2017**	SeqNo:	**1252683**	Units:	**mg/L CaCO3**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	**lcs-1**	SampType:	**lcs**	TestCode:	**SM2320B: Alkalinity**					
Client ID:	**LCSW**	Batch ID:	**R39972**	RunNo:	**39972**					
Prep Date:		Analysis Date:	**1/11/2017**	SeqNo:	**1252684**	Units:	**mg/L CaCO3**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.84	20.00	80.00	0	97.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R39926** RunNo: **39926**
Prep Date: Analysis Date: **1/10/2017** SeqNo: **1251236** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.0600	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29623**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**29623**	RunNo:	**39966**					
Prep Date:	**1/10/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252489**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-29623**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**29623**	RunNo:	**39966**					
Prep Date:	**1/10/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252490**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1060	20.0	1000	0	106	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1701255 RcptNo: 1

Received by/date: RE 01/09/17

Logged By: **Ashley Gallegos** 1/9/2017 9:20:00 AM

Completed By: **Ashley Gallegos** 1/9/2017 10:01:26 AM

Reviewed By: 01/09/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes	No	Not Present ✔
2. Is Chain of Custody complete?	Yes ✔	No	Not Present
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ✔	No	NA
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
6. Sample(s) in proper container(s)?	Yes ✔	No	
7. Sufficient sample volume for indicated test(s)?	Yes ✔	No	
8. Are samples (except VOA and ONG) properly preserved?	Yes ✔	No	
9. Was preservative added to bottles?	Yes	No ✔	NA
10. VOA vials have zero headspace?	Yes ✔	No	No VOA Vials
11. Were any sample containers received broken?	Yes	No ✔	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	# of preserved bottles checked for pH: 2,2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ✔	No	Adjusted? NO
14. Is it clear what analyses were requested?	Yes ✔	No	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes No NA ✔

Person Notified: Date

By Whom: Via: eMail Phone Fax In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standar ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:
Micki Schultz / Scott Denton / Mike Holder

Sampler: Brady Hubbard

On Ice: ☒ Yes ☐ No

Sample Temperature: 1 - 3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1701257	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
1/5/17	3:57	Liquid	Trip Blank	2	Neat	-002		X					
1/5/17	xxx	Liquid	Temperature Blank	1	Neat	-002							

Date:	Time:	Relinquished by:	Received by:	Date	Time
1.6.17	1:30	Brady Hubbard		1/9/17	0920
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HOLLYFRONTIER.

July 11, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 5918

RE: 2016 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2016 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1355 psig and the average flows were 131 gpm for WDW-1, 104 gpm for WDW-2 and 152 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2016 to June 30, 2016. We have disposed a total of 1,214,229 barrels of fluid into the three wells during the second quarter of 2016. The volume per well is:

- 417,759 barrels into WDW-1
- 331,533 barrels into WDW-2
- 483,519 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-748-5487.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

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2016 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	37,950,483
Apr-16	1,361	1,400	1,312	125	134	113	338	511	199	3,171	4,594	3,874	133,178	38,083,661
May-16	1,387	1,400	1,383	135	140	125	362	544	222	3,411	4,800	4,286	143,265	38,226,926
Jun-16	1,343	1,400	1,335	133	146	80	607	857	178	3,365	5,006	2,743	141,316	38,368,242
30-015-20894 WDW-2													**Previous Quarter**	24,863,592
Apr-16	1,360	1,400	1,222	103	113	89	312	432	220	2,598	3,874	3,051	109,111	24,972,703
May-16	1,388	1,400	1,377	112	117	105	301	391	218	2,843	4,011	3,600	119,407	25,092,110
Jun-16	1,315	1,400	1,335	97	121	80	346	455	194	2,453	4,149	2,743	103,015	25,195,125
30-015-26575 WDW-3													**Previous Quarter**	15,259,706
Apr-16	1,355	1,395	1,338	152	161	138	726	900	683	3,856	5,520	4,731	161,973	15,421,679
May-16	1,375	1,390	1,335	160	165	148	625	807	621	4,049	5,657	5,074	170,061	15,591,740
Jun-16	1,313	1,386	1,335	143	168	22	668	907	584	3,607	5,760	754	151,485	15,743,225
													Total Injected fluids:	79,306,592

	Monthly Avg.	Monthly Avg.
WDW-1	1,364	131
WDW-2	1,354	104
WDW-3	1,348	152

	Total BBLS	Beginning Volume	Ending Volume
WDW1	417,759	37,950,483	38,368,242
WDW2	331,533	24,863,592	25,195,125
WDW3	483,519	15,259,706	15,743,225
	1,232,811		79,306,592

HOLLYFRONTIER.

May 12, 2016

Submitted electronically via email to jim.griswold@state.nm.us and carlj.chavez@state.nm.us

Oil Conservation Division
New Mexico Energy, Minerals & Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: Discharge Permit GW-028
Monthly Report – April 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's April 2016 monthly report, for the period of April 1-30, 2016, under the Permit.

Specifically, this report covers the April 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

- Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.
- Analytical results of a discharge sample collected on April 5, 2016.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the two permanent RO units and the temporary RO unit on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. (Note that the temporary RO unit operated through April 2016, and will be replaced in the second quarter of 2016 with the permanent unit, as authorized by OCD on April 1, 2016.)

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the second quarter, samples were collected for the RO reject streams from the permanent units and temporary unit on April 5, 2016. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results are provided in Attachment 2.

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

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Navajo is committed to proactively meeting the requirements of the Permit and working cooperatively with OCD. If you have any questions or comments, please contact me at 575-746-5487.

Sincerely,

Scott M. Denton
Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates
Attachment 2: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder
OCD: A. Marks, B. Brancard

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

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Attachment 1
Daily Discharge Flow Rates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

	Permanent RO Units				Temporary Unit		Daily Discharge Volume
	Metered Data		Combined RO Reject Discharge (Calculated)		Total RO Reject Discharge (Calculated from Log Data)		
	GPM SOUTH	GPM NORTH	GPM	BBL/DAY	GPM	BBL/DAY	BBL
4/1/2016	68	82	151	5,163	131	4489	9,652
4/2/2016	73	87	160	5,488	133	4557	10,045
4/3/2016	73	85	159	5,443	130	4453	9,896
4/4/2016	72	81	153	5,247	134	4585	9,832
4/5/2016	0	8	8	270	146	4991	5,261
4/6/2016	0	57	57	1,958	132	4509	6,467
4/7/2016	3	8	10	356	136	4646	5,002
4/8/2016	102	36	138	4,730	141	4849	9,579
4/9/2016	111	89	200	6,867	140	4801	11,668
4/10/2016	106	90	195	6,701	134	4596	11,297
4/11/2016	113	94	207	7,090	139	4772	11,862
4/12/2016	113	92	205	7,014	145	4954	11,968
4/13/2016	111	89	200	6,873	148	5091	11,964
4/14/2016	114	102	216	7,392	155	5307	12,699
4/15/2016	109	83	191	6,553	157	5390	11,943
4/16/2016	110	83	194	6,644	149	5110	11,754
4/17/2016	113	86	199	6,824	131	4485	11,309
4/18/2016	109	81	190	6,529	119	4066	10,595
4/19/2016	103	82	186	6,365	148	5081	11,446
4/20/2016	108	85	193	6,611	152	5207	11,818
4/21/2016	108	80	188	6,434	143	4903	11,337
4/22/2016	106	82	188	6,440	137	4688	11,128
4/23/2016	87	77	164	5,616	136	4679	10,295
4/24/2016	84	81	165	5,662	139	4754	10,416
4/25/2016	66	82	149	5,096	134	4593	9,689
4/26/2016	75	88	163	5,603	131	4476	10,079
4/27/2016	82	78	159	5,460	136	4653	10,113
4/28/2016	81	73	154	5,273	139	4768	10,041
4/29/2016	84	82	166	5,708	129	4427	10,135
4/30/2016	82	81	163	5,590	126	4314	9,904

Attachment 2
Analytical Lab Report

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 12, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly R.O. Reject OrderNo.: 1604184

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/6/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**	
Arsenic	ND	0.0050		mg/L	5	4/19/2016 6:19:56 PM	A33644
Lead	ND	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
Selenium	ND	0.020		mg/L	20	4/20/2016 6:29:13 PM	A33677
Uranium	0.0067	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**	
Radium-226	1.02	0.578		pCi/L	1	4/29/2016	R34156
Radium-226 ±	0.608	0.578		pCi/L	1	4/29/2016	R34156
Radium-228	0.143	0.803		pCi/L	1	4/29/2016	R34156
Radium-228 ±	0.361	0.803		pCi/L	1	4/29/2016	R34156
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	4.7	2.0	*	mg/L	20	4/18/2016 10:52:15 PM	R33628
Chloride	390	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	4/7/2016 4:51:08 AM	R33368
Nitrogen, Nitrate (As N)	2.4	0.10		mg/L	1	4/7/2016 4:38:43 AM	R33368
Sulfate	2400	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	5190	20.0	*	mg/L	1	4/7/2016 3:22:00 PM	24656
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**	
Cyanide	ND	0.0100		mg/L	1	4/13/2016	R34156
SM4500-H+B: PH						Analyst: **MRA**	
pH	8.17	1.68	H	pH units	1	4/9/2016 2:23:07 AM	R33424
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Aluminum	ND	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Barium	0.094	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Boron	0.10	0.040		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cadmium	ND	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Chromium	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cobalt	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Copper	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Iron	0.034	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Manganese	ND	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Molybdenum	ND	0.0080		mg/L	1	4/18/2016 5:43:21 PM	A33606
Nickel	ND	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
Silver	ND	0.0050		mg/L	1	4/18/2016 5:43:21 PM	A33606
Zinc	0.027	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	4/15/2016 12:01:33 PM	24817
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:39:53 PM	24682
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1221	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1232	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1242	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1248	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1254	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1260	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Surr: Decachlorobiphenyl	121	26.1-140		%Rec	1	4/19/2016 2:38:24 AM	24708
Surr: Tetrachloro-m-xylene	95.2	15-123		%Rec	1	4/19/2016 2:38:24 AM	24708
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**	
Diesel Range Organics (DRO)	9.4	1.0		mg/L	1	4/8/2016 9:58:45 PM	24652
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/8/2016 9:58:45 PM	24652
Surr: DNOP	114	70-141		%Rec	1	4/8/2016 9:58:45 PM	24652
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 11:55:58 AM	R33412
Surr: BFB	89.0	49.5-130		%Rec	1	4/8/2016 11:55:58 AM	R33412
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
1-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
2-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
Benzo(a)pyrene	ND	0.070		µg/L	1	4/19/2016 11:30:48 AM	24709
Surr: Benzo(e)pyrene	74.7	33.4-129		%Rec	1	4/19/2016 11:30:48 AM	24709
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Toluene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:30:43 PM	R33550
Surr: 1,2-Dichloroethane-d4	98.3	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Dibromofluoromethane	110	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Toluene-d8	94.9	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/21/2016	24923

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-002
Client Sample ID: Trip Blank
Collection Date:
Matrix: TRIP BLANK
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:54:59 PM	24682
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 12:20:35 PM	R33412
Surr: BFB	85.7	49.5-130		%Rec	1	4/8/2016 12:20:35 PM	R33412
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Toluene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:59:37 PM	R33550
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Dibromofluoromethane	111	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Toluene-d8	96.2	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034060** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034061** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	ND	0.0020	0.002000	0	94.5	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	94.9	50	150			
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	ND	0.0060	0.006000	0	92.7	50	150			
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	ND	0.020	0.02000	0	98.6	50	150			
Manganese	ND	0.0020	0.002000	0	90.5	50	150			
Molybdenum	ND	0.0080	0.008000	0	99.0	50	150			
Nickel	ND	0.010	0.005000	0	86.2	50	150			
Silver	ND	0.0050	0.005000	0	92.6	50	150			
Zinc	ND	0.010	0.005000	0	108	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036133** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.5	85	115			
Lead	0.011	0.00050	0.01250	0	91.9	85	115			
Uranium	0.011	0.00050	0.01250	0	91.8	85	115			

Sample ID **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			
Lead	0.00052	0.00050	0.0005000	0	105	50	150			
Uranium	ND	0.00050	0.0005000	0	99.1	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Uranium	ND	0.00050								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037321** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.024	0.0010	0.02500	0	97.2	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037322** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0011	0.0010	0.001000	0	106	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037323** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24817**	SampType: **MBLK**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **PBW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-24817**	SampType: **LCS**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **LCSW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032805** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R33368**	RunNo: **33368**
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025773** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R33368**	RunNo: **33368**
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025774** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R33628**	RunNo: **33628**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035257** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R33628**	RunNo: **33628**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035258** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Chloride	4.8	0.50	5.000	0	96.7	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24682**	SampType: **MBLK**	TestCode: **EPA Method 8011/504.1: EDB**							
Client ID: **PBW**	Batch ID: **24682**	RunNo: **33411**							
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027492**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID **LCS-24682**	SampType: **LCS**	TestCode: **EPA Method 8011/504.1: EDB**							
Client ID: **LCSW**	Batch ID: **24682**	RunNo: **33411**							
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027494**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	116	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24652**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	70	141			

Sample ID **LCS-24652**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	71.3	139			
Surr: DNOP	0.53		0.5000		107	70	141			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027408** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.6	49.5	130			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027409** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.9	80	120			
Surr: BFB	19		20.00		96.6	49.5	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24708**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **PBW**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034347**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			

Sample ID **LCS-24708**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **LCSW**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034348**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5	1.0	5.000	0	130	15	131			
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S

Sample ID **LCSD-24708**	SampType: **LCSD**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **LCSS02**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034349**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R33550**	RunNo: **33550**
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032303** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R33550**	RunNo: **33550**
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032305** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24709**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **PBW**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034469**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID **LCSD-24709**	SampType: **LCSD**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSS02**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034484**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.30	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	2[illegible].4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	33.4	129	0		

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24923**	SampType: **MBLK**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **PBW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037376**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID **LCS-24923**	SampType: **LCS**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **LCSW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037377**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	89.0	64.4	135			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-R34156**	SampType: **MBLK**	TestCode: **EPA 335.4: Total Cyanide Subbed**							
Client ID: **PBW**	Batch ID: **R34156**	RunNo: **34156**							
Prep Date:	Analysis Date: **4/13/2016**	SeqNo: **1053134**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID **LCS-R34156**	SampType: **LCS**	TestCode: **EPA 335.4: Total Cyanide Subbed**							
Client ID: **LCSW**	Batch ID: **R34156**	RunNo: **34156**							
Prep Date:	Analysis Date: **4/13/2016**	SeqNo: **1053135**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.507		0.5000	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-R34156**	SampType: **MBLK**	TestCode: **EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID: **PBW**	Batch ID: **R34156**	RunNo: **34156**
Prep Date:	Analysis Date: **4/29/2016**	SeqNo: **1053137** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	-2.01	0.933								
Radium-226 ±	0.459	0.933								
Radium-228	0.321	0.795								
Radium-228 ±	0.376	0.795								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24656**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025974** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-24656**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1604184 RcptNo: 1

Received by/date: 04/06/16

Logged By: Ashley Gallegos 4/6/2016 9:40:00 AM

Completed By: Ashley Gallegos 4/6/2016 12:24:03 PM

Reviewed By: 04/06/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 6 (1) (<2 or >12 unless noted)

Adjusted? NO

Checked by: AJS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

ent: Navajo Refinery

ailing Address: P.O. Box 159 Artesia,

M 88211-0159

one #: 575-748-3311

ail or Fax#: 575-746-5451

VQC Package:

Standard ☐ Level 4 (Full Validation)

Other

EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Brady Hubbard

On Ice: X Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB	Air Bubbles (Y or N)
4/5/16	8:15	liquid	R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001									X		X	X	X	X		Y
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	HCL		X															
4/5/16	8:15	liquid	R.O. Reject	1-500ml P	HNO3						X											
4/5/16	8:15	liquid	R.O. Reject	1-125ml P	HNO3				X													
4/5/16	8:15	liquid	R.O. Reject	1-500ml P	NaOH					X												
4/5/16	8:15	liquid	R.O. Reject	2- 1L P	HNO3									X								
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	Na2S2O3																X	
4/5/16	8:15	liquid	R.O. Reject	2 - 1L Glass	unpres								X									
4/5/16	8:15	liquid	R.O. Reject	1 - 1L Glass	unpres			X														
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	HCl							X										
4/5/16	8:15	liquid	R.O. Reject	1-250mlGlas	unpres							X										
4/5/16	8:15	liquid	R.O. Reject	1 - 1L Glass	H2SO4											X						
4/5/16	8:15	liquid	Trip Blank	2-40ml VOA	HCL	-002																

Date: 5/16 Time: 12:00 Relinquished by: Elizabeth Saldana

Received by: Date Time 04/06/16 0960

Date: Time: Relinquished by:

Received by: Date Time

Remarks:
Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn
VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride
SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene

This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Quarterly RO Reject Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Brady Hubbard
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	4/5/2016 @ 8:05 a.m.
End Date and Time	4/5/2016 @ 8:30 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: ☐ North Field R.O. Reject Discarge ☑ South Field R.O. Reject Discarge

Container	Size	Material	Quantities	Preservatives: None	HCl	HNO3	H2SO4	NaOH	NaHSO3	NaHSO4	Other	Analysis and/or Method Requested
	500ml	Plastic	2	X			X					pH, Cl, F, S04, NO2/NO3, TDS
	40ml	VOA	3		X							8015 GRO
	500ml	Plastic	1			X						6020 total metals, 7470 Hg
	125ml	Plastic	1			X						6020 Dissolved Metals
	500ml	Plastic	2					X				Cyanide
	1L	Plastic	3			X						Radium 226/228
	40ml	VOA	2		X							8260 see attached list
	1L	Glass	1	X								8270 see attached list
	1L	Glass	2	X								8082 PCBs
	40ml	VOA	2	X								8015 DRO
	40ml	VOA	2		X							Radium 226/228

Field Data (Weather, Observations, etc.) and Date and Time: 4/5/2016 Tmp.55.4 °F, Humidity 41%, Wind Dir. SE, Wind Speed 4.6mph, Conditions Clear

Field Temp. 23.6C Field pH 7.05

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

Page 1755 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 10, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly Temporary R.O. Reject OrderNo.: 1604182

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/6/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1604182**
Date Reported: **5/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject
Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB						Analyst: **JME**
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:24:54 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1221	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1232	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1242	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1248	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1254	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1260	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Surr: Decachlorobiphenyl	106	26.1-140		%Rec	1	4/19/2016 2:04:17 AM
Surr: Tetrachloro-m-xylene	74.4	15-123		%Rec	1	4/19/2016 2:04:17 AM
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**
Diesel Range Organics (DRO)	2.4	1.0		mg/L	1	4/8/2016 9:37:25 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/8/2016 9:37:25 PM
Surr: DNOP	114	70-141		%Rec	1	4/8/2016 9:37:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 10:42:12 AM
Surr: BFB	84.7	49.5-130		%Rec	1	4/8/2016 10:42:12 AM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
1-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
2-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
Benzo(a)pyrene	ND	0.070		µg/L	1	4/19/2016 11:01:30 AM
Surr: Benzo(e)pyrene	101	33.4-129		%Rec	1	4/19/2016 11:01:30 AM
EPA METHOD 300.0: ANIONS						Analyst: **LGT**
Fluoride	1.9	0.10		mg/L	1	4/18/2016 10:02:35 PM
Chloride	55	10		mg/L	20	4/7/2016 5:15:57 AM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/7/2016 5:03:33 AM
Nitrogen, Nitrate (As N)	1.0	0.10		mg/L	1	4/7/2016 5:03:33 AM
Sulfate	880	25		mg/L	50	4/18/2016 10:15:00 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**
Aluminum	ND	0.020		mg/L	1	4/18/2016 5:39:41 PM
Barium	0.040	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Boron	0.052	0.040		mg/L	1	4/18/2016 5:39:41 PM
Cadmium	ND	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Chromium	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604182**
Date Reported: **5/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject
Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**
Cobalt	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM
Copper	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM
Iron	0.051	0.020		mg/L	1	4/18/2016 5:39:41 PM
Manganese	ND	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Molybdenum	ND	0.0080		mg/L	1	4/18/2016 5:39:41 PM
Nickel	ND	0.010		mg/L	1	4/18/2016 5:39:41 PM
Silver	ND	0.0050		mg/L	1	4/18/2016 5:39:41 PM
Zinc	0.032	0.010		mg/L	1	4/18/2016 5:39:41 PM
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**
Arsenic	ND	0.0050		mg/L	5	4/19/2016 6:16:53 PM
Lead	ND	0.00050		mg/L	1	4/19/2016 2:29:28 PM
Selenium	ND	0.0050		mg/L	5	4/20/2016 6:26:09 PM
Uranium	0.0029	0.00050		mg/L	1	4/19/2016 2:29:28 PM
EPA METHOD 245.1: MERCURY						Analyst: **pmf**
Mercury	ND	0.00020		mg/L	1	4/15/2016 11:59:33 AM
EPA METHOD 8260B: VOLATILES						Analyst: **AG**
Benzene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Toluene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:01:59 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:01:59 PM
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: Dibromofluoromethane	117	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: Toluene-d8	103	70-130		%Rec	1	4/14/2016 6:01:59 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Analytical Report
Lab Order **1604182**
Date Reported: **5/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject
Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/21/2016
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**
Cyanide	ND	0.0100		mg/L	1	4/8/2016
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**
Radium-226	5.67	0.512		pCi/L	1	4/26/2016 7:54:00 PM
Radium-226 ±	2.13	0.512		pCi/L	1	4/26/2016 7:54:00 PM
Radium-228	0.76	0.949		pCi/L	1	4/26/2016 7:54:00 PM
Radium-228 ±	0.5	0.949		pCi/L	1	4/26/2016 7:54:00 PM
SM4500-H+B: PH						Analyst: **MRA**
pH	8.26	1.68	H	pH units	1	4/9/2016 2:18:47 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	1870	20.0	*	mg/L	1	4/7/2016 3:22:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034060** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034061** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	ND	0.0020	0.002000	0	94.5	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	94.9	50	150			
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	ND	0.0060	0.006000	0	92.7	50	150			
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	ND	0.020	0.02000	0	98.6	50	150			
Manganese	ND	0.0020	0.002000	0	90.5	50	150			
Molybdenum	ND	0.0080	0.008000	0	99.0	50	150			
Nickel	ND	0.010	0.005000	0	86.2	50	150			
Silver	ND	0.0050	0.005000	0	92.6	50	150			
Zinc	ND	0.010	0.005000	0	108	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035657** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.013	0.00050	0.01250	0	100	85	115			
Uranium	0.012	0.00050	0.01250	0	97.5	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035658** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00054	0.00050	0.0005000	0	107	50	150			
Uranium	ND	0.00050	0.0005000	0	97.6	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035659** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Uranium	ND	0.00050								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036133** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.5	85	115			

Sample ID **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037321** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.024	0.0010	0.02500	0	97.2	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037322** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0011	0.0010	0.001000	0	106	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037323** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24817**	SampType: **MBLK**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **PBW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-24817**	SampType: **LCS**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **LCSW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032805** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R33368**	RunNo: **33368**							
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025773**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R33368**	RunNo: **33368**							
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025774**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R33628**	RunNo: **33628**							
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035257**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R33628**	RunNo: **33628**							
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035258**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24682**	SampType: **MBLK**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **PBW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027492** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID **LCS-24682**	SampType: **LCS**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **LCSW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027494** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	116	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24652**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	70	141			

Sample ID **LCS-24652**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	71.3	139			
Surr: DNOP	0.53		0.5000		107	70	141			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027408** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.6	49.5	130			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027409** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.9	80	120			
Surr: BFB	19		20.00		96.6	49.5	130			

Sample ID **1604182-001BMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Temporary R.O. Rej**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027412** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.4	70	130			
Surr: BFB	20		20.00		98.2	49.5	130			

Sample ID **1604182-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Temporary R.O. Rej**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027413** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.6	70	130	0.884	20	
Surr: BFB	20		20.00		99.5	49.5	130	0	0	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24708**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBW**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034347** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			

Sample ID **LCS-24708**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSW**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034348** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5	1.0	5.000	0	130	15	131			
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S

Sample ID **LCSD-24708**	SampType: **LCSD**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS02**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034349** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R33550**	RunNo: **33550**
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032303** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R33550**	RunNo: **33550**
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032305** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24709**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034469** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID **LCSD-24709**	SampType: **LCSD**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSS02**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034484**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.80	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	21.4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	33.4	129	0		

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24923**	SampType: **MBLK**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **PBW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037376**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID **LCS-24923**	SampType: **LCS**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **LCSW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037377**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	89.0	64.4	135			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-R34094**	SampType: **MBLK**	TestCode: **EPA 335.4: Total Cyanide Subbed**
Client ID: **PBW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1050918** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID **LCS-R34094**	SampType: **LCS**	TestCode: **EPA 335.4: Total Cyanide Subbed**
Client ID: **LCSW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1050919** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.512		0.5000	0	102	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-R34094**	SampType: **MBLK**	TestCode: **EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID: **PBW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/26/2016**	SeqNo: **1050921** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.965	0.799								
Radium-226 ±	0.644	0.799								
Radium-228	0.0941	0.772								
Radium-228 ±	0.341	0.772								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24656**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025974** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-24656**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1604182 RcptNo: 1

Received by/date: RM 04/06/16

Logged By: Ashley Gallegos 4/6/2016 9:40:00 AM AG

Completed By: Ashley Gallegos 4/6/2016 12:16:42 PM AG

Reviewed By: 04/06/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? AJ ~~Yes ☑~~ No ☑
9. Was preservative added to bottles? Yes ☑ ~~No ☑~~ AJ NA ☐
10. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 6 (1) (<2 or >12 unless noted)
Adjusted? Yes
Checked by: AJ

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks: For metals analysis: added 1 mL HNO3 to -0016 for acceptable PH 4/7 @ 1150 AJ

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

lient: Navajo Refinery

lailing Address: P.O. Box 159 Artesia,

M 88211-0159

hone #: 575-748-3311

mail or Fax#: 575-746-5451

A/QC Package:

St ndard ☐ Level 4 (Full Validation)

] Other

] EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly Temporary R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Brady Hubbard

On Ice: X Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type		8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB	Air Bubbles (Y or N)
4/5/16	7:45	liquid	Temporary R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001 -002									X		X	X	X	X		Y
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	HCL		X															
4/5/16	7:45	liquid	Temporary R.O. Reject	1-500ml P	HNO3						X											
4/5/16	7:45	liquid	Temporary R.O. Reject	1-125ml P	HNO3				X													
4/5/16	7:45	liquid	Temporary R.O. Reject	1-500ml P	NaOH					X												
4/5/16	7:45	liquid	Temporary R.O. Reject	2- 1L P	HNO3									X								
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	Na2S2O3																X	
4/5/16	7:45	liquid	Temporary R.O. Reject	2 - 1L Glass	unpres								X									
4/5/16	7:45	liquid	Temporary R.O. Reject	1 - 1L Glass	unpres			X														
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	HCl							X										
4/5/16	7:45	liquid	Temporary R.O. Reject	1-250mlGlass	unpres							X										
4/5/16	7:45	liquid	Temporary R.O. Reject	1 - 1L Glass	H2SO4	* Did not receive TB										X						
4/5/16	7:45	liquid	~~Trip Blank~~	2-40ml VOA	HCL	-003																

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/11/16	12:00	Elizabeth Salsbury		04/06/16	0940
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride

SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Quarterly Temporary RO Reject Sample Details

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Brady Hubbard
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	4/5/2016 @ 7:30 a.m.
End Date and Time	4/5/2016 @ 8:00 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall Sample Location: ☐ North Field R.O. Reject Discarge ☑ South Field R.O. Reject Discarge

Containers	Size	Container Material	Number of Containers	Preservative: Ice	HNO3	HCl	H2SO4	NaOH	Zn Acetate	NaHSO4	Other	Analysis and Method Requested
	500ml	Plastic	2	X			X					pH, Cl, F, S04, NO2/NO3, TDS
	40ml	VOA	3		X							8015 GRO
	500ml	Plastic	1			X						6020 total metals, 7470 Hg
	125ml	Plastic	1			X						6020 Dissolved Metals
	500ml	Plastic	2					X				Cyanide
	1L	Plastic	3			X						Radium 226/228
	40ml	VOA	2		X							8260 see attached list
	1L	Glass	1	X								8270 see attached list
	1L	Glass	2	X								8082 PCBs
	40ml	VOA	2	X								8015 DRO
	40ml	VOA	2		X							Radium 226/228

Field Data / Weather Observations (Temp., ...): 4/5/2016 Tmp. 48.2 °F, Humidity 46%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear
Date and Time

Field Temp. 23.6C Field pH 7.05

Storage Method:	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media:	
Ice	☑
Other	☐

HOLLYFRONTIER.

May 13, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 3010 0000 3143 3326

RE: 2016 1st Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2016 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1338 psig and the average flows were 132 gpm for WDW-1, 98 gpm for WDW-2 and 155 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2016 to March 31, 2016. We have disposed a total of 1,214,229 barrels of fluid into the three wells during the first quarter of 2016. The volume per well is:

- 415,338 barrels into WDW-1
- 308,949 barrels into WDW-2
- 489,942 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

Released to Imaging: 7/12/2024 10:49:45 AM

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Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, L.L.C.

2016 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	37,535,146
Jan-16	1,377	1,400	1,312	135	209	120	411	577	199	4,629	7,166	4,114	143,486	37,678,632
Feb-16	1,399	1,400	1,383	131	142	128	401	637	222	4,491	4,869	4,389	134,743	37,813,375
Mar-16	1,389	1,400	1,335	129	133	119	284	417	178	4,423	4,560	4,080	137,109	37,950,483
30-015-20894 WDW-2													**Previous Quarter**	24,554,643
Jan-16	1,329	1,390	1,222	85	104	52	271	350	220	2,914	3,566	1,783	90,343	24,644,986
Feb-16	1,394	1,400	1,377	103	107	98	300	423	218	3,531	3,669	3,360	105,943	24,750,929
Mar-16	1,385	1,400	1,335	106	111	95	292	437	194	3,634	3,806	3,257	112,663	24,863,592
30-015-26575 WDW-3													**Previous Quarter**	14,769,763
Jan-16	1,377	1,390	1,338	152	158	139	849	965	683	5,211	5,417	4,766	161,554	14,931,317
Feb-16	1,387	1,390	1,335	156	159	143	699	768	621	5,349	5,451	4,903	160,457	15,091,774
Mar-16	1,384	1,400	1,335	158	162	147	675	732	584	5,417	5,554	5,040	167,931	15,259,706
													Total Injected fluids:	78,073,781

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 15, 2016

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1601864

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/22/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	1/29/2016	R32136
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	ND	1.0		mg/L	1	1/29/2016	R32136
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.006	0			1	1/27/2016 3:13:00 PM	R31723
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	20	2.0	*	mg/L	20	1/23/2016 12:57:44 AM	R31638
Chloride	570	25		mg/L	50	1/26/2016 11:44:39 PM	R31714
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	1/23/2016 12:45:19 AM	R31638
Bromide	2.1	2.0		mg/L	20	1/23/2016 12:57:44 AM	R31638
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	1/23/2016 12:45:19 AM	R31638
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	1/23/2016 12:45:19 AM	R31638
Sulfate	2000	25		mg/L	50	1/26/2016 11:44:39 PM	R31714
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5600	0.010		µmhos/cm	1	1/25/2016 8:12:02 PM	R31664
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	220.4	20.00		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
Total Alkalinity (as CaCO3)	220.4	20.00		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3780	40.0	*D	mg/L	1	1/28/2016 6:43:00 PM	23428
CORROSIVITY						Analyst: **SUB**	
pH	7.16			pH Units	1	1/28/2016	R32136
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	2/4/2016	R32136
EPA METHOD 7470: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	1/25/2016 4:48:50 PM	23378
MERCURY, TCLP						Analyst: **pmf**	
Mercury	ND	0.020		mg/L	1	1/28/2016 11:50:30 AM	23438
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Barium	ND	100		mg/L	1	1/25/2016 11:17:08 AM	23359
Cadmium	ND	1.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Chromium	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Lead	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Selenium	ND	1.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Silver	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	1.0	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Antimony	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Arsenic	ND	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Barium	ND	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Beryllium	ND	0.0030		mg/L	1	1/27/2016 10:18:42 AM	23359
Cadmium	ND	0.0020		mg/L	1	1/27/2016 10:18:42 AM	23359
Calcium	39	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Chromium	ND	0.0060		mg/L	1	1/27/2016 10:18:42 AM	23359
Cobalt	ND	0.0060		mg/L	1	1/28/2016 10:29:14 AM	23359
Copper	0.012	0.0060		mg/L	1	1/27/2016 10:18:42 AM	23359
Iron	7.6	0.25		mg/L	5	1/27/2016 10:20:32 AM	23359
Lead	ND	0.0050		mg/L	1	1/27/2016 10:18:42 AM	23359
Magnesium	13	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Manganese	0.15	0.0020		mg/L	1	1/27/2016 10:18:42 AM	23359
Nickel	0.042	0.010		mg/L	1	1/27/2016 10:18:42 AM	23359
Potassium	72	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Selenium	0.53	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Silver	ND	0.0050		mg/L	1	1/27/2016 10:18:42 AM	23359
Sodium	1200	50		mg/L	50	1/29/2016 11:10:54 AM	23359
Thallium	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Vanadium	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Zinc	0.035	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	12		µg/L	1	2/2/2016	R32136
Allyl chloride	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroprene	ND	2.5		µg/L	1	2/2/2016	R32136
Cyclohexane	ND	2.5		µg/L	1	2/2/2016	R32136
Diethyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Diisopropyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Epichlorohydrin	ND	25		µg/L	1	2/2/2016	R32136
Ethyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Ethyl methacrylate	ND	12		µg/L	1	2/2/2016	R32136
Ethyl tert-butyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Freon-113	ND	2.5		µg/L	1	2/2/2016	R32136

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Isobutanol	ND	25		µg/L	1	2/2/2016	R32136
Isopropyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Methacrylonitrile	ND	12		µg/L	1	2/2/2016	R32136
Methyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl ethyl ketone	ND	12		µg/L	1	2/2/2016	R32136
Methyl isobutyl ketone	ND	12		µg/L	1	2/2/2016	R32136
Methyl methacrylate	ND	12		µg/L	1	2/2/2016	R32136
Methylcyclohexane	ND	5.0		µg/L	1	2/2/2016	R32136
n-Amyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
n-Hexane	ND	2.5		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	25		µg/L	1	2/2/2016	R32136
Pentachloroethane	ND	25		µg/L	1	2/2/2016	R32136
p-isopropyltoluene	ND	2.5		µg/L	1	2/2/2016	R32136
Propionitrile	ND	12		µg/L	1	2/2/2016	R32136
Tetrahydrofuran	ND	2.5		µg/L	1	2/2/2016	R32136
Benzene	ND	2.5		µg/L	1	2/2/2016	R32136
Toluene	ND	2.5		µg/L	1	2/2/2016	R32136
Ethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl tert-butyl ether (MTBE)	3.2	2.5		µg/L	1	2/2/2016	R32136
1,2,4-Trimethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,3,5-Trimethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	1	2/2/2016	R32136
Naphthalene	ND	2.5		µg/L	1	2/2/2016	R32136
Acetone	100	12		µg/L	1	2/2/2016	R32136
Bromobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Bromodichloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
Bromoform	ND	2.5		µg/L	1	2/2/2016	R32136
Bromomethane	ND	2.5		µg/L	1	2/2/2016	R32136
Carbon disulfide	ND	2.5		µg/L	1	2/2/2016	R32136
Carbon Tetrachloride	ND	2.5		µg/L	1	2/2/2016	R32136
Chlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroform	ND	2.5		µg/L	1	2/2/2016	R32136
Chloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
2-Chlorotoluene	ND	2.5		µg/L	1	2/2/2016	R32136
4-Chlorotoluene	ND	2.5		µg/L	1	2/2/2016	R32136
cis-1,2-DCE	ND	2.5		µg/L	1	2/2/2016	R32136
cis-1,3-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136

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Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2-Dibromo-3-chloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
Dibromochloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
Dibromomethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,3-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,4-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Dichlorodifluoromethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloroethene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
1,3-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
2,2-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	2.5		µg/L	1	2/2/2016	R32136
2-Hexanone	ND	2.5		µg/L	1	2/2/2016	R32136
Isopropylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Methylene Chloride	ND	12		µg/L	1	2/2/2016	R32136
n-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
n-Propylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
sec-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Styrene	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Tetrachloroethene (PCE)	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,2-DCE	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,3-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,3-Trichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,4-Trichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,1-Trichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,2-Trichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Trichloroethene (TCE)	ND	2.5		µg/L	1	2/2/2016	R32136
Trichlorofluoromethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,3-Trichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
Vinyl chloride	ND	2.5		µg/L	1	2/2/2016	R32136
mp-Xylenes	ND	5.0		µg/L	1	2/2/2016	R32136
o-Xylene	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Amyl methyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Butyl alcohol	ND	25		µg/L	1	2/2/2016	R32136

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Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acrolein	ND	12		µg/L	1	2/2/2016	R32136
Acrylonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Bromochloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Iodomethane	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,4-Dichloro-2-butene	ND	2.5		µg/L	1	2/2/2016	R32136
Vinyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	100		µg/L	1	2/2/2016	R32136
Surr: 1,2-Dichlorobenzene-d4	89.2	70-130		%Rec	1	2/2/2016	R32136
Surr: 4-Bromofluorobenzene	94.0	70-130		%Rec	1	2/2/2016	R32136
Surr: Toluene-d8	99.6	70-130		%Rec	1	2/2/2016	R32136
EPA 8270D: SEMIVOLATILES							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	5.0		µg/L	1	2/2/2016	R32136
Atrazine	ND	5.0		µg/L	1	2/2/2016	R32136
Benzaldehyde	ND	5.0		µg/L	1	2/2/2016	R32136
Caprolactam	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	2/2/2016	R32136
Acetophenone	ND	5.0		µg/L	1	2/2/2016	R32136
1-Methylnaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dimethylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dinitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dinitrotoluene	ND	5.0		µg/L	1	2/2/2016	R32136
2,6-Dinitrotoluene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Chloronaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Chlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2-Methylnaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
2-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
2-Nitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	2/2/2016	R32136
3-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	2/2/2016	R32136
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136

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Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270D: SEMIVOLATILES						Analyst: **SUB**	
4-Chloroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	2/2/2016	R32136
4-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4-Nitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
Acenaphthene	ND	5.0		µg/L	1	2/2/2016	R32136
Acenaphthylene	ND	5.0		µg/L	1	2/2/2016	R32136
Anthracene	ND	5.0		µg/L	1	2/2/2016	R32136
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	2/2/2016	R32136
Benz(a)anthracene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(a)pyrene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(b)fluoranthene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(k)fluoranthene	ND	0.50		µg/L	1	2/2/2016	R32136
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Butyl benzyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Carbazole	ND	5.0		µg/L	1	2/2/2016	R32136
Chrysene	ND	0.50		µg/L	1	2/2/2016	R32136
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	2/2/2016	R32136
Dibenzofuran	ND	5.0		µg/L	1	2/2/2016	R32136
Diethyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Dimethyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Di-n-butyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Di-n-octyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Fluoranthene	ND	5.0		µg/L	1	2/2/2016	R32136
Fluorene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachloroethane	ND	5.0		µg/L	1	2/2/2016	R32136
Indeno(1,2,3-cd)pyrene	ND	0.50		µg/L	1	2/2/2016	R32136
Isophorone	ND	5.0		µg/L	1	2/2/2016	R32136
Naphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	2/2/2016	R32136
Pentachlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
Phenanthrene	ND	5.0		µg/L	1	2/2/2016	R32136

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Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
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Lab ID: 1601864-001 **Matrix:** AQUEOUS

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Collection Date: 1/21/2016 7:35:00 AM
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Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270D: SEMIVOLATILES						Analyst: **SUB**	
Phenol	ND	5.0		µg/L	1	2/2/2016	R32136
Pyrene	ND	5.0		µg/L	1	2/2/2016	R32136
o-Toluidine	ND	5.0		µg/L	1	2/2/2016	R32136
Pyridine	ND	5.0		µg/L	1	2/2/2016	R32136
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Surr: 2,4,6-Tribromophenol	94.2	10-123		%Rec	1	2/2/2016	R32136
Surr: 2-Fluorobiphenyl	80.4	19-130		%Rec	1	2/2/2016	R32136
Surr: 2-Fluorophenol	82.8	21-120		%Rec	1	2/2/2016	R32136
Surr: Nitrobenzene-d5	89.6	25-130		%Rec	1	2/2/2016	R32136
Surr: Phenol-d5	86.0	10-130		%Rec	1	2/2/2016	R32136
Surr: Terphenyl-d14	32.8	20-137		%Rec	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1601864-002 **Matrix:** TRIP BLANK **Received Date:** 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Allyl chloride	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroprene	ND	0.50		µg/L	1	2/2/2016	R32136
Cyclohexane	ND	0.50		µg/L	1	2/2/2016	R32136
Diethyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Diisopropyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Epichlorohydrin	ND	5.0		µg/L	1	2/2/2016	R32136
Ethyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Ethyl methacrylate	ND	2.5		µg/L	1	2/2/2016	R32136
Ethyl tert-butyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Freon-113	ND	0.50		µg/L	1	2/2/2016	R32136
Isobutanol	ND	5.0		µg/L	1	2/2/2016	R32136
Isopropyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Methacrylonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Methyl ethyl ketone	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl isobutyl ketone	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl methacrylate	ND	2.5		µg/L	1	2/2/2016	R32136
Methylcyclohexane	ND	1.0		µg/L	1	2/2/2016	R32136
n-Amyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
n-Hexane	ND	0.50		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Pentachloroethane	ND	5.0		µg/L	1	2/2/2016	R32136
p-isopropyltoluene	ND	0.50		µg/L	1	2/2/2016	R32136
Propionitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Tetrahydrofuran	ND	0.50		µg/L	1	2/2/2016	R32136
Benzene	ND	0.50		µg/L	1	2/2/2016	R32136
Toluene	ND	0.50		µg/L	1	2/2/2016	R32136
Ethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	2/2/2016	R32136
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	2/2/2016	R32136
Naphthalene	ND	0.50		µg/L	1	2/2/2016	R32136
Acetone	ND	2.5		µg/L	1	2/2/2016	R32136
Bromobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Bromodichloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
Bromoform	ND	0.50		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	2/2/2016	R32136
Carbon disulfide	ND	0.50		µg/L	1	2/2/2016	R32136
Carbon Tetrachloride	ND	0.50		µg/L	1	2/2/2016	R32136
Chlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroform	ND	0.50		µg/L	1	2/2/2016	R32136
Chloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
2-Chlorotoluene	ND	0.50		µg/L	1	2/2/2016	R32136
4-Chlorotoluene	ND	0.50		µg/L	1	2/2/2016	R32136
cis-1,2-DCE	ND	0.50		µg/L	1	2/2/2016	R32136
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
Dibromochloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
Dibromomethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,3-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,4-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Dichlorodifluoromethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloroethene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
1,3-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
2,2-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	0.50		µg/L	1	2/2/2016	R32136
2-Hexanone	ND	0.50		µg/L	1	2/2/2016	R32136
Isopropylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Methylene Chloride	ND	2.5		µg/L	1	2/2/2016	R32136
n-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
n-Propylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
sec-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Styrene	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,2-DCE	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1601864-002 **Matrix:** TRIP BLANK **Received Date:** 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,1-Trichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,2-Trichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Trichloroethene (TCE)	ND	0.50		µg/L	1	2/2/2016	R32136
Trichlorofluoromethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,2,3-Trichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
Vinyl chloride	ND	0.50		µg/L	1	2/2/2016	R32136
mp-Xylenes	ND	1.0		µg/L	1	2/2/2016	R32136
o-Xylene	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Amyl methyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Butyl alcohol	ND	5.0		µg/L	1	2/2/2016	R32136
Acrolein	ND	2.5		µg/L	1	2/2/2016	R32136
Acrylonitrile	ND	0.50		µg/L	1	2/2/2016	R32136
Bromochloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Iodomethane	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	2/2/2016	R32136
Vinyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	20		µg/L	1	2/2/2016	R32136
Surr: 1,2-Dichlorobenzene-d4	89.2	70-130		%Rec	1	2/2/2016	R32136
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	1	2/2/2016	R32136
Surr: Toluene-d8	99.6	70-130		%Rec	1	2/2/2016	R32136

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R31638**	RunNo: **31638**
Prep Date:	Analysis Date: **1/22/2016**	SeqNo: **968134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R31638**	RunNo: **31638**
Prep Date:	Analysis Date: **1/22/2016**	SeqNo: **968135** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.4	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.1	90	110			
Bromide	2.5	0.10	2.500	0	98.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.2	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.3	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R31714**	RunNo: **31714**
Prep Date:	Analysis Date: **1/26/2016**	SeqNo: **970466** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R31714**	RunNo: **31714**
Prep Date:	Analysis Date: **1/26/2016**	SeqNo: **970467** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.5	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	2.5								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	10								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	2.5								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	2.5								
Methylcyclohexane	ND	0.50								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	0.50								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	2.5								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	2.5								
Acrylonitrile	ND	2.5								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	0.50								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982422** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.8		10.00	0	97.7	80	120			
Toluene	9.8		10.00	0	98.4	80	120			
Ethylbenzene	10		10.00	0	102	80	120			
Chlorobenzene	9.6		10.00	0	96.0	80	120			
1,1-Dichloroethene	9.6		10.00	0	96.4	80	120			
Tetrachloroethene (PCE)	9.2		10.00	0	92.4	80	120			
Trichloroethene (TCE)	9.8		10.00	0	98.0	80	120			
o-Xylene	10		10.00	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982533** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	5.0								
1,4-Dioxane	ND	5.0								
Atrazine	ND	5.0								
Benzaldehyde	ND	5.0								
Caprolactam	ND	5.0								
N-Nitroso-di-n-butylamine	ND	5.0								
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3'-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982533** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	5.0								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
o-Toluidine	ND	2.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982534** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.6		5.000	0	93.0	49	134			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982534** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Chlorophenol	4.6		5.000	0	91.6	50	131			
4-Chloro-3-methylphenol	4.7		5.000	0	94.4	42	139			
4-Nitrophenol	4.5		5.000	0	90.2	19	137			
Acenaphthene	5.0		5.000	0	100	36	122			
Bis(2-ethylhexyl)phthalate	5.2		5.000	0	105	50	150			
N-Nitrosodi-n-propylamine	4.7		5.000	0	93.6	46	135			
Pentachlorophenol	3.7		5.000	0	73.2	22	138			
Phenol	5.2		5.000	0	103	45	134			
Pyrene	4.7		5.000	0	93.2	45	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-23378**	SampType: **MBLK**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968855**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-23378**	SampType: **LCS**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968856**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	80	120			

Sample ID	**1601864-001BMS**	SampType: **MS**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968858**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0040	0.00020	0.005000	.00006177	79.6	75	125			

Sample ID	**1601864-001BMSD**	SampType: **MSD**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968859**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0041	0.00020	0.005000	.00006177	80.1	75	125	0.688	20	

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-23438**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**23438**	RunNo:	**31746**					
Prep Date:	**1/27/2016**	Analysis Date:	**1/28/2016**	SeqNo:	**971551**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-23438**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**23438**	RunNo:	**31746**					
Prep Date:	**1/27/2016**	Analysis Date:	**1/28/2016**	SeqNo:	**971552**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968535** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968536** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	96.1	80	120			
Barium	ND	100	0.5000	0	94.0	80	120			
Cadmium	ND	1.0	0.5000	0	92.5	80	120			
Chromium	ND	5.0	0.5000	0	93.7	80	120			
Lead	ND	5.0	0.5000	0	92.9	80	120			
Selenium	ND	1.0	0.5000	0	95.8	80	120			
Silver	ND	5.0	0.1000	0	92.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968316** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968317** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	91.9	80	120			
Antimony	0.48	0.050	0.5000	0	95.5	80	120			
Arsenic	0.48	0.020	0.5000	0	96.1	80	120			
Barium	0.47	0.020	0.5000	0	94.0	80	120			
Beryllium	0.49	0.0030	0.5000	0	99.0	80	120			
Cadmium	0.46	0.0020	0.5000	0	92.5	80	120			
Chromium	0.47	0.0060	0.5000	0	93.7	80	120			
Copper	0.47	0.0060	0.5000	0	94.5	80	120			
Iron	0.48	0.050	0.5000	0	95.5	80	120			
Lead	0.46	0.0050	0.5000	0	92.9	80	120			
Manganese	0.47	0.0020	0.5000	0	93.5	80	120			
Nickel	0.46	0.010	0.5000	0	92.2	80	120			
Potassium	44	1.0	50.00	0	88.6	80	120			
Selenium	0.48	0.050	0.5000	0	95.8	80	120			
Silver	0.092	0.0050	0.1000	0	92.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968317** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.47	0.050	0.5000	0	93.8	80	120			
Vanadium	0.49	0.050	0.5000	0	98.1	80	120			
Zinc	0.48	0.020	0.5000	0	95.2	80	120			

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31648**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968397** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Sodium	ND	1.0								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31648**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968398** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.1	80	120			
Magnesium	49	1.0	50.00	0	98.8	80	120			
Sodium	48	1.0	50.00	0	96.6	80	120			

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31737**
Prep Date: **1/22/2016**	Analysis Date: **1/28/2016**	SeqNo: **971326** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	ND	0.0060								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31737**
Prep Date: **1/22/2016**	Analysis Date: **1/28/2016**	SeqNo: **971327** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	0.46	0.0060	0.5000	0	91.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **2/4/2016**	SeqNo: **982430**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **2/4/2016**	SeqNo: **982431**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.542		0.5000	0	108	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **1/29/2016**	SeqNo: **982433**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **1/29/2016**	SeqNo: **982434**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R31664**	RunNo: **31664**							
Prep Date:	Analysis Date: **1/25/2016**	SeqNo: **968939**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R31664**	RunNo: **31664**							
Prep Date:	Analysis Date: **1/25/2016**	SeqNo: **968940**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.44	20.00	80.00	0	94.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1601864-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R31723** RunNo: **31723**

Prep Date: Analysis Date: **1/27/2016** SeqNo: **970796** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.004	0						0.179	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23428**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971754** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-23428**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971755** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Sample ID **1601864-001AMS**	SampType: **MS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971765** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	5800	40.0	2000	3784	101	80	120			D

Sample ID **1601864-001AMSD**	SampType: **MSD**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971766** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	5820	40.0	2000	3784	102	80	120	0.379	5	D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1601864 RcptNo: 1

Received by/date: LM 01/22/16

Logged By: Michelle Garcia 1/22/2016 9:40:00 AM Michelle Garcia

Completed By: Michelle Garcia 1/22/2016 11:23:27 AM Michelle Garcia

Reviewed By: JO 01/27/16

Chain of Custody

1 Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑

2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐

3. How was the sample delivered? Courier

Log In

4 Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐

5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐

6 Sample(s) in proper container(s)? Yes ☑ No ☐

7 Sufficient sample volume for indicated test(s)? Yes ☑ No ☐

8 Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐

9 Was preservative added to bottles? Yes ☐ No ☑ NA ☐

10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑

11. Were any sample containers received broken? Yes ☐ No ☑

12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐ # of preserved bottles checked for pH: 2,2 (2 or >12 unless noted)

13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐ Adjusted? No

14. Is it clear what analyses were requested? Yes ☑ No ☐

15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐ Checked by: MG

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____

By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: ____

Client Instructions: ____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.2	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standar ☐ **Rush**

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1601864	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH cond ,Fl, Cation/anion bal., Br, Fh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136 3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
1/21/16	7:35	Liquid	Trip Blank	2	Neat	-002		X					
1/21/16	7:35	Liquid	Temperature Blank	1	Neat								

Date	Time	Relinquished by	Received by	Date	Time
1/21/2016	1:00	Elizabeth Salsberry			
Date	Time	Relinquished by	Received by	01/22/16	0440

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	1/21/2016 @ 7:30 a.m.
End Date and Time	1/21/2016 @ 7:40 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east) ☐ P-856 sample point (third from east)
☑ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

Container	Size	Material	# of Containers	Preservatives: Field (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/Or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS pH, cond., Fl Cation/anion ba., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc):	1/21/2016 Temp. 37.4 °F Humidity 70% Wind direction NW Wind Speed 11.5 mph Condition Clear
Date and Time	

Field Temp. 40.7C Field pH 7.49

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

February 4, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 3010 0000 3143 3111

RE: 2015 4th Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1361 psig and the average flows were 123 gpm for WDW-1, 91 gpm for WDW-2 and 140 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from October 1, 2015 to December 31, 2015. We have disposed a total of 1,115,486 barrels of fluid into the three wells during the fourth quarter of 2015. The volume per well is:

- 388,046 barrels into WDW-1
- 287,006 barrels into WDW-2
- 440,434 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2015 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	37,147,100
Oct-15	1,379	1,400	1,234	124	129	95	480	837	305	4,251	4,423	3,257	131,794	37,278,894
Nov-15	1,376	1,400	1,252	121	128	94	335	447	91	4,149	4,389	3,223	124,457	37,403,351
Dec-15	1,342	1,400	1,256	124	256	99	398	661	193	4,251	8,777	3,394	131,794	37,535,146
WDW-2													**Previous Quarter**	24,267,637
Oct-15	1,378	1,234	1,252	102	181	59	467	769	248	3,497	6,206	2,023	108,411	24,376,048
Nov-15	1,376	1,400	1,252	92	100	54	341	787	217	3,154	3,429	1,851	94,629	24,470,677
Dec-15	1,326	1,400	1,253	79	99	55	281	345	209	2,709	3,394	1,886	83,966	24,554,643
WDW-3													**Previous Quarter**	14,329,329
Oct-15	1,370	1,390	1,233	141	769	52	855	1,006	708	4,834	26,366	1,783	149,863	14,479,192
Nov-15	1,369	1,390	1,252	143	151	110	857	983	686	4,903	5,177	3,771	147,086	14,626,278
Dec-15	1,334	1,390	1,255	135	151	108	812	965	715	4,629	5,177	3,703	143,486	14,769,763
													Total Injected fluids:	76,859,552

Page 1814 of 5828

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Navajo Refining Company, L.L.C.

2015 FOURTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/6/15	10/12/15	10/19/15	10/26/15	11/2/15	11/9/15	11/16/15	11/23/15	11/30/15	12/7/15	12/14/16	12/16/15	12/21/15	12/28/15
WDW -1[1]	100	100	155**	150	150	150	145	145	145	145	145		145	Inaccessible
WDW-2[1]	100	100	150**	150	145	145	150	150	150	150	150		150	Inaccessible
WDW-3[1]	255*	170	250	310***	150	250	130****	150	200	245	255	300*****	145	Inaccessible
Comments: * Removed 130 gal. ** Added 55 gal. glycol *** Removed 255 gal. ****Removed 180 gal. *****Removed 200 gal.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 24, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1510908

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/20/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	10/23/2015	R30423
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	ND	1.0		mg/L	1	10/23/2015	R30423
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9991	0			1	10/20/2015 1:22:00 PM	R29675
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	5.5	0.50	*	mg/L	5	10/20/2015 2:08:09 PM	R29684
Chloride	520	50		mg/L	100	10/27/2015 11:24:40 PM	R29842
Bromide	0.72	0.50		mg/L	5	10/20/2015 2:08:09 PM	R29684
Phosphorus, Orthophosphate (As P)	ND	10	H	mg/L	20	11/7/2015 4:57:03 AM	A30103
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	11/3/2015 11:53:29 PM	R29992
Sulfate	2700	50		mg/L	100	10/27/2015 11:24:40 PM	R29842
Nitrate+Nitrite as N	ND	1.0		mg/L	5	10/30/2015 11:15:10 AM	R29930
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	6800	0.010		µmhos/cm	1	10/20/2015 2:13:12 PM	R29677
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	296.6	20.00		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
Total Alkalinity (as CaCO3)	296.6	20.00		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4880	100	*D	mg/L	1	10/23/2015 11:44:00 AM	21952
CORROSIVITY						Analyst: **SUB**	
pH	7.63			pH Units	1	10/26/2015	R30423
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	10/28/2015	R30423
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.75	1.68	H	pH units	1	10/20/2015 2:13:12 PM	R29677
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	10/21/2015 3:46:07 PM	21960
MERCURY, TCLP						Analyst: **DBD**	
Mercury	ND	0.020		mg/L	1	11/3/2015 4:41:03 PM	22145
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Barium	ND	100		mg/L	1	10/22/2015 5:15:45 PM	21978
Cadmium	ND	1.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Chromium	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Lead	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Selenium	ND	1.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Silver	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	0.57	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Antimony	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Arsenic	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Barium	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Beryllium	ND	0.0060		mg/L	2	10/22/2015 4:50:43 PM	21972
Cadmium	ND	0.0040		mg/L	2	10/22/2015 4:50:43 PM	21972
Calcium	65	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Chromium	ND	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Cobalt	ND	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Copper	0.016	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Iron	0.45	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Lead	ND	0.010		mg/L	2	10/22/2015 4:50:43 PM	21972
Magnesium	20	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Manganese	0.089	0.0040		mg/L	2	10/22/2015 4:50:43 PM	21972
Nickel	ND	0.020		mg/L	2	10/22/2015 4:50:43 PM	21972
Potassium	28	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Selenium	0.27	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Silver	ND	0.010		mg/L	2	10/22/2015 4:50:43 PM	21972
Sodium	1400	50		mg/L	50	10/22/2015 4:46:39 PM	21972
Thallium	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Vanadium	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Zinc	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Allyl chloride	ND	2.0		µg/L	1	11/2/2015	R30423
Chloroprene	ND	2.0		µg/L	1	11/2/2015	R30423
Cyclohexane	ND	2.0		µg/L	1	11/2/2015	R30423
Diethyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Diisopropyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Epichlorohydrin	ND	5.0		µg/L	1	11/2/2015	R30423
Ethyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl methacrylate	ND	2.0		µg/L	1	11/2/2015	R30423
Ethyl tert-butyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Freon-113	ND	2.0		µg/L	1	11/2/2015	R30423
Isobutanol	ND	2.0		µg/L	1	11/2/2015	R30423
Isopropyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
Methacrylonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Methyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
Methyl ethyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl isobutyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl methacrylate	ND	2.0		µg/L	1	11/2/2015	R30423
Methylcyclohexane	ND	2.0		µg/L	1	11/2/2015	R30423
n-Amyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
n-Hexane	ND	0.50		µg/L	1	11/2/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	11/2/2015	R30423
Pentachloroethane	ND	5.0		µg/L	1	11/2/2015	R30423
p-isopropyltoluene	ND	0.50		µg/L	1	11/2/2015	R30423
Propionitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Tetrahydrofuran	ND	2.0		µg/L	1	11/2/2015	R30423
Benzene	ND	0.50		µg/L	1	11/2/2015	R30423
Toluene	ND	0.50		µg/L	1	11/2/2015	R30423
Ethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	11/2/2015	R30423
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	11/2/2015	R30423
Naphthalene	ND	0.50		µg/L	1	11/2/2015	R30423
Acetone	ND	2.5		µg/L	1	11/2/2015	R30423
Bromobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Bromodichloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Bromoform	ND	0.50		µg/L	1	11/2/2015	R30423
Bromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon disulfide	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon Tetrachloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroform	ND	0.50		µg/L	1	11/2/2015	R30423
Chloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
4-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Dichlorodifluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
2,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
Hexachlorobutadiene	ND	0.50		µg/L	1	11/2/2015	R30423
2-Hexanone	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methylene Chloride	ND	2.5		µg/L	1	11/2/2015	R30423
n-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
n-Propylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
sec-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Styrene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Trichloroethene (TCE)	ND	0.50		µg/L	1	11/2/2015	R30423
Trichlorofluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
mp-Xylenes	ND	1.0		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
o-Xylene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Amyl methyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
tert-Butyl alcohol	ND	0.50		µg/L	1	11/2/2015	R30423
Acrolein	ND	2.0		µg/L	1	11/2/2015	R30423
Acrylonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Bromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chloroethyl vinyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Iodomethane	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
1,4-Dioxane	ND	20		µg/L	1	11/2/2015	R30423
Surr: 1,2-Dichlorobenzene-d4	111	70-130		%REC	1	11/2/2015	R30423
Surr: 4-Bromofluorobenzene	106	70-130		%REC	1	11/2/2015	R30423
Surr: Toluene-d8	104	70-130		%REC	1	11/2/2015	R30423
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	2.0		µg/L	1	10/30/2015	R30423
Atrazine	ND	2.0		µg/L	1	10/30/2015	R30423
Benzaldehyde	3.6	2.0		µg/L	1	10/30/2015	R30423
Caprolactam	ND	2.0		µg/L	1	10/30/2015	R30423
N-Nitroso-di-n-butylamine	ND	2.0		µg/L	1	10/30/2015	R30423
Acetophenone	ND	5.0		µg/L	1	10/30/2015	R30423
1-Methylnaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dimethylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dinitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dinitrotoluene	ND	5.0		µg/L	1	10/30/2015	R30423
2,6-Dinitrotoluene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Chloronaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Chlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2-Methylnaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
2-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
2-Nitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	10/30/2015	R30423
3-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 10/19/2015 7:40:00 AM
Lab ID: 1510908-001 **Matrix:** AQUEOUS **Received Date:** 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chloroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	10/30/2015	R30423
4-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4-Nitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
Acenaphthene	ND	5.0		µg/L	1	10/30/2015	R30423
Acenaphthylene	ND	5.0		µg/L	1	10/30/2015	R30423
Anthracene	ND	5.0		µg/L	1	10/30/2015	R30423
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	10/30/2015	R30423
Benz(a)anthracene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(a)pyrene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(b)fluoranthene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(k)fluoranthene	ND	0.10		µg/L	1	10/30/2015	R30423
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Butyl benzyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Carbazole	ND	5.0		µg/L	1	10/30/2015	R30423
Chrysene	ND	0.10		µg/L	1	10/30/2015	R30423
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	10/30/2015	R30423
Dibenzofuran	ND	5.0		µg/L	1	10/30/2015	R30423
Diethyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Dimethyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Di-n-butyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Di-n-octyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Fluoranthene	ND	5.0		µg/L	1	10/30/2015	R30423
Fluorene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachlorobenzene	ND	1.0		µg/L	1	10/30/2015	R30423
Hexachlorobutadiene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachloroethane	ND	5.0		µg/L	1	10/30/2015	R30423
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	10/30/2015	R30423
Isophorone	ND	5.0		µg/L	1	10/30/2015	R30423
Naphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	10/30/2015	R30423
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	10/30/2015	R30423
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	10/30/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 10/19/2015 7:40:00 AM
Lab ID: 1510908-001 **Matrix:** AQUEOUS **Received Date:** 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Pentachlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
Phenanthrene	ND	5.0		µg/L	1	10/30/2015	R30423
Phenol	ND	5.0		µg/L	1	10/30/2015	R30423
Pyrene	ND	5.0		µg/L	1	10/30/2015	R30423
o-Toluidine	ND	2.0		µg/L	1	10/30/2015	R30423
Pyridine	ND	5.0		µg/L	1	10/30/2015	R30423
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	10/30/2015	R30423
Surr: 2,4,6-Tribromophenol	104	10-123		%REC	1	10/30/2015	R30423
Surr: 2-Fluorobiphenyl	90.8	19-130		%REC	1	10/30/2015	R30423
Surr: 2-Fluorophenol	70.2	21-120		%REC	1	10/30/2015	R30423
Surr: Nitrobenzene-d5	85.6	25-130		%REC	1	10/30/2015	R30423
Surr: Phenol-d5	121	10-130		%REC	1	10/30/2015	R30423
Surr: Terphenyl-d14	44.4	21-141		%REC	1	10/30/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Duc to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1510908-002
Matrix: TRIP BLANK
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Allyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroprene	ND	0.50		µg/L	1	11/2/2015	R30423
Cyclohexane	ND	0.50		µg/L	1	11/2/2015	R30423
Diethyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Diisopropyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Epichlorohydrin	ND	5.0		µg/L	1	11/2/2015	R30423
Ethyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Ethyl methacrylate	ND	0.50		µg/L	1	11/2/2015	R30423
Ethyl tert-butyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Freon-113	ND	0.50		µg/L	1	11/2/2015	R30423
Isobutanol	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Methacrylonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl ethyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl isobutyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl methacrylate	ND	0.50		µg/L	1	11/2/2015	R30423
Methylcyclohexane	ND	1.0		µg/L	1	11/2/2015	R30423
n-Amyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
n-Hexane	ND	0.50		µg/L	1	11/2/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	11/2/2015	R30423
Pentachloroethane	ND	5.0		µg/L	1	11/2/2015	R30423
p-isopropyltoluene	ND	0.50		µg/L	1	11/2/2015	R30423
Propionitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrahydrofuran	ND	0.50		µg/L	1	11/2/2015	R30423
Benzene	ND	0.50		µg/L	1	11/2/2015	R30423
Toluene	ND	0.50		µg/L	1	11/2/2015	R30423
Ethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	11/2/2015	R30423
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	11/2/2015	R30423
Naphthalene	ND	0.50		µg/L	1	11/2/2015	R30423
Acetone	ND	2.5		µg/L	1	11/2/2015	R30423
Bromobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Bromodichloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Bromoform	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon disulfide	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon Tetrachloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroform	ND	0.50		µg/L	1	11/2/2015	R30423
Chloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
4-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Dichlorodifluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
2,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
Hexachlorobutadiene	ND	0.50		µg/L	1	11/2/2015	R30423
2-Hexanone	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methylene Chloride	ND	2.5		µg/L	1	11/2/2015	R30423
n-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
n-Propylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
sec-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Styrene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1510908-002
Matrix: TRIP BLANK
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Trichloroethene (TCE)	ND	0.50		µg/L	1	11/2/2015	R30423
Trichlorofluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
mp-Xylenes	ND	1.0		µg/L	1	11/2/2015	R30423
o-Xylene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Amyl methyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butyl alcohol	ND	0.50		µg/L	1	11/2/2015	R30423
Acrolein	ND	0.50		µg/L	1	11/2/2015	R30423
Acrylonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Bromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Iodomethane	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dioxane	ND	20		µg/L	1	11/2/2015	R30423
Surr: 1,2-Dichlorobenzene-d4	108	70-130		%REC	1	11/2/2015	R30423
Surr: 4-Bromofluorobenzene	105	70-130		%REC	1	11/2/2015	R30423
Surr: Toluene-d8	102	70-130		%REC	1	11/2/2015	R30423

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Valuc above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29842**	RunNo: **29842**
Prep Date:	Analysis Date: **10/27/2015**	SeqNo: **908890** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29842**	RunNo: **29842**
Prep Date:	Analysis Date: **10/27/2015**	SeqNo: **908891** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29930**	RunNo: **29930**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **911773** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29930**	RunNo: **29930**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **911774** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	96.6	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29992**	RunNo: **29992**
Prep Date:	Analysis Date: **11/3/2015**	SeqNo: **913762** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29992**	RunNo: **29992**
Prep Date:	Analysis Date: **11/3/2015**	SeqNo: **913763** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A30103**	RunNo: **30103**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916979** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A30103**	RunNo: **30103**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916980** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.3	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation rangc
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928381** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
p-isopropyltoluene	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928381** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	2.5								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	0.50								
o-Xylene	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928382** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.2	0	10.00	0	92.1	80	120			
Toluene	9.6	0	10.00	0	96.5	80	120			
Ethylbenzene	9.7	0	10.00	0	96.9	80	120			
Chlorobenzene	9.5	0	10.00	0	94.7	80	120			
1,1-Dichloroethene	10	0	10.00	0	102	80	120			
Tetrachloroethene (PCE)	9.9	0	10.00	0	99.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928382** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	10	0	10.00	0	102	80	120			
o-Xylene	10	0	10.00	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928385** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	5.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928385** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
o-Toluidine	ND	2.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928386** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.8	0	5.000	0	95.6	49	134			
2-Chlorophenol	4.7	0	5.000	0	94.4	50	31			S
4-Chloro-3-methylphenol	4.8	0	5.000	0	95.4	42	139			
4-Nitrophenol	3.2	0	5.000	0	65.0	19	137			
Acenaphthene	5.2	0	5.000	0	105	36	122			
Bis(2-ethylhexyl)phthalate	5.9	0	5.000	0	118	43	142			
N-Nitrosodi-n-propylamine	4.7	0	5.000	0	94.4	46	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928386** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	4.8	0	5.000	0	95.4	22	138			
Phenol	4.5	0	5.000	0	90.8	45	134			
Pyrene	4.6	0	5.000	0	92.2	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21960**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **21960**	RunNo: **29703**
Prep Date: **10/21/2015**	Analysis Date: **10/21/2015**	SeqNo: **904542** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-21960**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **21960**	RunNo: **29703**
Prep Date: **10/21/2015**	Analysis Date: **10/21/2015**	SeqNo: **904543** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-22145**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **22145**	RunNo: **29977**
Prep Date: **11/3/2015**	Analysis Date: **11/3/2015**	SeqNo: **913123** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-22145**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **22145**	RunNo: **29977**
Prep Date: **11/3/2015**	Analysis Date: **11/3/2015**	SeqNo: **913124** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21978**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **21978**	RunNo: **29736**
Prep Date: **10/22/2015**	Analysis Date: **10/22/2015**	SeqNo: **905688** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-21978**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **21978**	RunNo: **29736**
Prep Date: **10/22/2015**	Analysis Date: **10/22/2015**	SeqNo: **905689** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	107	80	120			
Barium	ND	100	0.5000	0	100	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	100	80	120			
Lead	ND	5.0	0.5000	0	101	80	120			
Selenium	ND	1.0	0.5000	0	107	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21972**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905617** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-21972**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.52	0.020	0.5000	0	103	80	120			
Antimony	0.52	0.050	0.5000	0	103	80	120			
Arsenic	0.51	0.020	0.5000	0	101	80	120			
Barium	0.49	0.020	0.5000	0	97.9	80	120			
Beryllium	0.51	0.0030	0.5000	0	103	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.2	80	120			
Calcium	49	1.0	50.00	0	97.9	80	120			
Chromium	0.49	0.0060	0.5000	0	97.6	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.3	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.49	0.050	0.5000	0	97.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-21972**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.49	0.0050	0.5000	0	97.9	80	120			
Magnesium	50	1.0	50.00	0	99.1	80	120			
Manganese	0.48	0.0020	0.5000	0	96.9	80	120			
Nickel	0.48	0.010	0.5000	0	95.8	80	120			
Potassium	47	1.0	50.00	0	94.3	80	120			
Selenium	0.49	0.050	0.5000	0	98.4	80	120			
Silver	0.099	0.0050	0.1000	0	99.2	80	120			
Sodium	49	1.0	50.00	0	98.4	80	120			
Thallium	0.51	0.050	0.5000	0	103	80	120			
Vanadium	0.51	0.050	0.5000	0	102	80	120			
Zinc	0.48	0.020	0.5000	0	95.3	80	120			

Sample ID **1510908-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.2	0.040	0.5000	0.5719	126	75	125			S
Antimony	0.60	0.10	0.5000	0	120	75	125			
Arsenic	0.63	0.040	0.5000	0	126	75	125			S
Barium	0.54	0.040	0.5000	0.01050	106	75	125			
Beryllium	0.55	0.0060	0.5000	0	110	75	125			
Cadmium	0.56	0.0040	0.5000	0	111	75	125			
Calcium	120	2.0	50.00	65.14	113	75	125			
Chromium	0.52	0.012	0.5000	0	105	75	125			
Cobalt	0.53	0.012	0.5000	0	106	75	125			
Copper	0.62	0.012	0.5000	0.01570	121	75	125			
Iron	0.99	0.10	0.5000	0.4468	110	75	125			
Lead	0.55	0.010	0.5000	0	110	75	125			
Magnesium	74	2.0	50.00	19.57	110	75	125			
Manganese	0.62	0.0040	0.5000	0.08908	106	75	125			
Nickel	0.54	0.020	0.5000	0	108	75	125			
Potassium	85	2.0	50.00	27.55	115	75	125			
Selenium	0.86	0.10	0.5000	0.2670	118	75	125			
Silver	0.11	0.010	0.1000	0	112	75	125			
Thallium	0.58	0.10	0.5000	0	115	75	125			
Vanadium	0.57	0.10	0.5000	0.01404	110	75	125			
Zinc	0.59	0.040	0.5000	0.03952	110	75	125			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1510908-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **21972** RunNo: **29736**

Prep Date: **10/21/2015** Analysis Date: **10/22/2015** SeqNo: **905635** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.040	0.5000	0.5719	115	75	125	4.76	20	
Antimony	0.54	0.10	0.5000	0	108	75	125	10.5	20	
Arsenic	0.59	0.040	0.5000	0	118	75	125	6.26	20	
Barium	0.51	0.040	0.5000	0.01050	99.5	75	125	6.53	20	
Beryllium	0.50	0.0060	0.5000	0	101	75	125	8.90	20	
Cadmium	0.52	0.0040	0.5000	0	104	75	125	6.55	20	
Calcium	110	2.0	50.00	65.14	88.0	75	125	11.0	20	
Chromium	0.49	0.012	0.5000	0	98.8	75	125	5.80	20	
Cobalt	0.50	0.012	0.5000	0	99.8	75	125	6.05	20	
Copper	0.58	0.012	0.5000	0.01570	112	75	125	7.19	20	
Iron	0.90	0.10	0.5000	0.4468	91.6	75	125	9.48	20	
Lead	0.51	0.010	0.5000	0	102	75	125	7.39	20	
Magnesium	69	2.0	50.00	19.57	99.3	75	125	7.30	20	
Manganese	0.58	0.0040	0.5000	0.08908	98.6	75	125	6.53	20	
Nickel	0.51	0.020	0.5000	0	101	75	125	6.22	20	
Potassium	77	2.0	50.00	27.55	98.0	75	125	10.6	20	
Selenium	0.80	0.10	0.5000	0.2670	108	75	125	6.07	20	
Silver	0.10	0.010	0.1000	0	102	75	125	8.73	20	
Thallium	0.54	0.10	0.5000	0	107	75	125	7.22	20	
Vanadium	0.53	0.10	0.5000	0.01404	103	75	125	6.69	20	
Zinc	0.55	0.040	0.5000	0.03952	103	75	125	6.44	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/28/2015**	SeqNo: **928390** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/28/2015**	SeqNo: **928391** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.478		0.5000	0	95.6	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/23/2015**	SeqNo: **928393** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/23/2015**	SeqNo: **928394** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.20		0.2000	0	100	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R29677**	RunNo: **29677**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904176** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R29677**	RunNo: **29677**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904177** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.04	20.00	80.00	0	96.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1510908-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R29675** RunNo: **29675**

Prep Date: Analysis Date: **10/20/2015** SeqNo: **903627** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.000	0						0.0900	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21952**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **21952**	RunNo: **29751**
Prep Date: **10/21/2015**	Analysis Date: **10/23/2015**	SeqNo: **906219** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-21952**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **21952**	RunNo: **29751**
Prep Date: **10/21/2015**	Analysis Date: **10/23/2015**	SeqNo: **906220** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1510908 RcptNo: 1

Received by/date: 10/20/15

Logged By: Lindsay Mangin 10/20/2015 8:55:00 AM

Completed By: Lindsay Mangin 10/20/2015 9:15:21 AM

Reviewed By: 10/20/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2 (2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? no
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			

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Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standar ☐ **Rush**

Project Name: Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager: Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☑ Yes ☐ No

Sample Temperature: 2.4

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1510908	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Ehl40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
10/19/15	7:40	Liquid	Trip Blank	2	Neat	-002		X					
10/19/15	7:40	Liquid	Temperature Blank	1	Neat	-							

Analysis Request

Date	Time	Relinquished by	Received by	Date	Time
10/19/15	11:30	Elizabeth Salsberry			
				10/20/15	0855
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel)575.748.3311
(Fax)575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	10/19/2015 @ 7:30am
End Date and Time	10/19/2015 @ 7:45 am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells

☑ P-845 sample point (first from east) ☐ P-856 sample point (third from east)
☐ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond, Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc):	10/19/2015 Temp.55.4 °F Humidity 100% Wind Direction South Wind Speed 8.1 mph Condition Clear
Date and Time	

Field Temp. 42.8C Field pH 7.54

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

October 29, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 5100

RE: 2015 3rd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1381 psig and the average flows were 125 gpm for WDW-1, 158 gpm for WDW-2 and 133 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2015 to September 30, 2015. We have disposed a total of 1,317,417 barrels of fluid into the three wells during the third quarter of 2015. The volume per well is:

- 396,103 barrels into WDW-1
- 501,110 barrels into WDW-2
- 420,204 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/3rd quarter/2015-10-29 3rd QTR Inj. Rpt. for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2015 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	36,750,997
Jul-15	1,392	1,400	1,267	128	131	114	622	866	331	4,389	4,491	3,909	136,059	36,887,056
Aug-15	1,389	1,400	1,152	126	128	97	495	858	134	4,320	4,389	3,326	133,695	37,020,751
Sep-15	1,381	1,400	1,100	123	127	84	598	762	59	4,217	4,354	2,880	126,349	37,147,100
WDW-2													**Previous Quarter**	23,766,527
Jul-15	1,391	1,400	1,269	149	278	79	252	314	208	5,109	9,531	2,709	158,379	23,924,906
Aug-15	1,392	1,400	1,156	202	293	146	250	379	217	6,926	10,046	5,006	214,764	24,139,670
Sep-15	1,369	1,400	1,110	124	260	59	263	387	226	4,251	8,914	2,023	127,967	24,267,637
WDW-3													**Previous Quarter**	13,909,125
Jul-15	1,373	1,390	1,265	124	134	75	680	881	500	4,251	4,594	2,571	131,781	14,040,906
Aug-15	1,382	1,390	1,157	119	132	24	849	970	527	4,080	4,526	823	126,544	14,167,450
Sep-15	1,362	1,390	1,113	157	297	86	780	909	539	5,383	10,183	2,949	161,879	14,329,329
													Total Injected fluids:	75,744,066

T:\Injection Wells\Reports C-115 and Quarterly\2015\3rd quarter\
3rd 2015 qtrly rpt data
Injection fluids

10/15/20152:19 PM

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Navajo Refining Company, L.L.C.

2015 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/6/15	7/13/15	7/20/15	7/27/15	8/3/15	8/10/15	8/14/15	8/24/15	9/1/15	9/8/15	9/14/15	9/21/15	9/30/15
WDW -1[1]	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	150	155	235	150*	170	220	253	130**	230	240	254	170***	240

Comments: * Removed 145 gal. ** Removed 180 gal. *** Removed 100 gal.

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

Page 1851 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 10, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1507D99

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/31/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1507D99**
Date: **9/10/2015**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	8/11/2015	R28710
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	1.4	1.0		mg/L	1	8/7/2015	R28710
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9967	0			1	8/5/2015 3:14:00 PM	R27979
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	42	5.0	*	mg/L	50	7/31/2015 2:33:11 PM	R27901
Chloride	330	25		mg/L	50	7/31/2015 2:33:11 PM	R27901
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Bromide	1.2	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	7/31/2015 2:20:46 PM	R27901
Sulfate	2200	25		mg/L	50	7/31/2015 2:33:11 PM	R27901
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5900	0.010		µmhos/cm	1	8/6/2015 4:51:43 PM	R28029
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	392.7	20.00		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
Total Alkalinity (as CaCO3)	392.7	20.00		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3580	20.0	*	mg/L	1	8/5/2015 7:28:00 PM	20581
CORROSIVITY						Analyst: **SUB**	
pH	8.31	0.100		pH Units	1	8/5/2015	R28710
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	8/13/2015	R28710
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.17	1.68	H	pH units	1	8/6/2015 4:51:43 PM	R28029
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	8/4/2015 2:15:41 PM	20588
MERCURY, TCLP						Analyst: **JLF**	
Mercury	0.078	0.020		mg/L	20	8/6/2015 1:58:10 PM	20636
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Barium	ND	100		mg/L	1	8/6/2015 9:36:29 AM	20620
Cadmium	ND	1.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Chromium	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Lead	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Selenium	ND	1.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Silver	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	1.2	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Antimony	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Arsenic	0.029	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Barium	ND	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Beryllium	ND	0.0030		mg/L	1	8/6/2015 9:44:36 AM	20620
Cadmium	ND	0.0020		mg/L	1	8/6/2015 9:44:36 AM	20620
Calcium	52	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Chromium	ND	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Cobalt	0.0085	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Copper	0.017	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Iron	0.89	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Lead	ND	0.0050		mg/L	1	8/6/2015 9:44:36 AM	20620
Magnesium	17	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Manganese	0.10	0.0020		mg/L	1	8/6/2015 9:44:36 AM	20620
Nickel	0.021	0.010		mg/L	1	8/6/2015 9:44:36 AM	20620
Potassium	77	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Selenium	0.19	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Silver	ND	0.0050		mg/L	1	8/6/2015 9:44:36 AM	20620
Sodium	980	10		mg/L	10	8/10/2015 1:27:17 PM	20675
Thallium	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Vanadium	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Zinc	0.31	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Allyl chloride	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroprene	ND	2.5		µg/L	1	8/11/2015	R28710
Cyclohexane	ND	2.5		µg/L	1	8/11/2015	R28710
Diethyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Diisopropyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Epichlorohydrin	ND	25		µg/L	1	8/11/2015	R28710
Ethyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl methacrylate	ND	2.5		µg/L	1	8/11/2015	R28710
Ethyl tert-butyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Freon-113	ND	2.5		µg/L	1	8/11/2015	R28710
Isobutanol	ND	2.5		µg/L	1	8/11/2015	R28710
Isopropyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
Methacrylonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl ethyl ketone	24	12		µg/L	1	8/11/2015	R28710
Methyl isobutyl ketone	ND	12		µg/L	1	8/11/2015	R28710
Methyl methacrylate	ND	2.5		µg/L	1	8/11/2015	R28710
Methylcyclohexane	ND	5.0		µg/L	1	8/11/2015	R28710
n-Amyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
n-Hexane	ND	2.5		µg/L	1	8/11/2015	R28710
Nitrobenzene	ND	25		µg/L	1	8/11/2015	R28710
Pentachloroethane	ND	25		µg/L	1	8/11/2015	R28710
p-isopropyltoluene	ND	2.5		µg/L	1	8/11/2015	R28710
Propionitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Tetrahydrofuran	ND	2.5		µg/L	1	8/11/2015	R28710
Benzene	ND	2.5		µg/L	1	8/11/2015	R28710
Toluene	ND	2.5		µg/L	1	8/11/2015	R28710
Ethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	1	8/11/2015	R28710
1,2,4-Trimethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,3,5-Trimethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	1	8/11/2015	R28710
Naphthalene	3.4	2.5		µg/L	1	8/11/2015	R28710
Acetone	890	12		µg/L	1	8/11/2015	R28710
Bromobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Bromodichloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
Bromoform	ND	2.5		µg/L	1	8/11/2015	R28710
Bromomethane	ND	2.5		µg/L	1	8/11/2015	R28710
Carbon disulfide	ND	2.5		µg/L	1	8/11/2015	R28710
Carbon Tetrachloride	ND	2.5		µg/L	1	8/11/2015	R28710
Chlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroform	ND	2.5		µg/L	1	8/11/2015	R28710
Chloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
2-Chlorotoluene	ND	2.5		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
4-Chlorotoluene	ND	2.5		µg/L	1	8/11/2015	R28710
cis-1,2-DCE	ND	2.5		µg/L	1	8/11/2015	R28710
cis-1,3-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dibromo-3-chloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
Dibromochloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
Dibromomethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,3-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,4-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Dichlorodifluoromethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloroethene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
1,3-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
2,2-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
Hexachlorobutadiene	ND	2.5		µg/L	1	8/11/2015	R28710
2-Hexanone	ND	2.5		µg/L	1	8/11/2015	R28710
Isopropylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Methylene Chloride	ND	12		µg/L	1	8/11/2015	R28710
n-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
n-Propylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
sec-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Styrene	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Tetrachloroethene (PCE)	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,2-DCE	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,3-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,3-Trichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,4-Trichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,1-Trichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,2-Trichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Trichloroethene (TCE)	ND	2.5		µg/L	1	8/11/2015	R28710
Trichlorofluoromethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,3-Trichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
Vinyl chloride	ND	2.5		µg/L	1	8/11/2015	R28710
mp-Xylenes	ND	5.0		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
o-Xylene	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Amyl methyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Butyl alcohol	ND	2.5		µg/L	1	8/11/2015	R28710
Acrolein	ND	2.5		µg/L	1	8/11/2015	R28710
Acrylonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Bromochloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Iodomethane	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,4-Dichloro-2-butene	ND	2.5		µg/L	1	8/11/2015	R28710
Vinyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
1,4-Dioxane	ND	100		µg/L	1	8/11/2015	R28710
Surr: 1,2-Dichlorobenzene-d4	94.0	70-130		%REC	1	8/11/2015	R28710
Surr: 4-Bromofluorobenzene	96.0	70-130		%REC	1	8/11/2015	R28710
Surr: Toluene-d8	100	70-130		%REC	1	8/11/2015	R28710
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	8/12/2015	R28710
Atrazine	ND	5.0		µg/L	1	8/12/2015	R28710
Benzaldehyde	ND	5.0		µg/L	1	8/12/2015	R28710
Caprolactam	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	8/12/2015	R28710
Acetophenone	ND	5.0		µg/L	1	8/12/2015	R28710
1-Methylnaphthalene	7.1	5.0		µg/L	1	8/12/2015	R28710
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dimethylphenol	6.7	5.0		µg/L	1	8/12/2015	R28710
2,4-Dinitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dinitrotoluene	ND	5.0		µg/L	1	8/12/2015	R28710
2,6-Dinitrotoluene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Chloronaphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Chlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2-Methylnaphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710
2-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
2-Nitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	8/12/2015	R28710
3-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chloroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	8/12/2015	R28710
4-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4-Nitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
Acenaphthene	ND	5.0		µg/L	1	8/12/2015	R28710
Acenaphthylene	ND	5.0		µg/L	1	8/12/2015	R28710
Anthracene	ND	5.0		µg/L	1	8/12/2015	R28710
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	8/12/2015	R28710
Benz(a)anthracene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(a)pyrene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(b)fluoranthene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(k)fluoranthene	ND	1.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Butyl benzyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Carbazole	ND	5.0		µg/L	1	8/12/2015	R28710
Chrysene	ND	1.0		µg/L	1	8/12/2015	R28710
Dibenz(a,h)anthracene	ND	1.0		µg/L	1	8/12/2015	R28710
Dibenzofuran	5.7	5.0		µg/L	1	8/12/2015	R28710
Diethyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Dimethyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Di-n-butyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Di-n-octyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Fluoranthene	ND	5.0		µg/L	1	8/12/2015	R28710
Fluorene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorobenzene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorobutadiene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachloroethane	ND	5.0		µg/L	1	8/12/2015	R28710
Indeno(1,2,3-cd)pyrene	ND	1.0		µg/L	1	8/12/2015	R28710
Isophorone	ND	5.0		µg/L	1	8/12/2015	R28710
Naphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
Nitrobenzene	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	8/12/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Pentachlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
Phenanthrene	ND	5.0		µg/L	1	8/12/2015	R28710
Phenol	5.0	5.0		µg/L	1	8/12/2015	R28710
Pyrene	ND	5.0		µg/L	1	8/12/2015	R28710
o-Toluidine	ND	5.0		µg/L	1	8/12/2015	R28710
Pyridine	ND	5.0		µg/L	1	8/12/2015	R28710
1,2,4,5-Tetrachlorobenzene	ND	0		µg/L	1	8/12/2015	R28710
Surr: 2,4,6-Tribromophenol	111	10-123		%REC	1	8/12/2015	R28710
Surr: 2-Fluorobiphenyl	84.4	19-130		%REC	1	8/12/2015	R28710
Surr: 2-Fluorophenol	85.2	21-120		%REC	1	8/12/2015	R28710
Surr: Nitrobenzene-d5	84.0	25-130		%REC	1	8/12/2015	R28710
Surr: Phenol-d5	66.4	10-130		%REC	1	8/12/2015	R28710
Surr: Terphenyl-d14	51.6	21-141		%REC	1	8/12/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Duc to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002
Matrix: TRIP BLANK
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Allyl chloride	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroprene	ND	0.50		µg/L	1	8/11/2015	R28710
Cyclohexane	ND	0.50		µg/L	1	8/11/2015	R28710
Diethyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Diisopropyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Epichlorohydrin	ND	5.0		µg/L	1	8/11/2015	R28710
Ethyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Ethyl methacrylate	ND	0.50		µg/L	1	8/11/2015	R28710
Ethyl tert-butyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Freon-113	ND	0.50		µg/L	1	8/11/2015	R28710
Isobutanol	ND	0.50		µg/L	1	8/11/2015	R28710
Isopropyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Methacrylonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl ethyl ketone	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl isobutyl ketone	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl methacrylate	ND	0.50		µg/L	1	8/11/2015	R28710
Methylcyclohexane	ND	1.0		µg/L	1	8/11/2015	R28710
n-Amyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
n-Hexane	ND	0.50		µg/L	1	8/11/2015	R28710
Nitrobenzene	ND	5.0		µg/L	1	8/11/2015	R28710
Pentachloroethane	ND	5.0		µg/L	1	8/11/2015	R28710
p-isopropyltoluene	ND	0.50		µg/L	1	8/11/2015	R28710
Propionitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Tetrahydrofuran	ND	0.50		µg/L	1	8/11/2015	R28710
Benzene	ND	0.50		µg/L	1	8/11/2015	R28710
Toluene	ND	0.50		µg/L	1	8/11/2015	R28710
Ethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	8/11/2015	R28710
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	8/11/2015	R28710
Naphthalene	ND	0.50		µg/L	1	8/11/2015	R28710
Acetone	ND	2.5		µg/L	1	8/11/2015	R28710
Bromobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Bromodichloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
Bromoform	ND	0.50		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002
Matrix: TRIP BLANK
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	8/11/2015	R28710
Carbon disulfide	ND	0.50		µg/L	1	8/11/2015	R28710
Carbon Tetrachloride	ND	0.50		µg/L	1	8/11/2015	R28710
Chlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroform	ND	0.50		µg/L	1	8/11/2015	R28710
Chloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
2-Chlorotoluene	ND	0.50		µg/L	1	8/11/2015	R28710
4-Chlorotoluene	ND	0.50		µg/L	1	8/11/2015	R28710
cis-1,2-DCE	ND	0.50		µg/L	1	8/11/2015	R28710
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
Dibromochloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
Dibromomethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,3-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,4-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Dichlorodifluoromethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloroethene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
1,3-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
2,2-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
Hexachlorobutadiene	ND	0.50		µg/L	1	8/11/2015	R28710
2-Hexanone	ND	0.50		µg/L	1	8/11/2015	R28710
Isopropylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Methylene Chloride	ND	2.5		µg/L	1	8/11/2015	R28710
n-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
n-Propylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
sec-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Styrene	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,2-DCE	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002 **Matrix:** TRIP BLANK **Received Date:** 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,1-Trichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,2-Trichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Trichloroethene (TCE)	ND	0.50		µg/L	1	8/11/2015	R28710
Trichlorofluoromethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,2,3-Trichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
Vinyl chloride	ND	0.50		µg/L	1	8/11/2015	R28710
mp-Xylenes	ND	1.0		µg/L	1	8/11/2015	R28710
o-Xylene	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Amyl methyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Butyl alcohol	ND	0.50		µg/L	1	8/11/2015	R28710
Acrolein	ND	0.50		µg/L	1	8/11/2015	R28710
Acrylonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Bromochloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Iodomethane	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	8/11/2015	R28710
Vinyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
1,4-Dioxane	ND	20		µg/L	1	8/11/2015	R28710
Surr: 1,2-Dichlorobenzene-d4	95.6	70-130		%REC	1	8/11/2015	R28710
Surr: 4-Bromofluorobenzene	95.2	70-130		%REC	1	8/11/2015	R28710
Surr: Toluene-d8	93.6	70-130		%REC	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R27901**	RunNo: **27901**
Prep Date:	Analysis Date: **7/31/2015**	SeqNo: **839136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R27901**	RunNo: **27901**
Prep Date:	Analysis Date: **7/31/2015**	SeqNo: **839137** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.8	0.50	5.000	0	95.8	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	95.9	90	110			
Bromide	2.5	0.10	2.500	0	98.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.3	90	110			
Sulfate	9.8	0.50	10.00	0	97.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	0.50								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	5.0								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Methylcyclohexane	ND	0.50								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	0.50								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	0.50								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	0.50								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.6	0	10.00	0	96.3	80	120			
Toluene	9.7	0	10.00	0	97.3	80	120			
Ethylbenzene	9.7	0	10.00	0	97.3	80	120			
Chlorobenzene	9.5	0	10.00	0	95.2	80	120			
1,1-Dichloroethene	9.6	0	10.00	0	95.5	80	120			
Tetrachloroethene (PCE)	9.0	0	10.00	0	89.9	80	120			
Trichloroethene (TCE)	9.4	0	10.00	0	93.6	80	120			
o-Xylene	10	0	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870225** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	0.50								
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870225** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Carbazole	ND	5.0								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	2.0								
o-Toluidine	ND	5.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870226** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.0	0	5.000	0	99.8	49	134			
2-Chlorophenol	4.8	0	5.000	0	95.4	50	131			
4-Chloro-3-methylphenol	5.4	0	5.000	0	109	42	139			
4-Nitrophenol	5.6	0	5.000	0	111	19	137			
Acenaphthene	5.2	0	5.000	0	103	36	122			
Bis(2-ethylhexyl)phthalate	5.6	0	5.000	0	112	43	142			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870226** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodi-n-propylamine	5.3	0	5.000	0	106	46	140			
Pentachlorophenol	5.9	0	5.000	0	118	22	138			
Phenol	4.7	0	5.000	0	94.6	45	134			
Pyrene	4.9	0	5.000	0	98.0	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**1507d99-001adup**	SampType: **DUP**		TestCode: **SM2510B: Specific Conductance**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **R28029**		RunNo: **28029**					
Prep Date:		Analysis Date: **8/6/2015**		SeqNo: **843890**		Units: **µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	5900	0.010						0.354	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20588**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **20588**	RunNo: **27941**
Prep Date: **8/4/2015**	Analysis Date: **8/4/2015**	SeqNo: **840615** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-20588**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **20588**	RunNo: **27941**
Prep Date: **8/4/2015**	Analysis Date: **8/4/2015**	SeqNo: **840616** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20636**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **20636**	RunNo: **28011**
Prep Date: **8/6/2015**	Analysis Date: **8/6/2015**	SeqNo: **843195** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-20636**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **20636**	RunNo: **28011**
Prep Date: **8/6/2015**	Analysis Date: **8/6/2015**	SeqNo: **843196** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	111	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20620**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842847** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-20620**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842848** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	95.8	80	120			
Barium	ND	100	0.5000	0	98.8	80	120			
Cadmium	ND	1.0	0.5000	0	96.2	80	120			
Chromium	ND	5.0	0.5000	0	98.4	80	120			
Lead	ND	5.0	0.5000	0	97.5	80	120			
Selenium	ND	1.0	0.5000	0	97.8	80	120			
Silver	ND	5.0	0.1000	0	97.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20620**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842849** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-20620**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842850** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.47	0.020	0.5000	0	94.7	80	120			
Antimony	0.49	0.050	0.5000	0	98.3	80	120			
Arsenic	0.49	0.020	0.5000	0	98.5	80	120			
Barium	0.50	0.020	0.5000	0	100	80	120			
Beryllium	0.50	0.0030	0.5000	0	101	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.7	80	120			
Chromium	0.50	0.0060	0.5000	0	100	80	120			
Copper	0.51	0.0060	0.5000	0	103	80	120			
Iron	0.51	0.050	0.5000	0	102	80	120			
Lead	0.50	0.0050	0.5000	0	99.7	80	120			
Manganese	0.50	0.0020	0.5000	0	101	80	120			
Nickel	0.51	0.010	0.5000	0	101	80	120			
Selenium	0.49	0.050	0.5000	0	97.5	80	120			
Silver	0.098	0.0050	0.1000	0	98.2	80	120			
Thallium	0.50	0.050	0.5000	0	99.1	80	120			
Vanadium	0.50	0.050	0.5000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-20620**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842850** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.49	0.020	0.5000	0	97.2	80	120			

Sample ID **1507D99-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842864** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.7	0.020	0.5000	1.205	107	75	125			
Antimony	0.44	0.050	0.5000	0	88.8	75	125			
Arsenic	0.49	0.020	0.5000	0.02853	92.4	75	125			
Barium	0.43	0.020	0.5000	0.006150	85.7	75	125			
Beryllium	0.44	0.0030	0.5000	0	87.6	75	125			
Cadmium	0.44	0.0020	0.5000	0	87.4	75	125			
Chromium	0.42	0.0060	0.5000	0.003330	84.3	75	125			
Cobalt	0.43	0.0060	0.5000	0.008460	84.7	75	125			
Copper	0.49	0.0060	0.5000	0.01740	93.8	75	125			
Iron	1.3	0.050	0.5000	0.8854	92.2	75	125			
Lead	0.43	0.0050	0.5000	0	85.8	75	125			
Manganese	0.53	0.0020	0.5000	0.1014	84.8	75	125			
Nickel	0.45	0.010	0.5000	0.02121	85.8	75	125			
Selenium	0.66	0.050	0.5000	0.1944	92.2	75	125			
Silver	0.086	0.0050	0.1000	0	85.9	75	125			
Thallium	0.44	0.050	0.5000	0	88.4	75	125			
Vanadium	0.46	0.050	0.5000	0.01240	89.4	75	125			
Zinc	0.77	0.020	0.5000	0.3098	92.1	75	125			

Sample ID **1507D99-001BMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.7	0.020	0.5000	1.205	96.2	75	125	3.27	20	
Antimony	0.42	0.050	0.5000	0	84.7	75	125	4.66	20	
Arsenic	0.47	0.020	0.5000	0.02853	88.6	75	125	4.01	20	
Barium	0.42	0.020	0.5000	0.006150	82.9	75	125	3.32	20	
Beryllium	0.43	0.0030	0.5000	0	85.0	75	125	3.04	20	
Cadmium	0.43	0.0020	0.5000	0	85.0	75	125	2.73	20	
Chromium	0.41	0.0060	0.5000	0.003330	82.1	75	125	2.67	20	
Cobalt	0.42	0.0060	0.5000	0.008460	82.7	75	125	2.33	20	
Copper	0.47	0.0060	0.5000	0.01740	90.7	75	125	3.26	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507D99-001BMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	1.3	0.050	0.5000	0.8854	83.8	75	125	3.16	20	
Lead	0.42	0.0050	0.5000	0	83.6	75	125	2.58	20	
Manganese	0.51	0.0020	0.5000	0.1014	81.7	75	125	2.98	20	
Nickel	0.44	0.010	0.5000	0.02121	82.8	75	125	3.38	20	
Selenium	0.64	0.050	0.5000	0.1944	88.6	75	125	2.79	20	
Silver	0.083	0.0050	0.1000	0	83.2	75	125	3.16	20	
Thallium	0.44	0.050	0.5000	0	88.0	75	125	0.497	20	
Vanadium	0.44	0.050	0.5000	0.01240	86.5	75	125	3.22	20	
Zinc	0.74	0.020	0.5000	0.3098	87.0	75	125	3.34	20	

Sample ID **MB-20675**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **20675**	RunNo: **28076**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **845664** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID **LCS-20675**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **20675**	RunNo: **28076**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **845665** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	50	1.0	50.00	0	100	80	120			
Potassium	48	1.0	50.00	0	95.7	80	120			
Sodium	49	1.0	50.00	0	98.7	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507d99-001adup** SampType: **DUP** TestCode: **SM4500-H+B: pH**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R28029** RunNo: **28029**

Prep Date: Analysis Date: **8/6/2015** SeqNo: **843901** Units: **pH units**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.15	1.68								H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/13/2015**	SeqNo: **870230**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/13/2015**	SeqNo: **870231**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.478		0.5000	0	95.6	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **870233**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **870234**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.22		0.2000	0	110	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843850**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843851**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.64	20.00	80.00	0	98.3	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843874**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843875**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.72	20.00	80.00	0	99.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507D99-001ADUP**	SampType: **DUP**			TestCode: **Specific Gravity**					
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R27979**			RunNo: **27979**					
Prep Date:	Analysis Date: **8/5/2015**			SeqNo: **841885**		Units:			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9985	0						0.180	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20581**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **20581**	RunNo: **27984**
Prep Date: **8/4/2015**	Analysis Date: **8/5/2015**	SeqNo: **842184** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-20581**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **20581**	RunNo: **27984**
Prep Date: **8/4/2015**	Analysis Date: **8/5/2015**	SeqNo: **842185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1507D99 RcptNo: 1

Received by/date: SA 07/31/15

Logged By: Lindsay Mangin 7/31/2015 8:00:00 AM

Completed By: Lindsay Mangin 7/31/2015 9:58:04 AM

Reviewed By: IO 07/31/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2, 2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? no
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standar ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:
Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1507D99	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attachec list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-845 Method 1311
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
7/30/15	0855	Liquid	Trip Blank	2	Neat	-002		X					
7/30/15	0855	Liquid	Temperature Blank	1	Neat	—							

Analysis Request

Date:	Time:	Relinquished by	Received by	Date	Time
7/30/2015	10:30	Elizabeth Salsberry	[illegible]	07/31/15	0800
Date:	Time:	Relinquished by:	Received by	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Comb and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	7/30/2015 @ 8:50 am
End Date and Time	7/30/2015 @ 9:01 am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp:75.2 °F Humidity: 69% Wind Direction: North Wind Speed: 10.0 mi Over all Condition:Partly Cloudy

Date and Time:

Field Temp. 111.4 F Field pH 7.90

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, July 21, 2015 10:52 AM
To: Denton, Scott (Scott.Denton@HollyFrontier.com)
Cc: Griswold, Jim, EMNRD
Subject: 2015 2nd Quarter Injection Report for WDW-1, WDW-2 and WDW-3 July 15, 2015

Mr. Denton:

The New Mexico Oil Conservation Division (OCD) received the above subject environmental laboratory analytical data report(s) for the quarter of April through June 2015.

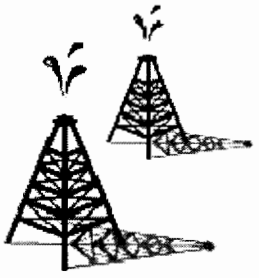
Carl noticed the following:

1) During Data Quality Objective evaluation of received samples from the refinery the lab detected bubbles in all 3 VOC sample containers.
2) There was a metals preservative issue.
3) The sample containment temperature upon delivery was 6.9 °C instead of 4 °C.

OCD requires that the operator comply with USEPA Quality Assurance/Quality Control and Data Quality Objectives when sampling, handling, and shipping environmental samples to the laboratory for analyses.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
O: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US
Web: http://www.emnrd.state.nm.us/ocd/
"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental



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HOLLYFRONTIER

RECEIVED OCD
2015 JUL 17 P 2:59

July 15, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 9944 5666

RE: 2015 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1377 psig and the average flows were 127 gpm for WDW-1, 116 gpm for WDW-2 and 125 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2015 to June 30, 2015. We have disposed a total of 1,150,921 barrels of fluid into the three wells during the second quarter of 2015. The volume per well is:

- 397,034 barrels into WDW-1
- 364,011 barrels into WDW-2
- 389,876 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/2nd quarter/2015-7-15 2nd QTR Inj. Rpt. for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2015 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	36,354,894
Apr-15	1,350	1,400	1,075	121	132	85	426	845	225	4,149	4,526	2,914	124,457	36,479,351
May-15	1,393	1,400	1,273	130	132	116	298	793	173	4,457	4,526	3,977	138,167	36,617,518
Jun-15	1,398	1,400	1,375	130	132	127	446	864	230	4,457	4,526	4,354	133,710	36,751,228
WDW-2													**Previous Quarter**	23,265,417
Apr-15	1,365	1,400	1,245	112	122	76	280	717	241	3,840	4,183	2,606	115,200	23,380,617
May-15	1,389	1,400	1,194	117	121	61	248	274	225	4,011	4,149	2,091	124,341	23,504,958
Jun-15	1,400	1,400	1,391	121	183	105	249	266	239	4,149	6,274	3,600	124,470	23,629,428
WDW-3													**Previous Quarter**	13,488,921
Apr-15	1,364	1,390	1,300	126	138	106	593	1,026	464	4,320	4,731	3,634	129,600	13,618,521
May-15	1,359	1,390	1,098	121	137	4	526	919	259	4,149	4,697	137	128,619	13,747,140
Jun-15	1,379	1,390	1,149	128	137	20	685	931	307	4,389	4,697	686	131,657	13,878,797
													Total Injected fluids:	74,259,453

T:\Injection Wells\Reports C-115 and Quarterly\2015\2nd quarter\
2nd 2015 qtrly rpt data
Injection fluids

7/13/20152:56 PM

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Navajo Refining Company, L.L.C.

2015 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/1/15	4/7/15	4/14/15	4/22/15	4/30/15	5/4/15	5/11/15	5/19/15	5/29/15	6/1/15	6/8/15	6/15/15	6/22/15	6/29/15
WDW -1[1]	145	145	145	145	145	145	100**	75**	100	100	100	100	100	100
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	255	225*	225	225	225	255	290	150***	160	160	160	245	260	285
					Comments:									

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

Page 1890 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 16, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1505504

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/12/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1505504**
Date: **6/16/2015**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	11	0.15	1.0	*	mg/L	10	5/12/2015 9:30:50 PM	R26148
Chloride	550	2.2	50		mg/L	100	5/12/2015 9:43:14 PM	R26148
Nitrogen, Nitrite (As N)	0.32	0.10	1.0	J	mg/L	10	5/12/2015 9:30:50 PM	R26148
Bromide	2.2	0.26	1.0		mg/L	10	5/12/2015 9:30:50 PM	R26148
Nitrogen, Nitrate (As N)	0.80	0.064	1.0	J	mg/L	10	5/12/2015 9:30:50 PM	R26148
Phosphorus, Orthophosphate (As P)	ND	0.75	5.0		mg/L	10	5/12/2015 9:30:50 PM	R26148
Sulfate	2600	8.2	50		mg/L	100	5/12/2015 9:43:14 PM	R26148
EPA METHOD 7470: MERCURY							Analyst: **MED**	
Mercury	ND	0.000059	0.00020		mg/L	1	5/14/2015 2:31:19 PM	19224
MERCURY, TCLP							Analyst: **MED**	
Mercury	0.0012	0.00075	0.020	J	mg/L	1	5/27/2015 3:12:30 PM	19406
EPA METHOD 6010B: TCLP METALS							Analyst: **ELS**	
Arsenic	0.049	0.011	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Barium	0.051	0.00060	100	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Cadmium	ND	0.00090	1.0		mg/L	1	5/27/2015 10:03:57 AM	19377
Chromium	0.016	0.0014	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Lead	0.0015	0.0013	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Selenium	0.13	0.019	1.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Silver	ND	0.0013	5.0		mg/L	1	5/27/2015 10:03:57 AM	19377
EPA 6010B: TOTAL METALS							Analyst: **ELS**	
Aluminum	0.48	0.0038	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
Antimony	ND	0.015	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Arsenic	0.042	0.018	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
Barium	0.010	0.00098	0.020	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Beryllium	ND	0.00046	0.0030		mg/L	1	5/27/2015 9:51:20 AM	19377
Cadmium	ND	0.00071	0.0020		mg/L	1	5/27/2015 9:51:20 AM	19377
Calcium	51	0.063	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Chromium	ND	0.0015	0.0060		mg/L	1	5/27/2015 9:51:20 AM	19377
Cobalt	0.0026	0.0021	0.0060	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Copper	0.0051	0.0039	0.0060	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Iron	0.33	0.0079	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Lead	ND	0.0023	0.0050		mg/L	1	5/27/2015 9:51:20 AM	19377
Magnesium	19	0.062	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Manganese	0.10	0.0012	0.0020		mg/L	1	5/27/2015 9:51:20 AM	19377
Nickel	0.011	0.0060	0.010		mg/L	1	5/27/2015 9:51:20 AM	19377
Potassium	62	0.13	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Selenium	0.13	0.017	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 6010B: TOTAL METALS							Analyst: **ELS**	
Silver	ND	0.0013	0.0050		mg/L	1	5/27/2015 9:51:20 AM	19377
Sodium	1400	10	20		mg/L	20	5/27/2015 10:17:24 AM	19377
Thallium	ND	0.010	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Vanadium	0.0078	0.0018	0.050	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Zinc	0.030	0.0020	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Acetonitrile	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Allyl chloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroprene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Cyclohexane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Diethyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Diisopropyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Epichlorohydrin	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Ethyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Ethyl methacrylate	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Ethyl tert-butyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Freon-113	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Isobutanol	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Isopropyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methacrylonitrile	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methyl ethyl ketone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl isobutyl ketone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl methacrylate	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methylcyclohexane	ND	1.0	1.0		µg/L	1	5/22/2015	R26752
n-Amyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
n-Hexane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Nitrobenzene	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Pentachloroethane	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
p-isopropyltoluene	0.83	0.50	0.50		µg/L	1	5/22/2015	R26752
Propionitrile	7.3	2.5	2.5		µg/L	1	5/22/2015	R26752
Tetrahydrofuran	1.3	0.50	0.50		µg/L	1	5/22/2015	R26752
Benzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Toluene	0.66	0.50	0.50		µg/L	1	5/22/2015	R26752
Ethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methyl tert-butyl ether (MTBE)	ND	10	10		µg/L	1	5/22/2015	R26752
1,2,4-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3,5-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichloroethane (EDC)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752

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Qualifiers:

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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,2-Dibromoethane (EDB)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Naphthalene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Acetone	10	2.5	2.5		µg/L	1	5/22/2015	R26752
Bromobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromodichloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromoform	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Carbon disulfide	1.0	0.50	0.50		µg/L	1	5/22/2015	R26752
Carbon Tetrachloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroform	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
4-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
cis-1,2-DCE	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
cis-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dibromo-3-chloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dibromochloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dibromomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,4-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dichlorodifluoromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloroethene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Hexachlorobutadiene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Hexanone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Isopropylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methylene Chloride	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
n-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
n-Propylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
sec-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Styrene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
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Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,1,1,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,2,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Tetrachloroethene (PCE)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,2-DCE	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,3-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,4-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,1-Trichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,2-Trichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Trichloroethene (TCE)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Trichlorofluoromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,3-Trichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Vinyl chloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
mp-Xylenes	ND	1.0	1.0		µg/L	1	5/22/2015	R26752
o-Xylene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Amyl methyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Butyl alcohol	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Acrolein	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Acrylonitrile	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromochloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Chloroethyl vinyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Iodomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,4-Dichloro-2-butene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Vinyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,4-Dioxane	ND	20	20		µg/L	1	5/22/2015	R26752
Surr: 1,2-Dichlorobenzene-d4	111		70-130		%REC	1	5/22/2015	R26752
Surr: 4-Bromofluorobenzene	106	0	70-130		%REC	1	5/22/2015	R26752
Surr: Toluene-d8	104	0	70-130		%REC	1	5/22/2015	R26752
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
1,1-Biphenyl	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Atrazine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Benzaldehyde	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Caprolactam	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
N-Nitroso-di-n-butylamine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Acetophenone	ND	10	10		µg/L	1	5/21/2015	R26752
1-Methylnaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2,3,4,6-Tetrachlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4,5-Trichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4,6-Trichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752

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Qualifiers:

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O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
2,4-Dichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dimethylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dinitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dinitrotoluene	ND	10	10		µg/L	1	5/21/2015	R26752
2,6-Dinitrotoluene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Chloronaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Chlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2-Methylnaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Methylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
2-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
2-Nitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
3,3´-Dichlorobenzidine	ND	10	10		µg/L	1	5/21/2015	R26752
3-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4,6-Dinitro-2-methylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
4-Bromophenyl phenyl ether	ND	10	10		µg/L	1	5/21/2015	R26752
4-Chloro-3-methylphenol	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
4-Chloroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4-Chlorophenyl phenyl ether	ND	10	10		µg/L	1	5/21/2015	R26752
4-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4-Nitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
Acenaphthene	ND	10	10		µg/L	1	5/21/2015	R26752
Acenaphthylene	ND	10	10		µg/L	1	5/21/2015	R26752
Anthracene	ND	10	10		µg/L	1	5/21/2015	R26752
Benzo(g,h,i)perylene	ND	10	10		µg/L	1	5/21/2015	R26752
Benz(a)anthracene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(a)pyrene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(b)fluoranthene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(k)fluoranthene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Bis(2-chloroethoxy)methane	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-chloroethyl)ether	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-chloroisopropyl)ether	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-ethylhexyl)phthalate	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Butyl benzyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Carbazole	ND	10	10		µg/L	1	5/21/2015	R26752
Chrysene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Dibenz(a,h)anthracene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Dibenzofuran	ND	10	10		µg/L	1	5/21/2015	R26752
Diethyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Dimethyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752

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Qualifiers:

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Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
Di-n-butyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Di-n-octyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Fluoranthene	ND	10	10		µg/L	1	5/21/2015	R26752
Fluorene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachlorobenzene	ND	1.0	1.0		µg/L	1	5/21/2015	R26752
Hexachlorobutadiene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachlorocyclopentadiene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachloroethane	ND	10	10		µg/L	1	5/21/2015	R26752
Indeno(1,2,3-cd)pyrene	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Isophorone	ND	10	10		µg/L	1	5/21/2015	R26752
Naphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
Nitrobenzene	ND	10	10		µg/L	1	5/21/2015	R26752
N-Nitrosodi-n-propylamine	ND	10	10		µg/L	1	5/21/2015	R26752
N-Nitrosodiphenylamine	ND	2.0	2.0		µg/L	1	5/21/2015	R26752
Pentachlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
Phenanthrene	ND	10	10		µg/L	1	5/21/2015	R26752
Phenol	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pyrene	ND	10	10		µg/L	1	5/21/2015	R26752
o-Toluidine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pyridine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
1,2,4,5-Tetrachlorobenzene	ND	10	10		µg/L	1	5/21/2015	R26752
Surr: 2,4,6-Tribromophenol	111	0	10-123		%REC	1	5/21/2015	R26752
Surr: 2-Fluorobiphenyl	90.0	0	19-130		%REC	1	5/21/2015	R26752
Surr: 2-Fluorophenol	74.4	0	21-120		%REC	1	5/21/2015	R26752
Surr: Nitrobenzene-d5	80.4	0	25-130		%REC	1	5/21/2015	R26752
Surr: Phenol-d5	64.0	0	10-130		%REC	1	5/21/2015	R26752
Surr: Terphenyl-d14	74.8	0	21-141		%REC	1	5/21/2015	R26752
CORROSIVITY							Analyst: **SUB**	
pH	7.99				pH Units	1	5/19/2015	R26752
IGNITABILITY METHOD 1010							Analyst: **SUB**	
Ignitability	>200	0	0		°F	1	5/22/2015	R26752
CYANIDE, REACTIVE							Analyst: **SUB**	
Cyanide, Reactive	ND	1.00	1.00		mg/L	1	5/22/2015	R26752
SULFIDE, REACTIVE							Analyst: **SUB**	
Reactive Sulfide	ND	1.0	1.0		mg/L	1	5/21/2015	R26752
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	6600	0.010	0.010		µmhos/c	1	5/12/2015 4:15:42 PM	R26154

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM4500-H+B: PH							Analyst: **JRR**	
pH	7.95	0.100	1.68	H	pH units	1	5/12/2015 4:15:42 PM	R26154
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	313.4	0.9399	20.00		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
Total Alkalinity (as CaCO3)	313.4	0.9399	20.00		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
SPECIFIC GRAVITY							Analyst: **JRR**	
Specific Gravity	0.9990	0	0			1	5/18/2015 11:44:00 AM	R26252
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JML**	
Total Dissolved Solids	4260	145	200	*	mg/L	1	5/15/2015 5:40:00 PM	19225

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well **Collection Date:**
Lab ID: 1505504-002 **Matrix:** TRIP BLANK **Received Date:** 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Acetonitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Allyl chloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroprene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Cyclohexane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Diethyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Diisopropyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Epichlorohydrin	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Ethyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Ethyl methacrylate	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Ethyl tert-butyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Freon-113	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Isobutanol	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Isopropyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methacrylonitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Methyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methyl ethyl ketone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Methyl isobutyl ketone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Methyl methacrylate	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Methylcyclohexane	ND	1.0	1.0		µg/L	1	5/21/2015	R26752
n-Amyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
n-Hexane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Nitrobenzene	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pentachloroethane	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
p-isopropyltoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Propionitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Tetrahydrofuran	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Benzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Toluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Ethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methyl tert-butyl ether (MTBE)	ND	10	0.50		µg/L	1	5/21/2015	R26752
1,2,4-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3,5-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichloroethane (EDC)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dibromoethane (EDB)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Naphthalene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Acetone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Bromobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Bromodichloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Bromoform	ND	0.50	0.50		µg/L	1	5/21/2015	R26752

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Rccovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1505504-002
Matrix: TRIP BLANK
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Bromomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Carbon disulfide	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Carbon Tetrachloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroform	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
4-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
cis-1,2-DCE	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
cis-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dibromo-3-chloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dibromochloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dibromomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,4-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dichlorodifluoromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloroethene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Hexachlorobutadiene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Hexanone	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Isopropylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methylene Chloride	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
n-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
n-Propylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
sec-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Styrene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,1,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,2,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Tetrachloroethene (PCE)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,2-DCE	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2,3-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1505504-002
Matrix: TRIP BLANK
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,1-Trichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,2-Trichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Trichloroethene (TCE)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Trichlorofluoromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2,3-Trichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Vinyl chloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
mp-Xylenes	ND	1.0	0.50		µg/L	1	5/21/2015	R26752
o-Xylene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Amyl methyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Butyl alcohol	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Acrolein	ND	2.5	10		µg/L	1	5/21/2015	R26752
Acrylonitrile	ND	2.5	10		µg/L	1	5/21/2015	R26752
Bromochloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Chloroethyl vinyl ether	ND	0.50	1.0		µg/L	1	5/21/2015	R26752
Iodomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,4-Dichloro-2-butene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Vinyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,4-Dioxane	ND	20	20		µg/L	1	5/21/2015	R26752
Surr: 1,2-Dichlorobenzene-d4	105		70-130		%REC	1	5/21/2015	R26752
Surr: 4-Bromofluorobenzene	101	0	70-130		%REC	1	5/21/2015	R26752
Surr: Toluene-d8	102	0	70-130		%REC	1	5/21/2015	R26752

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**
16-Jun-15

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R26148**	RunNo: **26148**
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775809** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R26148**	RunNo: **26148**
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775815** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.55	0.10	0.5000	0	110	90	110			
Chloride	4.8	0.50	5.000	0	96.6	90	110			
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	102	90	110			
Bromide	2.5	0.10	2.500	0	99.3	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	102	90	110			
Phosphorus, Orthophosphate (As P	5.1	0.50	5.000	0	102	90	110			
Sulfate	10	0.50	10.00	0	99.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797217** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Ethyl methacrylate	ND	0.50								
Isobutanol	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Propionitrile	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797217** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50								
2-Hexanone	ND	0.50								
Methylene Chloride	ND	2.5								
Styrene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797218** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.4		10.00	0	93.8	80	120			
Toluene	9.9		10.00	0	99.0	80	120			
Ethylbenzene	10		10.00	0	99.9	80	120			
Chlorobenzene	9.8		10.00	0	97.9	80	120			
1,1-Dichloroethene	9.7		10.00	0	96.9	80	120			
Tetrachloroethene (PCE)	11		10.00	0	106	80	120			
Trichloroethene (TCE)	10		10.00	0	101	80	120			
o-Xylene	10		10.00	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2,3,4,6-Tetrachlorophenol	ND	0.50								
2,4,5-Trichlorophenol	ND	0.50								
2,4,6-Trichlorophenol	ND	0.50								
2,4-Dichlorophenol	ND	0.50								
2,4-Dimethylphenol	ND	0.50								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
2-Chloronaphthalene	ND	0.50								
2-Chlorophenol	ND	0.50								
2-Methylnaphthalene	ND	0.50								
2-Methylphenol	ND	0.50								
2-Nitroaniline	ND	0.50								
2-Nitrophenol	ND	0.50								
3,3´-Dichlorobenzidine	ND	0.50								
3-Nitroaniline	ND	0.50								
4,6-Dinitro-2-methylphenol	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.50								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
4-Chlorophenyl phenyl ether	ND	0.50								
4-Nitroaniline	ND	0.50								
4-Nitrophenol	ND	0.50								
Acenaphthene	ND	0.50								
Acenaphthylene	ND	0.50								
Anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								
Benzo(k)fluoranthene	ND	0.50								
Bis(2-chloroethoxy)methane	ND	0.50								
Bis(2-chloroethyl)ether	ND	0.50								
Bis(2-chloroisopropyl)ether	ND	0.50								
Bis(2-ethylhexyl)phthalate	ND	0.50								
Butyl benzyl phthalate	ND	0.50								
Carbazole	ND	0.50								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Dibenzofuran	ND	0.50								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.50								
Di-n-butyl phthalate	ND	0.50								
Di-n-octyl phthalate	ND	0.50								
Fluoranthene	ND	0.50								
Fluorene	ND	0.50								
Hexachlorobenzene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
Hexachlorocyclopentadiene	ND	0.50								
Hexachloroethane	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Isophorone	ND	0.50								
Naphthalene	ND	0.50								
Nitrobenzene	ND	0.50								
N-Nitrosodi-n-propylamine	ND	0.50								
N-Nitrosodiphenylamine	ND	0.50								
Pentachlorophenol	ND	0.50								
Phenanthrene	ND	0.50								
Phenol	ND	0.50								
Pyrene	ND	0.50								
Pyridine	ND	0.50								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797223** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.6		5.000	0	93.0	49	145			
2-Chlorophenol	4.8		5.000	0	96.2	50	131			
4-Chloro-3-methylphenol	5.4		5.000	0	108	42	139			
4-Nitrophenol	5.3		5.000	0	106	19	137			
Acenaphthene	4.8		5.000	0	96.6	36	131			
Bis(2-ethylhexyl)phthalate	5.6		5.000	0	113	43	148			
N-Nitrosodi-n-propylamine	6.1		5.000	0	122	46	135			
Pentachlorophenol	5.1		5.000	0	101	22	138			
Phenol	4.4		5.000	0	88.8	45	134			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**LCS-R26752**	SampType:	**LCS**	TestCode:	**EPA 8270C: Semivolatiles/Mod**					
Client ID:	**LCSW**	Batch ID:	**R26752**	RunNo:	**26752**					
Prep Date:		Analysis Date:	**5/21/2015**	SeqNo:	**797223**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pyrene	5.4		5.000	0	109	45	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19224**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777328** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-19224**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

Sample ID **LCSD-19224**	SampType: **LCSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSS02**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	101	80	120	0.438	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19406**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **19406**	RunNo: **26436**							
Prep Date: **5/27/2015**	Analysis Date: **5/27/2015**	SeqNo: **785575**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-19406**	SampType: **LCS**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSW**	Batch ID: **19406**	RunNo: **26436**							
Prep Date: **5/27/2015**	Analysis Date: **5/27/2015**	SeqNo: **785576**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.020	0.005000	0	95.3	80	120			J

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19377**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785370** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-19377**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785371** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	5.0	0.5000	0	98.7	80	120			J
Barium	0.47	100	0.5000	0	94.3	80	120			J
Cadmium	0.48	1.0	0.5000	0	96.3	80	120			J
Chromium	0.47	5.0	0.5000	0	94.2	80	120			J
Lead	0.46	5.0	0.5000	0	92.7	80	120			J
Selenium	0.48	1.0	0.5000	0	95.9	80	120			J
Silver	0.099	5.0	0.1000	0	98.7	80	120			J

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19377** SampType: **MBLK** TestCode: **EPA 6010B: Total Metals**

Client ID: **PBW** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785351** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	0.031	0.050								J
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	0.0083	0.050								J
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-19377** SampType: **LCS** TestCode: **EPA 6010B: Total Metals**

Client ID: **LCSW** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785352** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	101	80	120			
Antimony	0.49	0.050	0.5000	0	97.9	80	120			
Arsenic	0.49	0.020	0.5000	0	98.7	80	120			
Barium	0.47	0.020	0.5000	0	94.3	80	120			
Beryllium	0.49	0.0030	0.5000	0	97.9	80	120			
Cadmium	0.48	0.0020	0.5000	0	96.3	80	120			
Calcium	48	1.0	50.00	0	96.6	80	120			
Chromium	0.47	0.0060	0.5000	0	94.2	80	120			
Cobalt	0.46	0.0060	0.5000	0	92.4	80	120			
Copper	0.48	0.0060	0.5000	0	95.6	80	120			
Iron	0.47	0.050	0.5000	0	94.1	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-19377**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**							
Client ID: **LCSW**	Batch ID: **19377**	RunNo: **26426**							
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785352**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.46	0.0050	0.5000	0	92.7	80	120			
Magnesium	48	1.0	50.00	0	96.9	80	120			
Manganese	0.47	0.0020	0.5000	0	93.6	80	120			
Nickel	0.47	0.010	0.5000	0	93.1	80	120			
Potassium	46	1.0	50.00	0	93.0	80	120			
Selenium	0.48	0.050	0.5000	0	95.9	80	120			
Silver	0.099	0.0050	0.1000	0	98.7	80	120			
Sodium	48	1.0	50.00	0	96.1	80	120			
Thallium	0.49	0.050	0.5000	0	97.0	80	120			
Vanadium	0.49	0.050	0.5000	0	98.0	80	120			
Zinc	0.47	0.020	0.5000	0	93.5	80	120			

Sample ID **1505504-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Total Metals**							
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **19377**	RunNo: **26426**							
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785354**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.020	0.5000	0.4834	114	75	125			
Antimony	0.51	0.050	0.5000	0	103	75	125			
Arsenic	0.57	0.020	0.5000	0.04239	105	75	125			
Barium	0.50	0.020	0.5000	0.01049	97.1	75	125			
Beryllium	0.49	0.0030	0.5000	0	98.5	75	125			
Cadmium	0.51	0.0020	0.5000	0	102	75	125			
Calcium	100	1.0	50.00	51.14	97.3	75	125			
Chromium	0.48	0.0060	0.5000	0	95.4	75	125			
Cobalt	0.48	0.0060	0.5000	0.002620	96.1	75	125			
Copper	0.55	0.0060	0.5000	0.005100	110	75	125			
Iron	0.80	0.050	0.5000	0.3329	92.5	75	125			
Lead	0.48	0.0050	0.5000	0	95.9	75	125			
Magnesium	70	1.0	50.00	19.14	101	75	125			
Manganese	0.58	0.0020	0.5000	0.1030	96.0	75	125			
Nickel	0.49	0.010	0.5000	0.01120	95.5	75	125			
Selenium	0.66	0.050	0.5000	0.1334	105	75	125			
Silver	0.10	0.0050	0.1000	0	104	75	125			
Thallium	0.51	0.050	0.5000	0	101	75	125			
Vanadium	0.51	0.050	0.5000	0.007830	101	75	125			
Zinc	0.52	0.020	0.5000	0.03044	98.1	75	125			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **1505504-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.020	0.5000	0.4834	123	75	125	4.31	20	
Antimony	0.53	0.050	0.5000	0	106	75	125	3.03	20	
Arsenic	0.58	0.020	0.5000	0.04239	108	75	125	2.76	20	
Barium	0.51	0.020	0.5000	0.01049	100	75	125	3.03	20	
Beryllium	0.50	0.0030	0.5000	0	101	75	125	2.04	20	
Cadmium	0.52	0.0020	0.5000	0	105	75	125	2.76	20	
Chromium	0.49	0.0060	0.5000	0	97.8	75	125	2.49	20	
Cobalt	0.50	0.0060	0.5000	0.002620	98.6	75	125	2.48	20	
Copper	0.57	0.0060	0.5000	0.005100	113	75	125	3.29	20	
Iron	0.83	0.050	0.5000	0.3329	99.1	75	125	4.06	20	
Lead	0.49	0.0050	0.5000	0	98.1	75	125	2.26	20	
Magnesium	71	1.0	50.00	19.14	104	75	125	1.82	20	
Manganese	0.60	0.0020	0.5000	0.1030	99.9	75	125	3.33	20	
Nickel	0.50	0.010	0.5000	0.01120	98.0	75	125	2.50	20	
Selenium	0.67	0.050	0.5000	0.1334	106	75	125	1.30	20	
Silver	0.11	0.0050	0.1000	0	108	75	125	3.31	20	
Thallium	0.53	0.050	0.5000	0	107	75	125	4.89	20	
Vanadium	0.53	0.050	0.5000	0.007830	104	75	125	3.13	20	
Zinc	0.53	0.020	0.5000	0.03044	101	75	125	2.60	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797254**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797255**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.486		0.5000	0	97.2	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797257**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.10								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797258**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R26154**	RunNo: **26154**							
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775904**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	4.120	20.00								J

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R26154**	RunNo: **26154**							
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775905**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	87.40	20.00	80.00	0	109	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19225**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **19225**	RunNo: **26231**
Prep Date: **5/14/2015**	Analysis Date: **5/15/2015**	SeqNo: **778508** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-19225**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **19225**	RunNo: **26231**
Prep Date: **5/14/2015**	Analysis Date: **5/15/2015**	SeqNo: **778509** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1505504 RcptNo: 1

Received by/date: CS 05/12/15

Logged By: Ashley Gallegos 5/12/2015 8:56:00 AM

Completed By: Ashley Gallegos 5/12/2015 12:36:44 PM

Reviewed By: 05/12/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☑	NA ☐
	Approved by client.		
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☑ CS 05/12/15	
9. Was preservative added to bottles?	Yes ☑	No ☑	NA ☐
For metals analysis, added 1ml HNO3 to -001B for acceptable pH. Held in Login for 24 hours. CS 05/12			
10. VOA vials have zero headspace?	Yes ☑	No ☑	No VOA Vials ☐
11. Were any sample containers received broken? CS 05/12/15	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2 2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? yes
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks: Sample -001D (all 3 vials) and -002A (2 of 2) have bubbles. CS 05/12,

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	6.9	Good	Not Present			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☒ Standar ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☒ Yes ☐ No

Sample Temperature: 6.9°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1505604	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond. Fl, Cation/anion bal., Br, Eh/4D	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311									
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X									
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X										
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X														
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X													
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X												
5-11-15	0820	Liquid	Trip Blank	2	Neat	-002		X														
5-11-15	0820	Liquid	Temperature Blank	1	Neat																	

Date	Time	Relinquished by	Received by	Date	Time
5-11-15	1000	Elizabeth Salsberry	Celina Sanchez	05/12/15	0856
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras

Client approved temp. Spoke with Micki. CS 05/12/15

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	7/9/2015 @ 08:57am
End Date and Time	7/9/2015 @ 09:08am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp:78.8 °F Humidity: 47% Wind Direction: NNE Wind Speed: 10.4 mph Overall Condition: clear
Date and Time:

Field Temp. 45.3 Field pH : 7.62

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER

January 22, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 1200 0000 1832 3280

RE: 2014 4th Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for all three wells was 1345 psig and the average flows were 111 gpm for WDW-1, 113 gpm for WDW-2 and 128 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from October 1, 2014 to December 31, 2014. We have disposed a total of 1,088,093 barrels of fluid into the three wells during the fourth quarter of 2014. The volume per well is:

- 350,826 barrels into WDW-1
- 360,020 barrels into WDW-2
- 377,247 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/4th quarter/2015-1-22 4th QTR Inj Rpt for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2014 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	35,589,080
Oct-14	1,341	1,350	1,310	93	125	67	360	569	203	3,189	4,286	2,297	99,503	35,688,583
Nov-14	1,356	1,375	1,300	122	128	112	305	380	193	4,183	4,389	3,840	125,348	35,813,931
Dec-14	1,346	1,380	1,244	118	269	94	285	402	156	4,046	9,223	3,223	125,975	35,939,906
WDW-2													**Previous Quarter**	22,558,499
Oct-14	1,341	1,350	1,306	119	126	110	298	366	256	4,080	4,320	3,771	127,175	22,685,674
Nov-14	1,353	1,375	1,300	115	123	105	515	1,617	253	3,943	4,217	3,600	118,739	22,804,413
Dec-14	1,347	1,380	1,255	107	117	83	808	1,492	256	3,669	4,011	2,846	114,106	22,918,519
WDW-3													**Previous Quarter**	12,735,189
Oct-14	1,341	1,350	1,063	122	144	0	784	938	331	4,183	4,937	0	129,877	12,865,066
Nov-14	1,342	1,375	1,205	124	139	54	847	1,002	676	4,251	4,766	1,851	127,146	12,992,212
Dec-14	1,340	1,373	1,258	138	127	82	706	799	616	4,731	4,354	2,811	120,224	13,112,436
													Total Injected fluids:	71,970,861

T:\Injection Wells\Reports C-115 and Quarterly\2014\4th quarter\
4th 2014 qtrly rpt data
Injection fluids

1/15/20159:33 AM

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Navajo Refining Company, L.L.C.

2014 FOURTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/8/14	10/13/14	10/21/14	10/27/02	11/4/14	11/10/14	11/17/14	11/24/14	12/1/14	12/9/14	12/15/14	12/22/14	12/29/14	
WDW -1[1]	145	145	145	145	145	145	145	145	145	145	145	145	145	
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100	
WDW-3[1]	145	145	145	145	145	145	145	200	200	200	200	200	200	
				Comments:										

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 09, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1411288

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/7/2014 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued December 08, 2014

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1411288**
Date: **12/9/2014**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Fluoride	5.3	0.50	*	mg/L	5	11/7/2014 11:52:12 PM	R22427
Chloride	330	25		mg/L	50	11/19/2014 12:14:33 AM	R22629
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Bromide	0.68	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Nitrogen, Nitrate (As N)	1.3	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	11/7/2014 11:52:12 PM	R22427
Sulfate	1300	25		mg/L	50	11/19/2014 12:14:33 AM	R22629
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	11/13/2014 11:05:18 AM	16357
MERCURY, TCLP						Analyst: **MMD**	
Mercury	ND	0.020		mg/L	1	11/13/2014 2:54:22 PM	16358
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	0.20		mg/L	1	11/12/2014 11:08:39 AM	16345
Barium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Cadmium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Chromium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Lead	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Selenium	ND	0.20		mg/L	1	11/12/2014 11:08:39 AM	16345
Silver	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	0.48	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Antimony	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Arsenic	0.050	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Barium	ND	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Beryllium	ND	0.0030		mg/L	1	11/12/2014 11:06:42 AM	16345
Cadmium	ND	0.0020		mg/L	1	11/12/2014 11:06:42 AM	16345
Calcium	50	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Chromium	ND	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Cobalt	ND	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Copper	0.0092	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Iron	0.86	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Lead	ND	0.0050		mg/L	1	11/12/2014 11:06:42 AM	16345
Magnesium	17	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Manganese	0.10	0.0020		mg/L	1	11/12/2014 11:06:42 AM	16345
Nickel	0.010	0.010		mg/L	1	11/12/2014 11:06:42 AM	16345
Potassium	22	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Selenium	0.058	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	11/12/2014 11:06:42 AM	16345
Sodium	ND	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Thallium	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Vanadium	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Zinc	0.049	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Allyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroprene	ND	0.500		µg/L	1	11/13/2014	R22819
Cyclohexane	ND	0.500		µg/L	1	11/13/2014	R22819
Diethyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Diisopropyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Epichlorohydrin	ND	5.00		µg/L	1	11/13/2014	R22819
Ethyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl tert-butyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Freon-113	ND	0.500		µg/L	1	11/13/2014	R22819
Isobutanol	ND	50.0		µg/L	1	11/13/2014	R22819
Isopropyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methacrylonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl ethyl ketone	2.82	2.50		µg/L	1	11/13/2014	R22819
Methyl isobutyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Methylcyclohexane	ND	1.00		µg/L	1	11/13/2014	R22819
n-Amyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
n-Hexane	ND	0.500		µg/L	1	11/13/2014	R22819
Nitrobenzene	ND	5.00		µg/L	1	11/13/2014	R22819
Pentachloroethane	ND	5.00		µg/L	1	11/13/2014	R22819
p-isopropyltoluene	ND	0.500		µg/L	1	11/13/2014	R22819
Propionitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrahydrofuran	ND	0.500		µg/L	1	11/13/2014	R22819
Benzene	ND	0.500		µg/L	1	11/13/2014	R22819
Toluene	ND	0.500		µg/L	1	11/13/2014	R22819
Ethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl tert-butyl ether (MTBE)	ND	10.0		µg/L	1	11/13/2014	R22819
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3,5-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloroethane (EDC)	ND	0.500		µg/L	1	11/13/2014	R22819

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Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.500		µg/L	1	11/13/2014	R22819
Naphthalene	ND	0.500		µg/L	1	11/13/2014	R22819
Acetone	47.2	2.50		µg/L	1	11/13/2014	R22819
Bromobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Bromodichloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Bromoform	ND	0.500		µg/L	1	11/13/2014	R22819
Bromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon disulfide	0.930	0.500		µg/L	1	11/13/2014	R22819
Carbon Tetrachloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroform	ND	0.500		µg/L	1	11/13/2014	R22819
Chloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
4-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromo-3-chloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Dichlorodifluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
2,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
Hexachlorobutadiene	ND	0.500		µg/L	1	11/13/2014	R22819
2-Hexanone	ND	0.500		µg/L	1	11/13/2014	R22819
Isopropylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methylene Chloride	ND	2.50		µg/L	1	11/13/2014	R22819
n-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
n-Propylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
sec-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Styrene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,1,1,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrachloroethene (PCE)	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,4-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Trichloroethene (TCE)	ND	0.500		µg/L	1	11/13/2014	R22819
Trichlorofluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Xylenes, Total	ND	1.00		µg/L	1	11/13/2014	R22819
mp-Xylenes	ND	1.00		µg/L	1	11/13/2014	R22819
o-Xylene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Amyl methyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butyl alcohol	46.8	0.500		µg/L	1	11/13/2014	R22819
Acrolein	ND	0.500		µg/L	1	11/13/2014	R22819
Acrylonitrile	ND	10.0		µg/L	1	11/13/2014	R22819
Bromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chloroethyl vinyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Iodomethane	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,4-Dichloro-2-butene	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dioxane	ND	20.0		µg/L	1	11/13/2014	R22819
Surr: 1,2-Dichlorobenzene-d4	108	70-130		%REC	1	11/13/2014	R22819
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	11/13/2014	R22819
Surr: Toluene-d8	99.2	70-130		%REC	1	11/13/2014	R22819
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	11/14/2014	R22918
Atrazine	ND	5.0		µg/L	1	11/14/2014	R22918
Benzaldehyde	ND	5.0		µg/L	1	11/14/2014	R22918
Caprolactam	ND	5.0		µg/L	1	11/14/2014	R22918
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	11/14/2014	R22918
Acetophenone	ND	10		µg/L	1	11/14/2014	R22918
1-Methylnaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4,5-Trichlorophenol	ND	10		µg/L	1	11/14/2014	R22918

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Qualifiers:

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S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
2,4,6-Trichlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dichlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dimethylphenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dinitrophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dinitrotoluene	ND	10		µg/L	1	11/14/2014	R22918
2,6-Dinitrotoluene	ND	10		µg/L	1	11/14/2014	R22918
2-Chloronaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2-Chlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2-Methylnaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2-Methylphenol	ND	10		µg/L	1	11/14/2014	R22918
2-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
2-Nitrophenol	ND	10		µg/L	1	11/14/2014	R22918
3,3´-Dichlorobenzidine	ND	10		µg/L	1	11/14/2014	R22918
3-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	11/14/2014	R22918
4-Bromophenyl phenyl ether	ND	10		µg/L	1	11/14/2014	R22918
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	11/14/2014	R22918
4-Chloroaniline	ND	10		µg/L	1	11/14/2014	R22918
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	11/14/2014	R22918
4-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
4-Nitrophenol	ND	10		µg/L	1	11/14/2014	R22918
Acenaphthene	ND	10		µg/L	1	11/14/2014	R22918
Acenaphthylene	ND	10		µg/L	1	11/14/2014	R22918
Anthracene	ND	10		µg/L	1	11/14/2014	R22918
Benzo(g,h,i)perylene	ND	10		µg/L	1	11/14/2014	R22918
Benz(a)anthracene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(a)pyrene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(b)fluoranthene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(k)fluoranthene	ND	0.10		µg/L	1	11/14/2014	R22918
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-chloroethyl)ether	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	11/14/2014	R22918
Butyl benzyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Carbazole	ND	10		µg/L	1	11/14/2014	R22918
Chrysene	ND	0.10		µg/L	1	11/14/2014	R22918
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	11/14/2014	R22918
Dibenzofuran	ND	10		µg/L	1	11/14/2014	R22918
Diethyl phthalate	ND	10		µg/L	1	11/14/2014	R22918

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Qualifiers:

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O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
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Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Dimethyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Di-n-butyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Di-n-octyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Fluoranthene	ND	10		µg/L	1	11/14/2014	R22918
Fluorene	ND	10		µg/L	1	11/14/2014	R22918
Hexachlorobenzene	ND	1.0		µg/L	1	11/14/2014	R22918
Hexachlorobutadiene	ND	10		µg/L	1	11/14/2014	R22918
Hexachlorocyclopentadiene	ND	10		µg/L	1	11/14/2014	R22918
Hexachloroethane	ND	10		µg/L	1	11/14/2014	R22918
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	11/14/2014	R22918
Isophorone	ND	10		µg/L	1	11/14/2014	R22918
Naphthalene	ND	10		µg/L	1	11/14/2014	R22918
Nitrobenzene	ND	10		µg/L	1	11/14/2014	R22918
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	11/14/2014	R22918
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	11/14/2014	R22918
Pentachlorophenol	ND	10		µg/L	1	11/14/2014	R22918
Phenanthrene	ND	10		µg/L	1	11/14/2014	R22918
Phenol	ND	5.0		µg/L	1	11/14/2014	R22918
Pyrene	ND	10		µg/L	1	11/14/2014	R22918
o-Toluidine	ND	5.0		µg/L	1	11/14/2014	R22918
Pyridine	ND	5.0		µg/L	1	11/14/2014	R22918
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	11/14/2014	R22918
Surr: 2,4,6-Tribromophenol	131	10-123	S	%REC	1	11/14/2014	R22918
Surr: 2-Fluorobiphenyl	88.8	19-130		%REC	1	11/14/2014	R22918
Surr: 2-Fluorophenol	82.4	21-110		%REC	1	11/14/2014	R22918
Surr: Nitrobenzene-d5	86.4	25-130		%REC	1	11/14/2014	R22918
Surr: Phenol-d5	90.8	10-125		%REC	1	11/14/2014	R22918
Surr: Terphenyl-d14	35.6	33-141		%REC	1	11/14/2014	R22918
CORROSIVITY							Analyst: **SUB**
pH	7.51			pH Units	1	11/13/2014	R22918
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	11/18/2014	R22918
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	11/18/2014	R22918
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	11/21/2014	R22918
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date: 11/6/2014 10:30:00 AM
Lab ID: 1411288-001 **Matrix:** AQUEOUS **Received Date:** 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3500	0.010		µmhos/cm	1	11/11/2014 1:35:05 PM	R22485
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	320	20		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
Total Alkalinity (as CaCO3)	320	20		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.001	0			1	11/20/2014 2:11:00 PM	R22669
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2380	100	*	mg/L	1	11/12/2014 1:18:00 PM	16340

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002
Matrix: TRIP BLANK
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Allyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroprene	ND	0.500		µg/L	1	11/13/2014	R22819
Cyclohexane	ND	0.500		µg/L	1	11/13/2014	R22819
Diethyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Diisopropyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Epichlorohydrin	ND	5.00		µg/L	1	11/13/2014	R22819
Ethyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl tert-butyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Freon-113	ND	0.500		µg/L	1	11/13/2014	R22819
Isobutanol	ND	50.0		µg/L	1	11/13/2014	R22819
Isopropyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methacrylonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl ethyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl isobutyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Methylcyclohexane	ND	1.00		µg/L	1	11/13/2014	R22819
n-Amyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
n-Hexane	ND	0.500		µg/L	1	11/13/2014	R22819
Nitrobenzene	ND	5.00		µg/L	1	11/13/2014	R22819
Pentachloroethane	ND	5.00		µg/L	1	11/13/2014	R22819
p-isopropyltoluene	ND	0.500		µg/L	1	11/13/2014	R22819
Propionitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrahydrofuran	ND	0.500		µg/L	1	11/13/2014	R22819
Benzene	ND	0.500		µg/L	1	11/13/2014	R22819
Toluene	ND	0.500		µg/L	1	11/13/2014	R22819
Ethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl tert-butyl ether (MTBE)	ND	10.0		µg/L	1	11/13/2014	R22819
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3,5-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloroethane (EDC)	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromoethane (EDB)	ND	0.500		µg/L	1	11/13/2014	R22819
Naphthalene	ND	0.500		µg/L	1	11/13/2014	R22819
Acetone	5.30	2.50		µg/L	1	11/13/2014	R22819
Bromobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Bromodichloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Bromoform	ND	0.500		µg/L	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002
Matrix: TRIP BLANK
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon disulfide	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon Tetrachloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroform	ND	0.500		µg/L	1	11/13/2014	R22819
Chloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
4-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromo-3-chloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Dichlorodifluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
2,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
Hexachlorobutadiene	ND	0.500		µg/L	1	11/13/2014	R22819
2-Hexanone	ND	0.500		µg/L	1	11/13/2014	R22819
Isopropylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methylene Chloride	ND	2.50		µg/L	1	11/13/2014	R22819
n-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
n-Propylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
sec-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Styrene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrachloroethene (PCE)	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002
Matrix: TRIP BLANK
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Trichloroethene (TCE)	ND	0.500		µg/L	1	11/13/2014	R22819
Trichlorofluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Xylenes, Total	ND	1.00		µg/L	1	11/13/2014	R22819
mp-Xylenes	ND	1.00		µg/L	1	11/13/2014	R22819
o-Xylene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Amyl methyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butyl alcohol	ND	0.500		µg/L	1	11/13/2014	R22819
Acrolein	ND	0.500		µg/L	1	11/13/2014	R22819
Acrylonitrile	ND	10.0		µg/L	1	11/13/2014	R22819
Bromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chloroethyl vinyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Iodomethane	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,4-Dichloro-2-butene	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dioxane	ND	20.0		µg/L	1	11/13/2014	R22819
Surr: 1,2-Dichlorobenzene-d4	102	70-130		%REC	1	11/13/2014	R22819
Surr: 4-Bromofluorobenzene	94.4	70-130		%REC	1	11/13/2014	R22819
Surr: Toluene-d8	96.4	70-130		%REC	1	11/13/2014	R22819

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R22427**	RunNo: **22427**							
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661019**	Units: **mg/L**						

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R22427**	RunNo: **22427**							
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661020**	Units: **mg/L**						

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	93.8	66.6	112			
Nitrogen, Nitrite (As N)	0.90	0.10	1.000	0	90.2	67.5	109			
Bromide	2.3	0.10	2.500	0	92.8	82.8	103			
Nitrogen, Nitrate (As N)	2.3	0.10	2.500	0	93.3	84	109			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	91.7	68.8	109			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R22427**	RunNo: **22427**							
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661041**	Units: **mg/L**						

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R22427**	RunNo: **22427**							
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661042**	Units: **mg/L**						

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	96.6	66.6	112			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.0	67.5	109			
Bromide	2.4	0.10	2.500	0	96.4	82.8	103			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.1	84	109			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.8	68.8	109			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R22629**	RunNo: **22629**							
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **667493**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R22629**	RunNo: **22629**							
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **667494**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.7	90	110			
Sulfate	9.5	0.50	10.00	0	95.2	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.500								
Allyl chloride	ND	0.500								
Chloroprene	ND	0.500								
Cyclohexane	ND	0.500								
Diethyl ether	ND	0.500								
Diisopropyl ether	ND	0.500								
Epichlorohydrin	ND	0.500								
Ethyl acetate	ND	0.500								
Ethyl methacrylate	ND	0.500								
Ethyl tert-butyl ether	ND	0.500								
Freon-113	ND	0.500								
Isobutanol	ND	0.500								
Isopropyl acetate	ND	0.500								
Methacrylonitrile	ND	0.500								
Methyl acetate	ND	0.500								
Methyl ethyl ketone	ND	2.50								
Methyl isobutyl ketone	ND	2.50								
Methyl methacrylate	ND	0.500								
Methylcyclohexane	ND	0.500								
n-Amyl acetate	ND	0.500								
n-Hexane	ND	0.500								
Nitrobenzene	ND	0.500								
Pentachloroethane	ND	0.500								
p-isopropyltoluene	ND	0.500								
Propionitrile	ND	0.500								
Tetrahydrofuran	ND	0.500								
Benzene	ND	0.500								
Toluene	ND	0.500								
Ethylbenzene	ND	0.500								
Methyl tert-butyl ether (MTBE)	ND	0.500								
1,2,4-Trimethylbenzene	ND	0.500								
1,3,5-Trimethylbenzene	ND	0.500								
1,2-Dichloroethane (EDC)	ND	0.500								
1,2-Dibromoethane (EDB)	ND	0.500								
Naphthalene	ND	0.500								
Acetone	ND	2.50								
Bromobenzene	ND	0.500								
Bromodichloromethane	ND	0.500								
Bromoform	ND	0.500								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.500								
Carbon disulfide	ND	0.500								
Carbon Tetrachloride	ND	0.500								
Chlorobenzene	ND	0.500								
Chloroethane	ND	0.500								
Chloroform	ND	0.500								
Chloromethane	ND	0.500								
2-Chlorotoluene	ND	0.500								
4-Chlorotoluene	ND	0.500								
cis-1,2-DCE	ND	0.500								
cis-1,3-Dichloropropene	ND	0.500								
1,2-Dibromo-3-chloropropane	ND	0.500								
Dibromochloromethane	ND	0.500								
Dibromomethane	ND	0.500								
1,2-Dichlorobenzene	ND	0.500								
1,3-Dichlorobenzene	ND	0.500								
1,4-Dichlorobenzene	ND	0.500								
Dichlorodifluoromethane	ND	0.500								
1,1-Dichloroethane	ND	0.500								
1,1-Dichloroethene	ND	0.500								
1,2-Dichloropropane	ND	0.500								
1,3-Dichloropropane	ND	0.500								
2,2-Dichloropropane	ND	0.500								
1,1-Dichloropropene	ND	0.500								
Hexachlorobutadiene	ND	0.500								
2-Hexanone	ND	0.500								
Isopropylbenzene	ND	0.500								
Methylene Chloride	ND	2.50								
n-Butylbenzene	ND	0.500								
n-Propylbenzene	ND	0.500								
sec-Butylbenzene	ND	0.500								
Styrene	ND	0.500								
tert-Butylbenzene	ND	0.500								
1,1,1,2-Tetrachloroethane	ND	0.500								
1,1,2,2-Tetrachloroethane	ND	0.500								
Tetrachloroethene (PCE)	ND	0.500								
trans-1,2-DCE	ND	0.500								
trans-1,3-Dichloropropene	ND	0.500								
1,2,3-Trichlorobenzene	ND	0.500								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.500								
1,1,1-Trichloroethane	ND	0.500								
1,1,2-Trichloroethane	ND	0.500								
Trichloroethene (TCE)	ND	0.500								
Trichlorofluoromethane	ND	0.500								
1,2,3-Trichloropropane	ND	0.500								
Vinyl chloride	ND	0.500								
Xylenes, Total	ND	1.00								
mp-Xylenes	ND	1.00								
o-Xylene	ND	0.500								
tert-Amyl methyl ether	ND	0.500								
tert-Butyl alcohol	ND	0.500								
Acrolein	ND	0.500								
Acrylonitrile	ND	0.500								
Bromochloromethane	ND	0.500								
2-Chloroethyl vinyl ether	ND	0.500								
Iodomethane	ND	0.500								
trans-1,4-Dichloro-2-butene	ND	0.500								
Vinyl acetate	ND	0.500								
1,4-Dioxane	ND	0.500								
Surr: 1,2-Dichloroethane-d4	0		10.00		0	70	130			S
Surr: 4-Bromofluorobenzene	0		10.00		0	70	130			S
Surr: Toluene-d8	0		10.00		0	70	130			S

Sample ID **LCS-R22819**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673563** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.77		10.00	0	97.7	80	120			
Toluene	10.0		10.00	0	100	80	120			
Ethylbenzene	10.0		10.00	0	100	80	120			
Chlorobenzene	9.99		10.00	0	99.9	80	120			
1,1-Dichloroethene	9.57		10.00	0	95.7	80	120			
Trichloroethene (TCE)	9.91		10.00	0	99.1	80	120			
o-Xylene	10.6		10.00	0	106	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/14/2014**	SeqNo: **676667** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetophenone	ND	10								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/14/2014**	SeqNo: **676667** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	10								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	10								
1,2,4,5-Tetrachlorobenzene	ND	10								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/14/2014**	SeqNo: **676668** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.4		5.000	0	108	49	134			
2-Chlorophenol	4.8		5.000	0	96.4	50	131			
4-Chloro-3-methylphenol	5.8		5.000	0	115	42	139			
4-Nitrophenol	3.9		5.000	0	78.4	19	137			
Acenaphthene	5.3		5.000	0	105	36	122			
Bis(2-ethylhexyl)phthalate	6.0		5.000	0	120	43	142			
N-Nitrosodi-n-propylamine	5.1		5.000	0	102	46	135			
Pentachlorophenol	4.8		5.000	0	95.2	22	138			
Phenol	4.4		5.000	0	88.0	45	134			
Pyrene	5.9		5.000	0	117	45	138			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**MB-16357**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**16357**	RunNo:	**22512**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664165**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-16357**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**16357**	RunNo:	**22512**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664166**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.5	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16358**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **16358**	RunNo: **22521**
Prep Date: **11/12/2014**	Analysis Date: **11/13/2014**	SeqNo: **664178** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-16358**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **16358**	RunNo: **22521**
Prep Date: **11/12/2014**	Analysis Date: **11/13/2014**	SeqNo: **664179** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16345**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663247** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-16345**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663248** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	103	80	120			
Barium	ND	100	0.5000	0	98.9	80	120			
Cadmium	ND	1.0	0.5000	0	99.2	80	120			
Chromium	ND	5.0	0.5000	0	98.1	80	120			
Lead	ND	5.0	0.5000	0	95.2	80	120			
Selenium	ND	1.0	0.5000	0	97.9	80	120			
Silver	ND	5.0	0.1000	0	99.9	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-16345	SampType:	MBLK	TestCode:	EPA 6010B: Total Metals		
Client ID:	PBW	Batch ID:	16345	RunNo:	22489		
Prep Date:	11/11/2014	Analysis Date:	11/12/2014	SeqNo:	663203	Units:	mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID	LCS-16345	SampType:	LCS	TestCode:	EPA 6010B: Total Metals		
Client ID:	LCSW	Batch ID:	16345	RunNo:	22489		
Prep Date:	11/11/2014	Analysis Date:	11/12/2014	SeqNo:	663204	Units:	mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	103	80	120			
Antimony	0.50	0.050	0.5000	0	99.3	80	120			
Arsenic	0.52	0.020	0.5000	0	103	80	120			
Barium	0.49	0.020	0.5000	0	98.9	80	120			
Beryllium	0.52	0.0030	0.5000	0	104	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.2	80	120			
Calcium	51	1.0	50.00	0	102	80	120			
Chromium	0.49	0.0060	0.5000	0	98.1	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.9	80	120			
Copper	0.50	0.0060	0.5000	0	100	80	120			
Iron	0.49	0.050	0.5000	0	98.8	80	120			
Lead	0.48	0.0050	0.5000	0	95.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-16345**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663204** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	50	1.0	50.00	0	100	80	120			
Manganese	0.49	0.0020	0.5000	0	97.2	80	120			
Nickel	0.48	0.010	0.5000	0	95.5	80	120			
Potassium	47	1.0	50.00	0	94.6	80	120			
Selenium	0.49	0.050	0.5000	0	97.9	80	120			
Silver	0.10	0.0050	0.1000	0	99.9	80	120			
Thallium	0.48	0.050	0.5000	0	96.1	80	120			
Vanadium	0.52	0.050	0.5000	0	104	80	120			
Zinc	0.49	0.020	0.5000	0	98.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **677093** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **677094** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.532		0.5000	0	106	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**							
Prep Date:	Analysis Date: **11/21/2014**	SeqNo: **677096**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**							
Prep Date:	Analysis Date: **11/21/2014**	SeqNo: **677097**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663098**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663099**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	99.3	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663121**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663122**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	99.5	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **1411288-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R22669** RunNo: **22669**

Prep Date: Analysis Date: **11/20/2014** SeqNo: **668670** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.0500	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16340**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **16340**	RunNo: **22490**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663255** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-16340**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **16340**	RunNo: **22490**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663256** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1411288 RcptNo: 1

Received by/date: 11/07/14
Logged By: Ashley Gallegos 11/7/2014 9:20:00 AM
Completed By: Ashley Gallegos 11/7/2014 11:25:06 AM
Reviewed By: CS 11/07/14

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☑ No ☑ No VOA Vials ☐ my 11/07/14
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 3 2 (<2 or >12 unless noted)
Adjusted? No
Checked by: my

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks: All VOA's including trip blank have bubbles. my 11/07/14

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

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Received by OCD: 5/16/2022 2:12:41 PM

Chain of Custody Record

Client: Navajo Refining Co.	☐ Standar ☐ Rush
	Project Name: Quarterly WDW-1, 2, & 3 Inj Well
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Dan Crawford
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler:
	On Ice: X Yes ☐ No
	Sample Temperature: 1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1411283	Analysis Request: Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
11/6/14	~~9:00~~ 10:30am	Liquid	Trip Blank	2	Neat	-002		X					
11/6/14	~~9:00~~ 10:30am	Liquid	Temperature Blank	1	Neat								

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/6/14	10:30am	Elizabeth Salsberry			
Date:	Time:	Relinquished by:	Received by:	11/07/14	0920

Remarks: Report these results separately from all other Chain of Custody kits provided.
pH: 7.30
temp of sample: 44.4°C
Temp: 54°F windspeed 8.1mp
humidity: 43% conditi
wind direction: NNE cl

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name:	WDW-1,2, & 3 Qrtly Inj Well
Sampler's Name:	Aaron Strange
Sampler's Affiliation:	Navajo Refining Co. LLC
Start Date and Time:	11/6/2014 @ 10:30
End Date and Time:	11/6/2014 @ 10:30

Sample Type:	
Grab:	☑
Time Weighted Composite:	☐
Flow Weighted Composite:	☐

Physical Property:	
Solid:	☐
Liquid:	☑
Sludge:	☐

Parts / Sample Intervals:	One

Type of Sample:	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☐ P-854 sample point (second from east)
☑ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

Container	Size	Material	# of Containers	Preservatives: None	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp: 54 humidity:43% wind direction:NNE Wind speed: 8.1 mph condition: clear

Date and Time:

Field Temp. 44.4 C Field pH 7.30

Storage Method:	
Ice:	☑
Refrigerated:	☐
Other:	☐

Shipping Media:	
Ice:	☑
Other:	☐

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Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☐ Standar ☐ **Rush**

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Dan Crawford

Sampler:

On Ice: ☐ Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4		X						X
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
11/6/14	~~9:00~~ 10:30am	Liquid	Trip Blank	2	Neat			X					
11/6/14	~~9:00~~ 10:30am	Liquid	Temperature Blank	1	Neat								

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/6/14	10:30am	Elizabeth Salsberry			
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.

pH: 7.30

temp of sample: 44.4°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HOLLYFRONTIER

October 27, 2014

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7007 3020 0000 3028 9359

RE: 2014 3rd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1260 psig and the average flows were 105 gpm for WDW-1, 98 gpm for WDW-2 and 106 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2014 to September 30, 2014. We have disposed a total of 976,643 barrels of fluid into the three wells during the third quarter of 2014. The volume per well is:

- 423,882 barrels into WDW-1
- 143,954 barrels into WDW-2
- 408,807 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/3rd quarter/2014-10-27 3rd QTR Inj Rpt for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2014 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	35,238,254
Jul-14	1,241	1,275	970	153	393	140	722	819	179	5,246	13,474	4,800	163,199	35,401,453
Aug-14	1,235	1,275	996	138	144	112	550	769	79	4,731	4,937	3,840	146,646	35,548,099
Sep-14	1,305	1,350	1,273	111	143	76	110	361	0	3,806	4,903	2,606	114,037	35,662,136
WDW-2													**Previous Quarter**	22,198,479
Jul-14	1,241	1,275	983	35	37	11	573	943	265	1,200	1,269	377	37,182	22,235,661
Aug-14	1,235	1,275	1,011	33	37	10	320	402	271	1,131	1,269	343	34,872	22,270,533
Sep-14	1,303	1,350	1,265	70	129	33	285	304	268	2,400	4,423	1,131	71,900	22,342,432
WDW-3													**Previous Quarter**	12,357,942
Jul-14	1,238	1,275	987	128	140	15	914	1,023	260	4,389	4,800	514	136,278	12,494,220
Aug-14	1,239	1,275	1,012	123	137	13	811	935	308	4,217	4,697	446	130,920	12,625,140
Sep-14	1,301	1,350	1,143	138	150	80	782	976	560	4,731	5,143	2,743	141,609	12,766,749
													Total Injected fluids:	70,771,318

T:\Injection Wells\Reports C-115 and Quarterly\2014\3rd quarter\
3rd 2014 qtrly rpt data
Injection fluids

10/24/20142:11 PM

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Navajo Refining Company, L.L.C.

2014 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/1/14	7/7/14	7/14/14	7/22/14	7/28/14	8/4/14	8/11/14	8/18/14	8/26/14	9/3/14	9/8/14	9/15/14	9/22/14	9/29/14
WDW -1[1]	150	145	145	145	145	145	145	145	145	145	145	145	145	145
WDW-2[1]	130	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	145	145	145	145	145	145	145	145	145	145	145	145	145	145
Comments: WDW-2 Minor surface tubing leak identified and repaired week of 7/7.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

T:\Injection Wells\Reports C-115 and Quarterly\2014\3rd quarter\
3rd 2014 qtrly rpt data
WAMS Tanks

10/24/201411:11 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 09, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1409594

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/12/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1409594**
Date: **10/9/2014**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Fluoride	7.0	2.0	*	mg/L	20	9/13/2014 4:23:10 AM	R21201
Chloride	350	10		mg/L	20	9/13/2014 4:23:10 AM	R21201
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Bromide	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	9/13/2014 4:23:10 AM	R21201
Sulfate	2500	50		mg/L	100	9/19/2014 12:23:58 AM	R21321
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	9/18/2014 1:55:03 PM	15362
MERCURY, TCLP						Analyst: **JLF**	
Mercury	ND	0.020		mg/L	1	9/23/2014 11:17:20 AM	15428
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Barium	ND	100		mg/L	1	9/20/2014 10:20:57 AM	15405
Cadmium	ND	1.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Chromium	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Lead	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Selenium	ND	1.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Silver	ND	5.0		mg/L	1	9/25/2014 12:34:33 PM	15405
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	0.18	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Antimony	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Arsenic	0.061	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Barium	0.022	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Beryllium	ND	0.0030		mg/L	1	9/20/2014 9:40:32 AM	15405
Cadmium	ND	0.0020		mg/L	1	9/20/2014 9:40:32 AM	15405
Calcium	80	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Chromium	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Cobalt	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Copper	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Iron	0.50	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Lead	ND	0.0050		mg/L	1	9/20/2014 9:40:32 AM	15405
Magnesium	28	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Manganese	0.21	0.0020		mg/L	1	9/20/2014 9:40:32 AM	15405
Nickel	0.012	0.010		mg/L	1	9/20/2014 9:40:32 AM	15405
Potassium	58	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Selenium	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	9/23/2014 1:35:48 PM	15405
Thallium	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Titanium	ND	0.0050		mg/L	1	9/20/2014 9:40:32 AM	15405
Silica	9.8	1.1		mg/L	1	9/20/2014 9:40:32 AM	15405
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	73	0.50		µg/L	1	9/24/2014	R21755
Allyl chloride	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroprene	ND	0.50		µg/L	1	9/24/2014	R21755
Cyclohexane	ND	0.50		µg/L	1	9/24/2014	R21755
Diethyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Diisopropyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Epichlorohydrin	ND	5.0		µg/L	1	9/24/2014	R21755
Ethyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Ethyl methacrylate	ND	0.50		µg/L	1	9/24/2014	R21755
Ethyl tert-butyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Freon-113	ND	0.50		µg/L	1	9/24/2014	R21755
Isobutanol	ND	50		µg/L	1	9/24/2014	R21755
Isopropyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Methacrylonitrile	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl ethyl ketone	ND	2.5		µg/L	1	9/24/2014	R21755
Methyl isobutyl ketone	ND	2.5		µg/L	1	9/24/2014	R21755
Methyl methacrylate	ND	0.50		µg/L	1	9/24/2014	R21755
Methylcyclohexane	ND	1.0		µg/L	1	9/24/2014	R21755
n-Amyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
n-Hexane	ND	0.50		µg/L	1	9/24/2014	R21755
Nitrobenzene	ND	5.0		µg/L	1	9/24/2014	R21755
Pentachloroethane	ND	5.0		µg/L	1	9/24/2014	R21755
p-isopropyltoluene	ND	0.50		µg/L	1	9/24/2014	R21755
Propionitrile	0.97	0.50		µg/L	1	9/24/2014	R21755
Tetrahydrofuran	ND	0.50		µg/L	1	9/24/2014	R21755
Benzene	ND	0.50		µg/L	1	9/24/2014	R21755
Toluene	ND	0.50		µg/L	1	9/24/2014	R21755
Ethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	9/24/2014	R21755
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	9/24/2014	R21755

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Naphthalene	ND	0.50		µg/L	1	9/24/2014	R21755
Acetone	18	2.5		µg/L	1	9/24/2014	R21755
Bromobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Bromodichloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
Bromoform	ND	0.50		µg/L	1	9/24/2014	R21755
Bromomethane	ND	0.50		µg/L	1	9/24/2014	R21755
Carbon disulfide	0.56	0.50		µg/L	1	9/24/2014	R21755
Carbon Tetrachloride	ND	0.50		µg/L	1	9/24/2014	R21755
Chlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroform	ND	0.50		µg/L	1	9/24/2014	R21755
Chloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
2-Chlorotoluene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Chlorotoluene	ND	0.50		µg/L	1	9/24/2014	R21755
cis-1,2-DCE	ND	0.50		µg/L	1	9/24/2014	R21755
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
Dibromochloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
Dibromomethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,3-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,4-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Dichlorodifluoromethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloroethene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
1,3-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
2,2-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
Hexachlorobutadiene	ND	0.50		µg/L	1	9/24/2014	R21755
2-Hexanone	ND	0.50		µg/L	1	9/24/2014	R21755
Isopropylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Isopropyltoluene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Methyl-2-pentanone	ND	0.50		µg/L	1	9/24/2014	R21755
Methylene Chloride	ND	2.5		µg/L	1	9/24/2014	R21755
n-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
n-Propylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
sec-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Styrene	ND	0.50		µg/L	1	9/24/2014	R21755

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
tert-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,2-DCE	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,1-Trichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,2-Trichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Trichloroethene (TCE)	ND	0.50		µg/L	1	9/24/2014	R21755
Trichlorofluoromethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,3-Trichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
Vinyl chloride	ND	0.50		µg/L	1	9/24/2014	R21755
Xylenes, Total	ND	1.0		µg/L	1	9/24/2014	R21755
mp-Xylenes	ND	1.0		µg/L	1	9/24/2014	R21755
o-Xylene	ND	0.50		µg/L	1	9/24/2014	R21755
tert-Amyl methyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
tert-Butyl alcohol	23	0.50		µg/L	1	9/24/2014	R21755
Acrolein	ND	0.50		µg/L	1	9/24/2014	R21755
Acrylonitrile	ND	10		µg/L	1	9/24/2014	R21755
Bromochloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Iodomethane	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	9/24/2014	R21755
Vinyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
1,4-Dioxane	ND	20		µg/L	1	9/24/2014	R21755
Surr: 1,2-Dichloroethane-d4	110	70-130		%REC	1	9/24/2014	R21755
Surr: 4-Bromofluorobenzene	99.6	70-130		%REC	1	9/24/2014	R21755
Surr: Toluene-d8	104	70-130		%REC	1	9/24/2014	R21755
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	9/23/2014	R21755
Atrazine	ND	5.0		µg/L	1	9/23/2014	R21755
Benzaldehyde	ND	5.0		µg/L	1	9/23/2014	R21755
Caprolactam	ND	5.0		µg/L	1	9/23/2014	R21755
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	9/23/2014	R21755
Acetophenone	ND	10		µg/L	1	9/23/2014	R21755
1-Methylnaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	9/23/2014	R21755

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Qualifiers:

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O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
2,4,5-Trichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4,6-Trichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dimethylphenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dinitrophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dinitrotoluene	ND	10		µg/L	1	9/23/2014	R21755
2,6-Dinitrotoluene	ND	10		µg/L	1	9/23/2014	R21755
2-Chloronaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2-Chlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2-Methylnaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2-Methylphenol	ND	10		µg/L	1	9/23/2014	R21755
2-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
2-Nitrophenol	ND	10		µg/L	1	9/23/2014	R21755
3,3'-Dichlorobenzidine	ND	10		µg/L	1	9/23/2014	R21755
3-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	9/23/2014	R21755
4-Bromophenyl phenyl ether	ND	10		µg/L	1	9/23/2014	R21755
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/23/2014	R21755
4-Chloroaniline	ND	10		µg/L	1	9/23/2014	R21755
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	9/23/2014	R21755
4-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
4-Nitrophenol	ND	10		µg/L	1	9/23/2014	R21755
Acenaphthene	ND	10		µg/L	1	9/23/2014	R21755
Acenaphthylene	ND	10		µg/L	1	9/23/2014	R21755
Anthracene	ND	10		µg/L	1	9/23/2014	R21755
Benzo(g,h,i)perylene	ND	10		µg/L	1	9/23/2014	R21755
Benz(a)anthracene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(a)pyrene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(b)fluoranthene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(k)fluoranthene	ND	0.10		µg/L	1	9/23/2014	R21755
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-chloroethyl)ether	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/23/2014	R21755
Butyl benzyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Carbazole	ND	10		µg/L	1	9/23/2014	R21755
Chrysene	ND	0.10		µg/L	1	9/23/2014	R21755
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	9/23/2014	R21755
Dibenzofuran	ND	10		µg/L	1	9/23/2014	R21755

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Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Diethyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Dimethyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Di-n-butyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Di-n-octyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Fluoranthene	ND	10		µg/L	1	9/23/2014	R21755
Fluorene	ND	10		µg/L	1	9/23/2014	R21755
Hexachlorobenzene	ND	1.0		µg/L	1	9/23/2014	R21755
Hexachlorobutadiene	ND	10		µg/L	1	9/23/2014	R21755
Hexachlorocyclopentadiene	ND	10		µg/L	1	9/23/2014	R21755
Hexachloroethane	ND	10		µg/L	1	9/23/2014	R21755
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	9/23/2014	R21755
Isophorone	ND	10		µg/L	1	9/23/2014	R21755
Naphthalene	ND	10		µg/L	1	9/23/2014	R21755
Nitrobenzene	ND	10		µg/L	1	9/23/2014	R21755
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	9/23/2014	R21755
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	9/23/2014	R21755
Pentachlorophenol	ND	10		µg/L	1	9/23/2014	R21755
Phenanthrene	ND	10		µg/L	1	9/23/2014	R21755
Phenol	ND	5.0		µg/L	1	9/23/2014	R21755
Pyrene	ND	10		µg/L	1	9/23/2014	R21755
o-Toluidine	ND	5.0		µg/L	1	9/23/2014	R21755
Pyridine	ND	5.0		µg/L	1	9/23/2014	R21755
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	9/23/2014	R21755
Surr: 2,4,6-Tribromophenol	80.2	10-123		%REC	1	9/23/2014	R21755
Surr: 2-Fluorobiphenyl	100	19-130		%REC	1	9/23/2014	R21755
Surr: 2-Fluorophenol	77.0	21-110		%REC	1	9/23/2014	R21755
Surr: Nitrobenzene-d5	91.2	25-130		%REC	1	9/23/2014	R21755
Surr: Phenol-d5	94.4	10-125		%REC	1	9/23/2014	R21755
Surr: Terphenyl-d14	39.9	33-141		%REC	1	9/23/2014	R21755
CORROSIVITY							Analyst: **SUB**
pH	6.61			pH Units	1	9/18/2014	R21755
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	9/24/2014	R21755
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	9/25/2014	R21755
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	9/30/2014	R21755

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Qualifiers:

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Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5400	0.010		µmhos/cm	1	9/19/2014 8:48:13 PM	R21338
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	120	20		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
Total Alkalinity (as CaCO3)	120	20		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
SPECIFIC GRAVITY						Analyst: **SRM**	
Specific Gravity	1.001	0			1	9/23/2014 4:39:00 PM	R21384
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4700	20.0	*	mg/L	1	9/17/2014 10:23:00 AM	15289

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
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S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617354** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.9	0.50	5.000	0	97.9	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	97.0	90	110			
Bromide	2.4	0.10	2.500	0	96.4	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	103	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617410** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617411** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	103	90	110			
Chloride	4.7	0.50	5.000	0	94.7	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.9	90	110			
Bromide	2.4	0.10	2.500	0	96.7	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617411** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.1	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.5	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21321**	RunNo: **21321**
Prep Date:	Analysis Date: **9/18/2014**	SeqNo: **622134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21321**	RunNo: **21321**
Prep Date:	Analysis Date: **9/18/2014**	SeqNo: **622135** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.6	0.50	10.00	0	96.2	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	0.50								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	50								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Methylcyclohexane	ND	1.0								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	5.0								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	0.50								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	10								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
4-Isopropyltoluene	ND	0.50								
4-Methyl-2-pentanone	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
Xylenes, Total	ND	1.0								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	10								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	20								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638769** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.9		10.00	0	99.2	80	120			
Toluene	10		10.00	0	102	80	120			
Ethylbenzene	10		10.00	0	99.6	80	120			
Chlorobenzene	9.9		10.00	0	99.3	80	120			
1,1-Dichloroethene	9.2		10.00	0	91.9	80	120			
Tetrachloroethene (PCE)	9.8		10.00	0	98.4	80	120			
Trichloroethene (TCE)	9.5		10.00	0	95.2	80	120			
o-Xylene	10		10.00	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638842** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	10								
Atrazine	ND	10								
Caprolactam	ND	10								
N-Nitroso-di-n-butylamine	ND	10								
Acetophenone	ND	10								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638842** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	10								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	10								
o-Toluidine	ND	10								
Pyridine	ND	10								
1,2,4,5-Tetrachlorobenzene	ND	10								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638843** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	3.1		5.000	0	61.2	49	134			
2-Chlorophenol	3.4		5.000	0	67.6	50	131			
4-Chloro-3-methylphenol	3.3		5.000	0	66.4	42	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638843** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Nitrophenol	2.6		5.000	0	53.0	19	137			
Acenaphthene	4.0		5.000	0	79.6	36	122			
Bis(2-ethylhexyl)phthalate	3.9		5.000	0	78.2	43	142			
N-Nitrosodi-n-propylamine	4.1		5.000	0	82.0	46	135			
Pentachlorophenol	2.5		5.000	0	49.6	22	138			
Phenol	3.7		5.000	0	73.4	45	134			
Pyrene	3.6		5.000	0	73.0	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-15362	SampType:	MBLK		TestCode:	EPA Method 7470: Mercury				
Client ID:	PBW	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621116	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-15362	SampType:	LCS		TestCode:	EPA Method 7470: Mercury				
Client ID:	LCSW	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621117	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	105	80	120			

Sample ID	1409594-001BMS	SampType:	MS		TestCode:	EPA Method 7470: Mercury				
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621119	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	100	75	125			

Sample ID	1409594-001BMSD	SampType:	MSD		TestCode:	EPA Method 7470: Mercury				
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621120	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	101	75	125	0.392	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15428**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **15428**	RunNo: **21367**							
Prep Date: **9/22/2014**	Analysis Date: **9/23/2014**	SeqNo: **623963**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-15428**	SampType: **LCS**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSW**	Batch ID: **15428**	RunNo: **21367**							
Prep Date: **9/22/2014**	Analysis Date: **9/23/2014**	SeqNo: **623964**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.4	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **626611** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **626612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	106	80	120			
Barium	ND	100	0.5000	0	101	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	100	80	120			
Lead	ND	5.0	0.5000	0	98.6	80	120			
Selenium	ND	1.0	0.5000	0	104	80	120			

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **626633** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	5.0								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **626634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	5.0	0.1000	0	104	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409594

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622303** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Thallium	ND	0.050								
Titanium	ND	0.0050								
Silica	ND	1.1								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.57	0.020	0.5000	0	114	80	120			
Antimony	0.50	0.050	0.5000	0	100	80	120			
Arsenic	0.53	0.020	0.5000	0	106	80	120			
Barium	0.50	0.020	0.5000	0	101	80	120			
Beryllium	0.53	0.0030	0.5000	0	106	80	120			
Cadmium	0.51	0.0020	0.5000	0	102	80	120			
Calcium	52	1.0	50.00	0	105	80	120			
Chromium	0.50	0.0060	0.5000	0	100	80	120			
Cobalt	0.49	0.0060	0.5000	0	97.9	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.51	0.050	0.5000	0	101	80	120			
Lead	0.49	0.0050	0.5000	0	98.6	80	120			
Magnesium	52	1.0	50.00	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.50	0.0020	0.5000	0	100	80	120			
Nickel	0.49	0.010	0.5000	0	98.7	80	120			
Potassium	49	1.0	50.00	0	98.1	80	120			
Selenium	0.52	0.050	0.5000	0	104	80	120			
Thallium	0.49	0.050	0.5000	0	97.7	80	120			
Titanium	0.52	0.0050	0.5000	0	104	80	120			
Silica	5.6	1.1	5.350	0	104	80	120			

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **624518** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.0050								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **624519** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.10	0.0050	0.1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/25/2014**	SeqNo: **639462** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/25/2014**	SeqNo: **639463** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.487		0.5000	0	97.4	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**MB-R21755**	SampType:	**MBLK**		TestCode:	**SULFIDE, Reactive**				
Client ID:	**PBW**	Batch ID:	**R21755**		RunNo:	**21755**				
Prep Date:		Analysis Date:	**9/30/2014**		SeqNo:	**639465**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID	**LCS-R21755**	SampType:	**LCS**		TestCode:	**SULFIDE, Reactive**				
Client ID:	**LCSW**	Batch ID:	**R21755**		RunNo:	**21755**				
Prep Date:		Analysis Date:	**9/30/2014**		SeqNo:	**639466**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.16		0.2000	0	80.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622910**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622911**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	99.6	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622914**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622915**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	81	20	80.00	0	102	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**1409594-001ADUP**	SampType:	**DUP**	TestCode:	**Specific Gravity**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**R21384**	RunNo:	**21384**					
Prep Date:		Analysis Date:	**9/23/2014**	SeqNo:	**624495**	Units:				

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.000	0						0.110	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15289**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **15289**	RunNo: **21253**
Prep Date: **9/15/2014**	Analysis Date: **9/17/2014**	SeqNo: **619558** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-15289**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **15289**	RunNo: **21253**
Prep Date: **9/15/2014**	Analysis Date: **9/17/2014**	SeqNo: **619559** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1409594 RcptNo: 1

Received by/date: 09/12/14

Logged By: Lindsay Mangin 9/12/2014 9:45:00 AM

Completed By: Lindsay Mangin 9/12/2014 10:09:46 AM

Reviewed By: 09/12/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 2 (2) (<2 or >12 unless noted)

Adjusted? no

Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain of Custody Record

Client: Navajo Refining Co.	☐ Standar ☐ Rush
	Project Name:
Mailing Address: P.O. Box 159 Artesia,	Quarterly WDW-1, 2, & 3 Inj Well
NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager:
QA/QC Package:	Dan Crawford
☐ Standard ☐ Level 4 (Full Validation)	Sampler: Steven URBAN
☐ Other _____	On Ice: ☑ Yes ☐ No
☐ EDD (Type) _____	Sample Temperature: 2.5 + 0.2 = 2.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1409592	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
~~9/11/14~~	~~9:30~~	Liquid	Trip Blank	~~2~~	~~Neat~~	-002	CS 09/12/14	X					
9/11/14	9:30	Liquid	Temperature Blank	1	Neat	-							

Date:	Time:	Relinquished by:	Received by:	Date	Time
9-11-14	10:08	Steven URBAN		09/12/14	0945
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.

The trip blank sample was not recieved.
—CS 09/12/14

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Page 1990 of 5828

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Steven Urban
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	9/11/2014 @ 9:58
End Date and Time	9/11/2014 @ 10:08

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east) ☐ P-856 sample point (third from east)
☐ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): 6/11/2014 08:51 Tmp. 72.0, Humidity 68%, Wind Dir. SE, Wind Speed 8.1 mph, Conditions Overcast
Date and Time:

Field Temp. 113 °F Field pH 6.48

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

Received by OCD: 5/16/2022 2:12:41 PM
Released to Imaging: 7/12/2024 10:49:45 AM

HOLLYFRONTIER.

July 30, 2014

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7007 3020 0000 3028 8413

RE: 2014 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1180 psig and the average flows were 134 gpm for WDW-1, 132 gpm for WDW-2 and 111 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS) although minor above ground tubing leaks at two of the wells were identified and repaired. The quarterly effluent analyses indicated parameters are within limits.

This report covers the period from April 1, 2014 to June 30, 2014. We have disposed a total of 1,179,825 barrels of fluid into the three wells during the second quarter of 2014. The volume per well is:

- 421,136 barrels into WDW-1
- 412,743 barrels into WDW-2
- 345,946 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): D Crawford, R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/2nd quarter/2014-07-31 2nd QTR Inj Rpt for Wells WDW-1,2,3

Released to Imaging: 7/12/2024 10:49:45 AM

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Navajo Refining Company, L.L.C.

2014 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	34,814,372
Apr-14	1,198	1,226	1,138	136	140	129	335	483	202	4,663	4,800	4,423	140,351	34,954,723
May-14	1,173	1,250	947	133	147	115	508	874	189	4,560	5,040	3,943	141,827	35,096,550
Jun-14	1,194	1,261	972	135	144	121	746	993	232	4,629	4,937	4,149	138,958	35,235,507
WDW-2													**Previous Quarter**	22,054,526
Apr-14	1,192	1,226	1,109	211	347	109	477	630	241	7,234	11,897	3,737	216,878	22,271,404
May-14	1,163	1,248	958	98	121	34	662	1,251	198	3,360	4,149	1,166	103,840	22,375,244
Jun-14	1,206	1,265	1,155	89	116	32	537	1,018	146	3,051	3,977	1,097	92,025	22,467,269
WDW-3													**Previous Quarter**	11,949,135
Apr-14	1,176	1,225	1,100	119	133	96	462	698	268	4,080	4,560	3,291	122,621	12,071,756
May-14	1,139	1,250	961	100	140	11	519	999	226	3,429	4,800	377	106,412	12,178,167
Jun-14	1,184	1,248	989	114	133	27	572	876	267	3,909	4,560	926	116,913	12,295,081
													Total Injected fluids:	69,997,857

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Navajo Refining Company, L.L.C.

2014 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/7/14	4/14/14	4/22/14	4/28/14	5/5/14	5/16/14	5/23/14	5/29/14	6/2/14	6/9/14	6/17/14	6/25/14		
WDW -1[1]	145	145	145	145	145	140	140	135	130	125	100	100		
WDW-2[1]	150	150	150	150	150	145	145	145	145	145	145	130		
WDW-3[1]	145	145	145	145	145	145	145	145	145	145	145	145		
Comments: 6/9/14 small tubing leak at WDW-1 reported and repaired. 6/17/14 a second tubing leak at WDW-1 was reported and repaired. 6/25/14 small tubing leak at WDW-2 reported and repaired.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Aaron Strange
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	6/19/2014 @ 09:25
End Date and Time	6/19/2014 @ 09:35

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Parts / Sample Intervals	One

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives							
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): 6/19/2014 09:35 Tmp. 77.0, Humidity 61%, Wind Dir. N, Wind Speed 10.4 mph, Conditions Clear
Date and Time:

Field Temp. 116.6°F Field pH 7.37

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 17, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: WDW-1, 2, & 3 Qtrly Inj Well OrderNo.: 1406935

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/19/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1406935**
Date: **7/17/2014**

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	28	2.0	*	mg/L	20	6/19/2014 5:43:17 PM	R19410
Chloride	290	10		mg/L	20	6/19/2014 5:43:17 PM	R19410
Nitrogen, Nitrite (As N)	1.5	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Bromide	0.72	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	6/19/2014 5:30:53 PM	R19410
Sulfate	2600	50		mg/L	100	7/7/2014 4:18:15 PM	R19725
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	6/26/2014 9:07:50 AM	13883
MERCURY, TCLP						Analyst: **MMD**	
Mercury	ND	0.020		mg/L	1	7/8/2014 12:50:03 PM	14082
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Barium	ND	100		mg/L	1	7/8/2014 12:02:28 PM	14080
Cadmium	ND	1.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Chromium	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Lead	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Selenium	ND	1.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Silver	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	1.2	0.020		mg/L	1	7/11/2014 10:29:51 AM	14172
Antimony	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Arsenic	0.027	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
Barium	ND	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
Beryllium	ND	0.0030		mg/L	1	7/7/2014 12:25:17 PM	14075
Cadmium	ND	0.0020		mg/L	1	7/7/2014 12:25:17 PM	14075
Calcium	27	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Chromium	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Cobalt	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Copper	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Iron	0.21	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Lead	ND	0.0050		mg/L	1	7/7/2014 12:25:17 PM	14075
Magnesium	9.2	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Manganese	0.032	0.0020		mg/L	1	7/7/2014 12:25:17 PM	14075
Nickel	ND	0.010		mg/L	1	7/7/2014 12:25:17 PM	14075
Potassium	69	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Selenium	0.069	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	7/7/2014 12:25:17 PM	14075
Sodium	1200	20		mg/L	20	7/7/2014 12:31:46 PM	14075
Thallium	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Vanadium	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Zinc	ND	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Ethyl tert-butyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Acetonitrile	ND	0.50		µg/L	1	6/26/2014	R19890
Allyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroprene	ND	0.50		µg/L	1	6/26/2014	R19890
Cyclohexane	ND	2.5		µg/L	1	6/26/2014	R19890
Diethyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Diisopropyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Epichlorohydrin	ND	5.0		µg/L	1	6/26/2014	R19890
Ethyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Ethyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Freon-113	ND	0.50		µg/L	1	6/26/2014	R19890
Isobutanol	ND	50		µg/L	1	6/26/2014	R19890
Isopropyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methacrylonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl ethyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl isobutyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Methylcyclohexane	ND	1.0		µg/L	1	6/26/2014	R19890
n-Amyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
n-Hexane	ND	0.50		µg/L	1	6/26/2014	R19890
Nitrobenzene	ND	5.0		µg/L	1	6/26/2014	R19890
Pentachloroethane	ND	5.0		µg/L	1	6/26/2014	R19890
p-isopropyltoluene	ND	0.50		µg/L	1	6/26/2014	R19890
Propionitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Tetrahydrofuran	ND	0.50		µg/L	1	6/26/2014	R19890
Benzene	0.64	0.50		µg/L	1	6/26/2014	R19890
Toluene	ND	0.50		µg/L	1	6/26/2014	R19890
Ethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	6/26/2014	R19890
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	6/26/2014	R19890
Naphthalene	ND	0.50		µg/L	1	6/26/2014	R19890
Acetone	15	2.5		µg/L	1	6/26/2014	R19890
Bromobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Bromodichloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Bromoform	ND	0.50		µg/L	1	6/26/2014	R19890
Bromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon disulfide	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon Tetrachloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroform	ND	0.50		µg/L	1	6/26/2014	R19890
Chloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
4-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Dichlorodifluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
2,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
Hexachlorobutadiene	ND	0.50		µg/L	1	6/26/2014	R19890
2-Hexanone	ND	0.50		µg/L	1	6/26/2014	R19890
Isopropylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methylene Chloride	ND	2.5		µg/L	1	6/26/2014	R19890
n-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
n-Propylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
sec-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Styrene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/26/2014	R19890
Trichlorofluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
mp-Xylenes	ND	1.0		µg/L	1	6/26/2014	R19890
o-Xylene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Amyl methyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butyl alcohol	ND	10		µg/L	1	6/26/2014	R19890
Acrolein	ND	2.5		µg/L	1	6/26/2014	R19890
Acrylonitrile	ND	10		µg/L	1	6/26/2014	R19890
Bromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	6/26/2014	R19890
Iodomethane	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dioxane	ND	20		µg/L	1	6/26/2014	R19890
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	6/26/2014	R19890
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	6/26/2014	R19890
Surr: Toluene-d8	101	70-130		%REC	1	6/26/2014	R19890
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	0.10		µg/L	1	6/26/2014	R19935
Atrazine	ND	0.10		µg/L	1	6/26/2014	R19935
Benzaldehyde	ND	0.10		µg/L	1	6/26/2014	R19935
Caprolactam	ND	0.10		µg/L	1	6/26/2014	R19935
N-Nitroso-di-n-butylamine	ND	0.10		µg/L	1	6/26/2014	R19935
Acetophenone	ND	10		µg/L	1	6/26/2014	R19935
1-Methylnaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4,5-Trichlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4,6-Trichlorophenol	ND	10		µg/L	1	6/26/2014	R19935

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
2,4-Dichlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dimethylphenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dinitrophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dinitrotoluene	ND	10		µg/L	1	6/26/2014	R19935
2,6-Dinitrotoluene	ND	10		µg/L	1	6/26/2014	R19935
2-Chloronaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2-Chlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2-Methylnaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2-Methylphenol	ND	10		µg/L	1	6/26/2014	R19935
2-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
2-Nitrophenol	ND	10		µg/L	1	6/26/2014	R19935
3,3'-Dichlorobenzidine	ND	10		µg/L	1	6/26/2014	R19935
3-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	6/26/2014	R19935
4-Bromophenyl phenyl ether	ND	10		µg/L	1	6/26/2014	R19935
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/26/2014	R19935
4-Chloroaniline	ND	10		µg/L	1	6/26/2014	R19935
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	6/26/2014	R19935
4-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
4-Nitrophenol	ND	10		µg/L	1	6/26/2014	R19935
Acenaphthene	ND	10		µg/L	1	6/26/2014	R19935
Acenaphthylene	ND	10		µg/L	1	6/26/2014	R19935
Anthracene	ND	10		µg/L	1	6/26/2014	R19935
Benzo(g,h,i)perylene	ND	10		µg/L	1	6/26/2014	R19935
Benz(a)anthracene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(a)pyrene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(b)fluoranthene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(k)fluoranthene	ND	0.10		µg/L	1	6/26/2014	R19935
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-chloroethyl)ether	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/26/2014	R19935
Butyl benzyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Carbazole	ND	10		µg/L	1	6/26/2014	R19935
Chrysene	ND	0.10		µg/L	1	6/26/2014	R19935
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	6/26/2014	R19935
Dibenzofuran	ND	10		µg/L	1	6/26/2014	R19935
Diethyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Dimethyl phthalate	ND	10		µg/L	1	6/26/2014	R19935

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Di-n-butyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Di-n-octyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Fluoranthene	ND	10		µg/L	1	6/26/2014	R19935
Fluorene	ND	10		µg/L	1	6/26/2014	R19935
Hexachlorobenzene	ND	1.0		µg/L	1	6/26/2014	R19935
Hexachlorobutadiene	ND	10		µg/L	1	6/26/2014	R19935
Hexachlorocyclopentadiene	ND	10		µg/L	1	6/26/2014	R19935
Hexachloroethane	ND	10		µg/L	1	6/26/2014	R19935
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	6/26/2014	R19935
Isophorone	ND	10		µg/L	1	6/26/2014	R19935
Naphthalene	ND	10		µg/L	1	6/26/2014	R19935
Nitrobenzene	ND	10		µg/L	1	6/26/2014	R19935
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	6/26/2014	R19935
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	6/26/2014	R19935
Pentachlorophenol	ND	10		µg/L	1	6/26/2014	R19935
Phenanthrene	ND	10		µg/L	1	6/26/2014	R19935
Phenol	ND	5.0		µg/L	1	6/26/2014	R19935
Pyrene	ND	10		µg/L	1	6/26/2014	R19935
o-Toluidine	ND	0.10		µg/L	1	6/26/2014	R19935
Pyridine	ND	0.10		µg/L	1	6/26/2014	R19935
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	6/26/2014	R19935
Surr: 2,4,6-Tribromophenol	101	10-123		%REC	1	6/26/2014	R19935
Surr: 2-Fluorobiphenyl	102	19-130		%REC	1	6/26/2014	R19935
Surr: 2-Fluorophenol	76.2	21-110		%REC	1	6/26/2014	R19935
Surr: Nitrobenzene-d5	91.1	25-130		%REC	1	6/26/2014	R19935
Surr: Phenol-d5	79.3	10-125		%REC	1	6/26/2014	R19935
Surr: Terphenyl-d14	92.2	33-141		%REC	1	6/26/2014	R19935
CORROSIVITY							Analyst: **SUB**
pH	7.90		H	pH Units	1	7/2/2014	R19940
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	7/7/2014	R19940
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	7/2/2014	R19940
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	6/26/2014	R19940
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**
Conductivity	6000	0.010		µmhos/cm	1	6/23/2014 3:26:39 PM	R19484

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.91	1.68	H	pH units	1	6/23/2014 3:26:39 PM	R19484
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	290	20		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
Total Alkalinity (as CaCO3)	290	20		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
SPECIFIC GRAVITY						Analyst: **SRM**	
Specific Gravity	1.003	0			1	6/30/2014 10:37:00 AM	R19574
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4440	40.0	*	mg/L	1	6/23/2014 11:26:00 AM	13798

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Qualifiers:

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E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2.
RL	Reporting Detection Limit

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: WDW-1, 2, & 3 Qtrly Inj Well
Collection Date:
Lab ID: 1406935-002 **Matrix:** TRIP BLANK **Received Date:** 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl tert-butyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Acetonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Allyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroprene	ND	0.50		µg/L	1	6/26/2014	R19890
Cyclohexane	ND	0.50		µg/L	1	6/26/2014	R19890
Diethyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Diisopropyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Epichlorohydrin	ND	5.0		µg/L	1	6/26/2014	R19890
Ethyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Ethyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Freon-113	ND	0.50		µg/L	1	6/26/2014	R19890
Isobutanol	ND	50		µg/L	1	6/26/2014	R19890
Isopropyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methacrylonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl ethyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl isobutyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Methylcyclohexane	ND	1.0		µg/L	1	6/26/2014	R19890
n-Amyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
n-Hexane	ND	0.50		µg/L	1	6/26/2014	R19890
Nitrobenzene	ND	5.0		µg/L	1	6/26/2014	R19890
Pentachloroethane	ND	5.0		µg/L	1	6/26/2014	R19890
p-isopropyltoluene	ND	0.50		µg/L	1	6/26/2014	R19890
Propionitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Tetrahydrofuran	ND	0.50		µg/L	1	6/26/2014	R19890
Benzene	ND	0.50		µg/L	1	6/26/2014	R19890
Toluene	ND	0.50		µg/L	1	6/26/2014	R19890
Ethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	6/26/2014	R19890
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	6/26/2014	R19890
Naphthalene	ND	0.50		µg/L	1	6/26/2014	R19890
Acetone	ND	2.5		µg/L	1	6/26/2014	R19890
Bromobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Bromodichloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Bromoform	ND	0.50		µg/L	1	6/26/2014	R19890

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-002 **Matrix:** TRIP BLANK

Client Sample ID: Trip Blank
Collection Date:
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon disulfide	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon Tetrachloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroform	ND	0.50		µg/L	1	6/26/2014	R19890
Chloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
4-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Dichlorodifluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
2,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
Hexachlorobutadiene	ND	0.50		µg/L	1	6/26/2014	R19890
2-Hexanone	ND	0.50		µg/L	1	6/26/2014	R19890
Isopropylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methylene Chloride	ND	2.5		µg/L	1	6/26/2014	R19890
n-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
n-Propylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
sec-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Styrene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: WDW-1, 2, & 3 Qtrly Inj Well
Collection Date:
Lab ID: 1406935-002 **Matrix:** TRIP BLANK **Received Date:** 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/26/2014	R19890
Trichlorofluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
mp-Xylenes	ND	1.0		µg/L	1	6/26/2014	R19890
o-Xylene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Amyl methyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butyl alcohol	ND	0.50		µg/L	1	6/26/2014	R19890
Acrolein	ND	0.50		µg/L	1	6/26/2014	R19890
Acrylonitrile	ND	10		µg/L	1	6/26/2014	R19890
Bromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Iodomethane	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dioxane	ND	20		µg/L	1	6/26/2014	R19890
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	6/26/2014	R19890
Surr: 4-Bromofluorobenzene	102	70-130		%REC	1	6/26/2014	R19890
Surr: Toluene-d8	99.6	70-130		%REC	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561477** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.4	0.10	1.600	0	90.3	90	110			
Chloride	7.8	0.50	8.000	0	96.9	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	99.5	90	110			
Bromide	7.9	0.10	8.000	0	98.4	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	97.4	90	110			

Sample ID **MB** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561479** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561480** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	94.3	90	110			
Chloride	4.7	0.50	5.000	0	94.8	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.7	90	110			
Bromide	2.4	0.10	2.500	0	96.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.8	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.6	90	110			

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561489** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	95.4	90	110			
Chloride	12	0.50	12.00	0	102	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	90	110			
Bromide	12	0.10	12.00	0	100	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561489**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561501**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.94	0.10	1.000	0	93.7	90	110			
Chloride	4.6	0.50	5.000	0	92.9	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	97.9	90	110			
Bromide	4.8	0.10	5.000	0	96.0	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.7	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.8	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561513**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.10	1.600	0	96.1	90	110			
Chloride	7.8	0.50	8.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)	3.1	0.10	3.200	0	98.3	90	110			
Bromide	7.6	0.10	8.000	0	95.3	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.7	0.50	8.000	0	96.6	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561525**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	97.8	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.8	0.10	4.800	0	101	90	110			
Bromide	12	0.10	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	107	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561529** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561530** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	101	90	110			
Chloride	4.8	0.50	5.000	0	96.1	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	97.0	90	110			
Bromide	2.5	0.10	2.500	0	99.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.0	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561537** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.96	0.10	1.000	0	95.6	90	110			
Chloride	4.7	0.50	5.000	0	93.1	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	98.8	90	110			
Bromide	4.8	0.10	5.000	0	96.5	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.9	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.0	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561549** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.10	1.600	0	96.4	90	110			
Chloride	7.8	0.50	8.000	0	97.5	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	100	90	110			
Bromide	7.8	0.10	8.000	0	98.0	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561549**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			
Phosphorus, Orthophosphate (As P	7.9	0.50	8.000	0	98.2	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561555**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	97.5	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	90	110			
Bromide	12	0.10	12.00	0	99.7	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	107	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572917**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	30	0.50	30.00	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572919**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572920**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.3	0.50	10.00	0	93.5	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572929** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	94.3	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572941** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.2	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572953** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	31	0.50	30.00	0	102	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572968** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	95.2	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572970** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572971** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.5	0.50	10.00	0	95.0	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572980**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.6	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **572992**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	30	0.50	30.00	0	102	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **573004**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	94.7	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **573016**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.9	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19890**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578052** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Ethyl methacrylate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Propionitrile	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
2-Hexanone	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19890**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578052** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methylene Chloride	ND	0.50								
Styrene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	0.50								
o-Xylene	ND	0.50								
Acrolein	ND	10								
Bromochloromethane	ND	0.50								
Iodomethane	ND	0.50								
Vinyl acetate	ND	0.50								

Sample ID **LCS-R19890**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578053** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.6	0.50	10.00	0	95.5	80	120			
Toluene	9.8	0.50	10.00	0	98.2	80	120			
Ethylbenzene	10	0.50	10.00	0	99.9	80	120			
Chlorobenzene	9.8	0.50	10.00	0	97.5	80	120			
1,1-Dichloroethene	9.5	0.50	10.00	0	94.9	80	120			
Tetrachloroethene (PCE)	9.9	0.50	10.00	0	98.9	80	120			
Trichloroethene (TCE)	9.9	0.50	10.00	0	98.8	80	120			
o-Xylene	10	0.50	10.00	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19935**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579511** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	1.0								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	1.0								
Benz(a)anthracene	ND	1.0								
Benzo(a)pyrene	ND	1.0								
Benzo(b)fluoranthene	ND	1.0								
Benzo(k)fluoranthene	ND	1.0								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19935**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579511** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	1.0								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	5.0								
Pyrene	ND	10								

Sample ID **LCS-R19935**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579512** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.3		5.000	0	106	49	134			
2-Chlorophenol	4.4		5.000	0	87.0	50	131			
4-Chloro-3-methylphenol	5.4		5.000	0	108	42	139			
4-Nitrophenol	4.6		5.000	0	92.8	19	137			
Acenaphthene	4.6		5.000	0	93.0	36	122			
Bis(2-ethylhexyl)phthalate	4.9		5.000	0	97.8	43	142			
N-Nitrosodi-n-propylamine	4.5		5.000	0	89.6	46	135			
Pentachlorophenol	4.1		5.000	0	82.6	22	138			
Phenol	6.3		5.000	0	126	45	134			
Pyrene	4.7		5.000	0	93.6	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-13883**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564933** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-13883**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564934** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	92.4	80	120			

Sample ID **1406935-001BMS**	SampType: **MS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564941** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.9	75	125			

Sample ID **1406935-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564944** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.6	75	125	0.263	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14082**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **14082**	RunNo: **19737**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573374** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-14082**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **14082**	RunNo: **19737**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573375** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	100	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14080**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573325** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-14080**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573326** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.9	80	120			
Barium	ND	100	0.5000	0	96.7	80	120			
Cadmium	ND	1.0	0.5000	0	97.9	80	120			
Chromium	ND	5.0	0.5000	0	96.1	80	120			
Lead	ND	5.0	0.5000	0	94.4	80	120			
Selenium	ND	1.0	0.5000	0	97.1	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Sample ID **1406935-001CMS**	SampType: **MS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02968	108	75	125			
Barium	ND	100	0.5000	0.04484	98.2	75	125			
Cadmium	ND	1.0	0.5000	0	103	75	125			
Chromium	ND	5.0	0.5000	0.001840	98.1	75	125			
Lead	ND	5.0	0.5000	0	95.5	75	125			
Selenium	ND	1.0	0.5000	0.09485	103	75	125			
Silver	ND	5.0	0.1000	0	107	75	125			

Sample ID **1406935-001CMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02968	109	75	125	0	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **1406935-001CMSD**	SampType: **MSD**		TestCode: **EPA Method 6010B: TCLP Metals**		
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **14080**		RunNo: **19736**		
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**		SeqNo: **573330**	Units: **mg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.04484	98.1	75	125	0	20	
Cadmium	ND	1.0	0.5000	0	102	75	125	0	20	
Chromium	ND	5.0	0.5000	0.001840	97.8	75	125	0	20	
Lead	ND	5.0	0.5000	0	95.1	75	125	0	20	
Selenium	ND	1.0	0.5000	0.09485	108	75	125	0	20	
Silver	ND	5.0	0.1000	0	107	75	125	0	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14075**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572184** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-14075**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.55	0.050	0.5000	0	110	80	120			
Arsenic	0.55	0.020	0.5000	0	110	80	120			
Barium	0.54	0.020	0.5000	0	109	80	120			
Beryllium	0.57	0.0030	0.5000	0	115	80	120			
Cadmium	0.54	0.0020	0.5000	0	109	80	120			
Calcium	57	1.0	50.00	0	114	80	120			
Chromium	0.54	0.0060	0.5000	0	108	80	120			
Cobalt	0.52	0.0060	0.5000	0	104	80	120			
Copper	0.56	0.0060	0.5000	0	112	80	120			
Iron	0.55	0.050	0.5000	0	110	80	120			
Lead	0.53	0.0050	0.5000	0	107	80	120			
Magnesium	57	1.0	50.00	0	113	80	120			
Manganese	0.54	0.0020	0.5000	0	108	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **LCS-14075**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	0.52	0.010	0.5000	0	105	80	120			
Potassium	54	1.0	50.00	0	109	80	120			
Selenium	0.53	0.050	0.5000	0	106	80	120			
Silver	0.11	0.0050	0.1000	0	112	80	120			
Thallium	0.53	0.050	0.5000	0	106	80	120			
Vanadium	0.57	0.050	0.5000	0	113	80	120			
Zinc	0.53	0.020	0.5000	0	106	80	120			

Sample ID **MB-14172**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **14172**	RunNo: **19829**
Prep Date: **7/10/2014**	Analysis Date: **7/11/2014**	SeqNo: **576105** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								

Sample ID **LCS-14172**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14172**	RunNo: **19829**
Prep Date: **7/10/2014**	Analysis Date: **7/11/2014**	SeqNo: **576106** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.48	0.020	0.5000	0	96.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19940**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **7/2/2014**	SeqNo: **579570** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R19940**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **7/2/2014**	SeqNo: **579571** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.512		0.5000	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19940**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579573** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R19940**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579574** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.20		0.2000	0	100	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563920**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563921**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	98.7	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563943**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563944**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	100	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-13798**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **561986** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-13798**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **561987** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Sample ID **1406935-001AMS**	SampType: **MS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **562008** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	6460	40.0	2000	4442	101	80	120			

Sample ID **1406935-001AMSD**	SampType: **MSD**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **562009** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	6460	40.0	2000	4442	101	80	120	0.124	5	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1406935 RcptNo: 1

Received by/date: AT 06/19/14

Logged By: Anne Thorne 6/19/2014 2:35:00 PM Anne Thorne

Completed By: Anne Thorne 6/19/2014 Anne Thorne

Reviewed By: AT 06/19/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.6	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.	Turn-Around Time: ☐ Standar ☐ **Rush**
	Project Name: WDW-1, 2, & 3 Qtrly Inj Well
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Dan Crawford
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler: Jerry Sosa
	On Ice: X Yes ☐ No
	Sample Temperature: 4/6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No 1406935	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
6/19/14	9:~~00~~ 30	Liquid	Trip Blank	2	Neat	-002		X					
6/19/14	9:~~00~~ 30	Liquid	Temperature Blank	1	Neat								

Date: 6/19/14	Time: 10:00	Relinquished by: Jerry Sosa	Received by:	Date 06/19/14	Time 14:35
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Page 2028 of 5828

Classification	Analyte name	Method	Units	RL
Volatile organics	Acetone	SW-846 Method 8260C	µg/L	10
Volatile organics	Acetonitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Acrolein	SW-846 Method 8260C	µg/L	
Volatile organics	Allyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Allyl chloride	SW-846 Method 8260C	µg/L	
Volatile organics	t-Amyl ethyl ether (TAEE)	SW-846 Method 8260C	µg/L	
Volatile organics	t-Amyl methyl ether (TAME)	SW-846 Method 8260C	µg/L	
Volatile organics	Benzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Benzyl chloride	SW-846 Method 8260C	µg/L	
Volatile organics	Bis(2-chloroethyl)sulfide	SW-846 Method 8260C	µg/L	
Volatile organics	Bromoacetone	SW-846 Method 8260C	µg/L	
Volatile organics	Bromobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Bromochloromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	Bromodichloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	4-Bromofluorobenzene (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	Bromoform	SW-846 Method 8260C	µg/L	4
Volatile organics	Bromomethane	SW-846 Method 8260C	µg/L	2
Volatile organics	n-Butanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Butanone (MEK)	SW-846 Method 8260C	µg/L	10
Volatile organics	n-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	sec-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	tert-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	t-Butyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Carbon disulfide	SW-846 Method 8260C	µg/L	2
Volatile organics	Carbon tetrachloride	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloral hydrate	SW-846 Method 8260C	µg/L	
Volatile organics	Chlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Chlorobenzene-d5 (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	1-Chlorobutane	SW-846 Method 8260C	µg/L	
Volatile organics	Chlorodibromomethane	SW-846 Method 8260C	µg/L	
Volatile organics	1-Chlorohexane	SW-846 Method 8260C	µg/L	
Volatile organics	Chloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	2-Chloroethanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Chloroethyl vinyl ether	SW-846 Method 8260C	µg/L	
Volatile organics	Chloroform	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloroprene	SW-846 Method 8260C	µg/L	
Volatile organics	4-Chlorotoluene	SW-846 Method 8260C	µg/L	
Volatile organics	Crotonaldehyde	SW-846 Method 8260C	µg/L	
Volatile organics	Cyclohexane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2-Dibromo-3-chloropropane	SW-846 Method 8260C	µg/L	10
Volatile organics	1,2-Dibromoethane	SW-846 Method 8260C	µg/L	2
Volatile organics	Dibromochloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Dibromomethane	SW-846 Method 8260C	µg/L	
Volatile organics	1,2-Dichlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,3-Dichlorobenzene	SW-846 Method 8260C	µg/L	1

Volatile organics	1,4-Dichlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,4-Dichlorobenzene-d4 (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	cis-1,4-Dichloro-2-butene	SW-846 Method 8260C	µg/L	
Volatile organics	trans-1,4-Dichloro-2-butene	SW-846 Method 8260C	µg/L	
Volatile organics	Dichlorodifluoromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1-Dichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloroethane-d4 (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	1,1-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	cis-1,2-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	trans-1,2-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloropropane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,3-Dichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	2,2-Dichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	1,1-Dichloropropene	SW-846 Method 8260C	µg/L	
Volatile organics	1,3-Dichloro-2-propanol	SW-846 Method 8260C	µg/L	
Volatile organics	cis-1,3-Dichloropropene	SW-846 Method 8260C	µg/L	1
Volatile organics	trans-1,3-Dichloropropene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2,3,4-Depoxybutane	SW-846 Method 8260C	µg/L	
Volatile organics	Diethyl ether	SW-846 Method 8260C	µg/L	
Volatile organics	Diisopropyl either (DIPE)	SW-846 Method 8260C	µg/L	
Volatile organics	1,4-Difluorobenzene (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	1,4-Dioxane	SW-846 Method 8260C	µg/L	130
Volatile organics	Epichlorohydrin	SW-846 Method 8260C	µg/L	
Volatile organics	Ethanol	SW-846 Method 8260C	µg/L	
Volatile organics	Ethyl acetate	SW-846 Method 8260C	µg/L	
Volatile organics	Ethylbenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Ethylene oxide	SW-846 Method 8260C	µg/L	
Volatile organics	Ethyl methacrylate	SW-846 Method 8260C	µg/L	
Volatile organics	Fluorobenzene (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	Freon 113	SW-846 Method 8260C	µg/L	5
Volatile organics	Ethyl tert-butyl ether (ETBE)	SW-846 Method 8260C	µg/L	
Volatile organics	Hexachlorobutadiene	SW-846 Method 8260C	µg/L	
Volatile organics	Hexachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	2-Hexanone	SW-846 Method 8260C	µg/L	5
Volatile organics	Iodomethane	SW-846 Method 8260C	µg/L	
Volatile organics	Isobutyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Isopropylbenzene	SW-846 Method 8260C	µg/L	2
Volatile organics	p-Isopropyltoluene	SW-846 Method 8260C	µg/L	
Volatile organics	Malononitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Methacrylonitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Methanol	SW-846 Method 8260C	µg/L	
Volatile organics	Methyl acetate	SW-846 Method 8260C	µg/L	5
Volatile organics	Methylcyclohexane	SW-846 Method 8260C	µg/L	5
Volatile organics	Methyl acrylate	SW-846 Method 8260C	µg/L	
Volatile organics	Methylene chloride	SW-846 Method 8260C	µg/L	2
Volatile organics	Methyl methacrylate	SW-846 Method 8260C	µg/L	

Volatile organics	4-Methyl-2-pentanone (MIBK)	SW-846 Method 8260C	µg/L	5
Volatile organics	Methyl tert-butyl ether (MTBE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Naphthalene	SW-846 Method 8260C	µg/L	
Volatile organics	Nitrobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	2-Nitropropane	SW-846 Method 8260C	µg/L	
Volatile organics	N-Nitroso-di-n-butylamine	SW-846 Method 8260C	µg/L	
Volatile organics	Paraldehyde	SW-846 Method 8260C	µg/L	
Volatile organics	Pentachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	Pentafluorobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	2-Pentanone	SW-846 Method 8260C	µg/L	
Volatile organics	2-Picoline	SW-846 Method 8260C	µg/L	
Volatile organics	1-Propanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Propanol	SW-846 Method 8260C	µg/L	
Volatile organics	Propargyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	beta-Propiolactone	SW-846 Method 8260C	µg/L	
Volatile organics	Propionitrile	SW-846 Method 8260C	µg/L	
Volatile organics	n-Propylamine	SW-846 Method 8260C	µg/L	
Volatile organics	n-Propylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Pyridine	SW-846 Method 8260C	µg/L	
Volatile organics	Styrene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1,1,2-Tetrachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	1,1,2,2-Tetrachloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Tetrachloroethene (PCE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Toluene	SW-846 Method 8260C	µg/L	1
Volatile organics	Toluene-d8 (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	o-Toluidine	SW-846 Method 8260C	µg/L	
Volatile organics	1,2,3-Trichlorobenzene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2,4-Trichlorobenzene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1,1-Trichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,1,2-Trichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Trichloroethene (TCE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Trichlorofluoromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2,3-Trichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	1,2,4-Trimethylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	1,3,5-Trimethylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Vinyl acetate	SW-846 Method 8260C	µg/L	
Volatile organics	Vinyl chloride	SW-846 Method 8260C	µg/L	1
Volatile organics	o-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	m-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	p-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	Xylene, total	SW-846 Method 8260C	µg/L	1

(surr) - Surrogate
(IS) - Internal Standard
Method 8260C Volatile Organic Compounds by Gas Chromatograhy/Mass Spectrometry (GC/MS) (EPA, Revision 3, August 2006)
Constituents with RLs are on the VOC Target Compound List (TCL) (SOMO 1.1)

Classification	Analyte name	Method	Units	RL
Semivolatile organics	1,1'-Biphenyl	SW-864 Method 8270B	µg/L	1
Semivolatile organics	1,2,4,5-Tetrachlorobenzene	SW-864 Method 8270B	µg/L	2
Semivolatile organics	2-Chloronaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Chlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Methylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2-Nitrophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,3,4,6-Tetrachlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dichlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dimethylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dinitrophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2,4-Dinitrotoluene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4,5-Trichlorophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2,4,6-Trichlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,6-Dinitrotoluene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	3-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	3,3'-Dichlrobenzidine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Bromophenyl-phenylether	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chloro-3-methylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chloroaniline	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chlorophenyl-phenyl ether	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	4-Nitrophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	4,6-Dinitro-2-methylphenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Acetophenone	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Acenaphthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Acenaphthylene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Atrazine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzaldehyde	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(a)anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(a)pyrene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(b)fluoranthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(g,h,i)perylene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(k)fluoranthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	bis(2-Chloroethoxy)-methane	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Chloroethyl) ether	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Chloroisopropyl) ether	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Ethylhexyl)phthalate	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Butylbenzylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Carbazole	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Caprolactam	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Chrysene	SW-864 Method 8270B	µg/L	0.1
Semivolatile organics	Di-n-butylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Di-n-octylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Dibenz(a,h)anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Dibenzofuran	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Diethylphthalate	SW-864 Method 8270B	µg/L	5

Semivolatile organics	Dimethylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Fluroanthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Fluorene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Hexachlorobenzene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Hexachlorobutadiene	SW-864 Method 8270B	µg/L	1
Semivolatile organics	Hexachlorocyclopentadiene	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Hexachloroethane	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Indeno(1,2,3-cd)peryline	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Isophorone	SW-864 Method 8270B	µg/L	5
Semivolatile organics	1-Methylnaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Methylnaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	N-Nitroso-di-n-propylamine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	N-Nitrosodiphenylamine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Napthtalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Nitrobenzene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Pentachlorophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Phenanthrene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Phenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Pyrene	SW-864 Method 8270B	µg/L	5

Target Compound List 1.5 for SVOCs by SW-846 Method 8270

Classification	Analyte name[1]	Method	Units	RL
Inorganics	Mercury	SW-846 Method 7470		
Inorganics	Arsenic	SW-846 Method 6010		
Inorganics	Silver	SW-846 Method 6010		
Inorganics	Aluminum	SW-846 Method 6010		
Inorganics	Barium	SW-846 Method 6010		
Inorganics	Beryllium	SW-846 Method 6010		
Inorganics	Calcium	SW-846 Method 6010		
Inorganics	Cadmium	SW-846 Method 6010		
Inorganics	Cobalt	SW-846 Method 6010		
Inorganics	Chromium	SW-846 Method 6010		
Inorganics	Copper	SW-846 Method 6010		
Inorganics	Iron	SW-846 Method 6010		
Inorganics	Mercury	SW-846 Method 6010		
Inorganics	Potassium	SW-846 Method 6010		
Inorganics	Magnesium	SW-846 Method 6010		
Inorganics	Manganese	SW-846 Method 6010		
Inorganics	Sodium	SW-846 Method 6010		
Inorganics	Nickel	SW-846 Method 6010		
Inorganics	Lead	SW-846 Method 6010		
Inorganics	Antimony	SW-846 Method 6010		
Inorganics	Selenium	SW-846 Method 6010		
Inorganics	Thallium	SW-846 Method 6010		
Inorganics	Vanadium	SW-846 Method 6010		
Inorganics	Zinc	SW-846 Method 6010		

** dilute elements only if necessary

[1] 23 TAL Metals

REFINING COMPANY, LLC

FAX
(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

FAX
(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

July 30, 2008

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2008 Second Quarterly Injection Report for Navajo Refining WDW-1, WDW-2 and WDW-3

Dear Mr. Chavez,

Enclosed, please find the sampling results for the second quarter of 2008 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on wells WDW-1 and WDW-2 continue to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level have found WDW-3 to have varied more than 5%. WDW-3 has an electronic gauging system that continually reports the fluid levels in a percentage of capacity. We are closely monitoring WDW-3, and a Mechanical Integrity Test (MIT) is scheduled for August 5, 2008. The volumes for these three tanks are reported in the attached table.

This report covers the period from April 1, 2008 to June 30, 2008. We have disposed a total of 38,972,716 barrels of fluid into the three wells as of June 30, 2008. This is broken down as follows: 25,550,339 barrels into WDW-1, 12,357,611 barrels into WDW-2 and 1,064,766 barrels into WDW-3.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Aaron Strange

Aaron Strange
Sr. Environmental Technician

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

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2008 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	25,013,505
Apr-08	234	303	115	165	192	135	117	168	75	5,656	6,580	4,619	169,694	25,183,198
May-08	264	322	194	171	186	151	142	222	55	5,872	6,394	5,170	182,018	25,365,217
Jun-08	297	338	231	180	192	158	203	416	29	6,171	6,592	5,403	185,122	25,550,339
WDW-2													**Previous Quarter**	12,126,440
Apr-08	293	400	239	81	123	55	467	500	330	2,774	4,221	1,883	83,219	12,209,659
May-08	314	376	245	70	99	33	411	500	165	2,409	3,400	1,142	74,669	12,284,329
Jun-08	348	394	285	71	92	19	500	500	498	2,443	3,143	660	73,282	12,357,611
WDW-3													**Previous Quarter**	1,049,409
Apr-08	473	588	326	148	228	79	676	915	530	5,086	7,818	2,707	152,578	727,836
May-08	502	622	388	150	179	112	678	901	540	5,131	6,133	3,852	159,072	886,908
Jun-08	559	642	415	173	189	132	761	998	564	5,929	6,497	4,539	177,858	1,064,766
													Total Injected fluids:	38,972,716

Page 2036 of 5828

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2008 SECOND QUARTER WEEKLY WHAMS LEVEL TABLE

	4/2/200	4/11/08	4/17/08	4/25/08	4/30/08	5/8/08	5/14/08	5/21/08	5/30/08	6/5/08	6/11/08	6/17/08	6/27/08
WDW -1[1]	190	190	190	190	190	200	200	200	200	200	200	200	200
WDW-2[1]	160	160	160	160	160	160	160	160	160	160	160	200	200
WDW-3[2]	67%	66%	66%	65%	65%	64%	63%	60%	59%	58%	58%	58%	55%

[1] Graduated tank gauged weekly in the field.

[2] Reading measured directly, and reported as percentage capacity.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

04-Jun-08

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5468
Fax: (505) 746-5421

Re: Injection Well Qrtly. Work Order : **0805558**

Dear Jeff,

ALS Laboratory Group received 2 samples on 5/23/2008 08:40 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 36.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Glenda H. Ramos

Jeffrey L Croston
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Certificate No: T104704231-08-TX

ALS Group USA, Corp.
Part of the **ALS Laboratory Group**
10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338
Phone: (281) 530-5656 Fax: (281) 530-5887
www.alsglobal.com www.elabi.com
A Campbell Brothers Limited Company

ALS Laboratory Group

Date: 04-Jun-08

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Work Order: **0805558**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0805558-01	Injection Well	Water		5/22/2008 14:10	5/23/2008 08:40	☐
0805558-02	Trip Blank	Water		5/22/2008 14:10	5/23/2008 08:40	☑

ALS Laboratory Group *Date: 04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Work Order: 0805558

Case Narrative

Batch pH (sample Injection Well) was analyzed outside of the recommended holding time, but was analyzed immediately upon receipt of the laboratory.

Batch 30049 Metals MS/MSD was an unrelated sample.

Batch 29950 Semivolatiles LCS/LCSD RPD recovery was above the control limits for Benzidine (37.1%). Recoveries met method criteria in both LCS/LCSD.

Batch R63837 Volatiles MS/MSD was an unrelated sample.

Batch R64025 Anions MS was an unrelated sample.

ALS Laboratory Group

Date: 04-Jun-08

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL - SW 7470A			**SW7470**		Prep Date: **6/3/2008**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	6/4/2008 12:11 PM
ICP METALS, TOTAL - SW6020A			**SW6020**		Prep Date: **6/2/2008**	Analyst: **ALR**
Aluminum	**0.0846**		**0.0100**	**mg/L**	1	6/2/2008 11:43 PM
Arsenic	**0.0474**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Barium	**0.0229**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Beryllium	ND		0.00200	mg/L	1	6/2/2008 11:43 PM
Boron	**0.0839**		**0.0200**	**mg/L**	1	6/2/2008 11:43 PM
Cadmium	ND		0.00200	mg/L	1	6/2/2008 11:43 PM
Calcium	**121**		**0.500**	**mg/L**	1	6/2/2008 11:43 PM
Chromium	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Cobalt	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Copper	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Iron	ND		0.200	mg/L	1	6/2/2008 11:43 PM
Lead	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Magnesium	**41.0**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Manganese	**0.100**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Molybdenum	**0.0505**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Nickel	**0.00601**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Potassium	**3.78**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Selenium	**0.0152**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Silver	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Sodium	**136**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Vanadium	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Zinc	**0.0384**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **5/28/2008**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Methylphenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Nitrophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
3-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
4-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
4-Nitrophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Acenaphthene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Acenaphthylene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Anthracene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Benzidine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Hexachloroethane	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Isophorone	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Naphthalene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Nitrobenzene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Pentachlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Phenanthrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Phenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Pyrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Surr: 2,4,6-Tribromophenol	*69.4*		*42-124*	*%REC*	1	5/31/2008 03:57 PM
Surr: 2-Fluorobiphenyl	*71.2*		*48-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: 2-Fluorophenol	*64.5*		*20-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: 4-Terphenyl-d14	*75.7*		*51-135*	*%REC*	1	5/31/2008 03:57 PM
Surr: Nitrobenzene-d5	*66.4*		*41-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: Phenol-d6	*70.6*		*20-120*	*%REC*	1	5/31/2008 03:57 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
2-Butanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	5/28/2008 04:38 PM
2-Hexanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Acetone	**0.13**		**0.010**	**mg/L**	1	5/28/2008 04:38 PM
Benzene	**0.034**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
Bromodichloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Bromoform	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Bromomethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Carbon disulfide	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	5/28/2008 04:38 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloroform	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Dibromochloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Ethylbenzene	**0.011**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
m,p-Xylene	**0.052**		**0.010**	**mg/L**	1	5/28/2008 04:38 PM
Methylene chloride	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Styrene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Tetrachloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Toluene	**0.039**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Trichloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Vinyl acetate	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Vinyl chloride	ND		0.0020	mg/L	1	5/28/2008 04:38 PM
Xylenes, Total	**0.081**		**0.015**	**mg/L**	1	5/28/2008 04:38 PM
Surr: 1,2-Dichloroethane-d4	*87.7*		*70-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: 4-Bromofluorobenzene	*86.3*		*72-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: Dibromofluoromethane	*87.6*		*71-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: Toluene-d8	*85.8*		*75-125*	*%REC*	1	5/28/2008 04:38 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	5/29/2008
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	5/29/2008
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **PV**
Chloride	**150**		**10.0**	**mg/L**	20	6/2/2008 04:59 PM
Sulfate	**497**		**10.0**	**mg/L**	20	6/2/2008 04:59 PM
Surr: Selenate (surr)	*94.7*		*85-115*	*%REC*	20	6/2/2008 04:59 PM
ALKALINITY			**E310.1**			Analyst: **MAM**
Alkalinity, Bicarbonate (As CaCO3)	**135**		**5.00**	**mg/L**	1	5/28/2008 02:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	5/28/2008 02:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	5/28/2008 02:00 PM
Alkalinity, Total (As CaCO3)	**135**		**5.00**	**mg/L**	1	5/28/2008 02:00 PM
CONDUCTIVITY			**E120.1**			Analyst: **MAM**
Specific Conductance	**1,590**		**1.00**	**µmhos/cm**	1	5/27/2008 03:00 PM
FLASHPOINT-SW1010A			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	5/28/2008 03:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	7.15	H	0.100	pH units	1	5/23/2008 10:00 AM
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **KKP**
Total Dissolved Solids (Residue, Filterable)	1,240		10.0	mg/L	1	5/27/2008 03:00 PM

Qualifiers:

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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

Date: *04-Jun-08*

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 11:11 PM**

Client ID: Run ID: **ICPMS02_080602A** SeqNo: **1410011** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.050								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 11:17 PM**
Client ID: Run ID: **ICPMS02_080602A** SeqNo: **1410012** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05531	0.010	0.05	0	111	80-120	0			
Arsenic	0.05086	0.0050	0.05	0	102	80-120	0			
Barium	0.0515	0.0050	0.05	0	103	80-120	0			
Beryllium	0.04961	0.0020	0.05	0	99.2	80-120	0			
Boron	0.51	0.050	0.5	0	102	80-120	0			
Cadmium	0.05043	0.0020	0.05	0	101	80-120	0			
Calcium	5.085	0.50	5	0	102	80-120	0			
Chromium	0.04787	0.0050	0.05	0	95.7	80-120	0			
Cobalt	0.0505	0.0050	0.05	0	101	80-120	0			
Copper	0.04711	0.0050	0.05	0	94.2	80-120	0			
Iron	5.108	0.20	5	0	102	80-120	0			
Lead	0.05004	0.0050	0.05	0	100	80-120	0			
Magnesium	4.979	0.20	5	0	99.6	80-120	0			
Manganese	0.0499	0.0050	0.05	0	99.8	80-120	0			
Molybdenum	0.04938	0.0050	0.05	0	98.8	80-120	0			
Nickel	0.04953	0.0050	0.05	0	99.1	80-120	0			
Potassium	5.014	0.20	5	0	100	80-120	0			
Selenium	0.04986	0.0050	0.05	0	99.7	80-120	0			
Silver	0.04002	0.0050	0.05	0	80	80-120	0			
Sodium	4.943	0.20	5	0	98.9	80-120	0			
Vanadium	0.05043	0.0050	0.05	0	101	80-120	0			
Zinc	0.04926	0.0050	0.05	0	98.5	80-120	0			

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0805606-08CMS** Units: **mg/L** Analysis Date: **6/3/2008 02:20 PM**

Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410745** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06189	0.010	0.05	0.01497	93.8	80-120	0			
Arsenic	0.06337	0.0050	0.05	0.01058	106	80-120	0			
Barium	0.09153	0.0050	0.05	0.03819	107	80-120	0			
Beryllium	0.04985	0.0020	0.05	-0.0001438	100	80-120	0			
Boron	1.165	0.050	0.5	0.6122	111	80-120	0			
Cadmium	0.05037	0.0020	0.05	-0.0004353	102	80-120	0			
Calcium	149.2	0.50	5	143.9	106	80-120	0			O
Chromium	0.04788	0.0050	0.05	0.0002614	95.2	80-120	0			
Cobalt	0.05154	0.0050	0.05	0.002614	97.9	80-120	0			
Copper	0.04456	0.0050	0.05	0.0004179	88.3	80-120	0			
Iron	5.507	0.20	5	0.5342	99.5	80-120	0			
Lead	0.05257	0.0050	0.05	-0.00002332	105	80-120	0			
Magnesium	85.42	0.20	5	80.06	107	80-120	0			O
Manganese	0.2299	0.0050	0.05	0.179	102	80-120	0			
Molybdenum	0.05753	0.0050	0.05	0.005355	104	80-120	0			
Nickel	0.05094	0.0050	0.05	0.002892	96.1	80-120	0			
Potassium	9.248	0.20	5	4.425	96.5	80-120	0			
Selenium	0.05288	0.0050	0.05	0.0005107	105	80-120	0			
Silver	0.04033	0.0050	0.05	-0.0003408	81.3	80-120	0			
Sodium	215.6	0.20	5	209.9	114	80-120	0			EO
Vanadium	0.05326	0.0050	0.05	0.001695	103	80-120	0			
Zinc	0.05312	0.0050	0.05	0.00839	89.5	80-120	0			

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0805606-08CMSD** Units: **mg/L** Analysis Date: **6/3/2008 02:26 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410746** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06039	0.010	0.05	0.01497	90.8	80-120	0.06189	2.45	15	
Arsenic	0.06377	0.0050	0.05	0.01058	106	80-120	0.06337	0.629	15	
Barium	0.09108	0.0050	0.05	0.03819	106	80-120	0.09153	0.493	15	
Beryllium	0.04878	0.0020	0.05	-0.0001438	97.8	80-120	0.04985	2.17	15	
Boron	1.186	0.050	0.5	0.6122	115	80-120	1.165	1.79	15	
Cadmium	0.04962	0.0020	0.05	-0.0004353	100	80-120	0.05037	1.5	15	
Calcium	150.7	0.50	5	143.9	136	80-120	149.2	1	15	SO
Chromium	0.04772	0.0050	0.05	0.0002614	94.9	80-120	0.04788	0.335	15	
Cobalt	0.05164	0.0050	0.05	0.002614	98.1	80-120	0.05154	0.194	15	
Copper	0.04497	0.0050	0.05	0.0004179	89.1	80-120	0.04456	0.916	15	
Iron	5.431	0.20	5	0.5342	97.9	80-120	5.507	1.39	15	
Lead	0.05227	0.0050	0.05	-0.00002332	105	80-120	0.05257	0.572	15	
Magnesium	84.25	0.20	5	80.06	83.8	80-120	85.42	1.38	15	O
Manganese	0.2326	0.0050	0.05	0.179	107	80-120	0.2299	1.17	15	
Molybdenum	0.0565	0.0050	0.05	0.005355	102	80-120	0.05753	1.81	15	
Nickel	0.04908	0.0050	0.05	0.002892	92.4	80-120	0.05094	3.72	15	
Potassium	9.267	0.20	5	4.425	96.8	80-120	9.248	0.205	15	
Selenium	0.05261	0.0050	0.05	0.0005107	104	80-120	0.05288	0.512	15	
Silver	0.04025	0.0050	0.05	-0.0003408	81.2	80-120	0.04033	0.199	15	
Sodium	212.4	0.20	5	209.9	50	80-120	215.6	1.5	15	SEO
Vanadium	0.05363	0.0050	0.05	0.001695	104	80-120	0.05326	0.692	15	
Zinc	0.05195	0.0050	0.05	0.00839	87.1	80-120	0.05312	2.23	15	

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U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0805606-08CDUP** Units: **mg/L** Analysis Date: **6/3/2008 01:48 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410741** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01681	0.010	0	0	0	0-0	0.01497	11.6	25	
Arsenic	0.01089	0.0050	0	0	0	0-0	0.01058	2.89	25	
Barium	0.0393	0.0050	0	0	0	0-0	0.03819	2.86	25	
Beryllium	ND	0.0020	0	0	0	0-0	-0.0001438	0	25	
Boron	0.6411	0.050	0	0	0	0-0	0.6122	4.61	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.0004353	0	25	
Calcium	147	0.50	0	0	0	0-0	143.9	2.13	25	
Chromium	ND	0.0050	0	0	0	0-0	0.0002614	0	25	
Cobalt	0.002661	0.0050	0	0	0	0-0	0.002614	0	25	J
Copper	ND	0.0050	0	0	0	0-0	0.0004179	0	25	
Iron	0.545	0.20	0	0	0	0-0	0.5342	2	25	
Lead	ND	0.0050	0	0	0	0-0	-0.00002332	0	25	
Magnesium	82.64	0.20	0	0	0	0-0	80.06	3.17	25	
Manganese	0.1849	0.0050	0	0	0	0-0	0.179	3.24	25	
Molybdenum	0.005564	0.0050	0	0	0	0-0	0.005355	3.83	25	
Nickel	0.002742	0.0050	0	0	0	0-0	0.002892	0	25	J
Potassium	4.499	0.20	0	0	0	0-0	4.425	1.66	25	
Selenium	ND	0.0050	0	0	0	0-0	0.0005107	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003408	0	25	
Vanadium	0.001621	0.0050	0	0	0	0-0	0.001695	0	25	J
Zinc	0.004506	0.0050	0	0	0	0-0	0.00839	0	25	J

DUP Sample ID: **0805606-08CDUP** Units: **mg/L** Analysis Date: **6/3/2008 03:07 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410816** Prep Date: **6/2/2008** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	198.8	10	0	0	0	0-0	216.8	8.66	25	

The following samples were analyzed in this batch: 0805558-01B

ND - Not Detected at the Reporting Limit
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P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30093** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:55 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411704** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000044	0.00020								J

LCS Sample ID: **GLCSW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:57 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411705** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00452	0.00020	0.005	0	90.4	85-115	0			

LCSD Sample ID: **GLCSDW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:59 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411706** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00438	0.00020	0.005	0	87.6	85-115	0.00452	3.15	20	

MS Sample ID: **0806044-01CMS** Units: **mg/L** Analysis Date: **6/4/2008 12:05 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411709** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00461	0.00020	0.005	-0.000049	93.2	85-115	0			

MSD Sample ID: **0806044-01CMSD** Units: **mg/L** Analysis Date: **6/4/2008 12:07 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411710** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00464	0.00020	0.005	-0.000049	93.8	85-115	0.00461	0.649	20	

DUP Sample ID: **0806044-01CDUP** Units: **mg/L** Analysis Date: **6/4/2008 12:03 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411708** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000049	0	20	

The following samples were analyzed in this batch: 0805558-01B

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J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

MBLK Sample ID: **SBLKW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 04:45 PM**

Client ID: Run ID: **SV-5_080529C** SeqNo: **1408204** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*66.46*	5.0	*100*	0	*66.5*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*75.49*	5.0	*100*	0	*75.5*	*48-120*	0			
Surr: 2-Fluorophenol	*63.48*	5.0	*100*	0	*63.5*	*20-120*	0			
Surr: 4-Terphenyl-d14	*75.31*	5.0	*100*	0	*75.3*	*51-135*	0			
Surr: Nitrobenzene-d5	*78.24*	5.0	*100*	0	*78.2*	*41-120*	0			
Surr: Phenol-d6	*71.08*	5.0	*100*	0	*71.1*	*20-120*	0			

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

LCS Sample ID: **SLCSW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 11:50 AM**

Client ID: Run ID: **SV-5_080529C** SeqNo: **1408202** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.48	5.0	50	0	77	50-120	0			
2,4,5-Trichlorophenol	70.59	5.0	100	0	70.6	50-120	0			
2,4,6-Trichlorophenol	77.31	5.0	100	0	77.3	50-120	0			
2-Methylnaphthalene	39.73	5.0	50	0	79.5	55-120	0			
2-Methylphenol	72.4	5.0	100	0	72.4	50-120	0			
2-Nitroaniline	41.9	5.0	50	0	83.8	55-120	0			
2-Nitrophenol	77.95	5.0	100	0	78	55-120	0			
3&4-Methylphenol	112.7	5.0	150	0	75.1	55-120	0			
3-Nitroaniline	31.41	5.0	50	0	62.8	40-120	0			
4-Nitroaniline	37.07	5.0	50	0	74.1	50-120	0			
4-Nitrophenol	97.1	5.0	100	0	97.1	45-120	0			
Acenaphthene	40.42	5.0	50	0	80.8	55-120	0			
Acenaphthylene	41.2	5.0	50	0	82.4	55-120	0			
Aniline	30.83	5.0	50	0	61.7	30-120	0			
Anthracene	40.67	5.0	50	0	81.3	55-120	0			
Benz(a)anthracene	37.11	5.0	50	0	74.2	55-120	0			
Benzidine	15.02	5.0	50	0	30	10-120	0			
Hexachloroethane	38.38	5.0	50	0	76.8	55-120	0			
Indeno(1,2,3-cd)pyrene	36.31	5.0	50	0	72.6	55-120	0			
Isophorone	41.97	5.0	50	0	83.9	55-120	0			
N-Nitrosodi-n-propylamine	40.43	5.0	50	0	80.9	50-120	0			
N-Nitrosodimethylamine	37.79	5.0	50	0	75.6	45-120	0			
N-Nitrosodiphenylamine	40.24	5.0	50	0	80.5	55-120	0			
Naphthalene	40.25	5.0	50	0	80.5	55-120	0			
Nitrobenzene	39.48	5.0	50	0	79	55-120	0			
Pentachlorophenol	71.77	5.0	100	0	71.8	55-120	0			
Phenanthrene	39.92	5.0	50	0	79.8	55-120	0			
Phenol	77.57	5.0	100	0	77.6	50-120	0			
Pyrene	40.45	5.0	50	0	80.9	55-120	0			
Surr: 2,4,6-Tribromophenol	*72.66*	5.0	*100*	0	*72.7*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*77.75*	5.0	*100*	0	*77.7*	*48-120*	0			
Surr: 2-Fluorophenol	*68.18*	5.0	*100*	0	*68.2*	*20-120*	0			
Surr: 4-Terphenyl-d14	*76.16*	5.0	*100*	0	*76.2*	*51-135*	0			
Surr: Nitrobenzene-d5	*79.91*	5.0	*100*	0	*79.9*	*41-120*	0			
Surr: Phenol-d6	*72.59*	5.0	*100*	0	*72.6*	*20-120*	0			

ND - Not Detected at the Reporting Limit
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J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 12:16 PM**
Client ID: Run ID: **SV-5_080529C** SeqNo: **1408203** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.38	5.0	50	0	76.8	50-120	38.48	0.238	20	
2,4,5-Trichlorophenol	84.21	5.0	100	0	84.2	50-120	70.59	17.6	20	
2,4,6-Trichlorophenol	79.22	5.0	100	0	79.2	50-120	77.31	2.45	20	
2-Methylnaphthalene	40.87	5.0	50	0	81.7	55-120	39.73	2.83	20	
2-Methylphenol	75.67	5.0	100	0	75.7	50-120	72.4	4.42	20	
2-Nitroaniline	42.15	5.0	50	0	84.3	55-120	41.9	0.588	20	
2-Nitrophenol	79.6	5.0	100	0	79.6	55-120	77.95	2.1	20	
3&4-Methylphenol	117.5	5.0	150	0	78.3	55-120	112.7	4.17	20	
3-Nitroaniline	26.62	5.0	50	0	53.2	40-120	31.41	16.5	20	
4-Nitroaniline	36.41	5.0	50	0	72.8	50-120	37.07	1.79	20	
4-Nitrophenol	82.95	5.0	100	0	82.9	45-120	97.1	15.7	20	
Acenaphthene	41.82	5.0	50	0	83.6	55-120	40.42	3.42	20	
Acenaphthylene	41.46	5.0	50	0	82.9	55-120	41.2	0.614	20	
Aniline	31.37	5.0	50	0	62.7	30-120	30.83	1.74	20	
Anthracene	39.59	5.0	50	0	79.2	55-120	40.67	2.7	20	
Benz(a)anthracene	37.02	5.0	50	0	74	55-120	37.11	0.242	20	
Benzidine	10.32	5.0	50	0	20.6	10-120	15.02	37.1	20	R
Hexachloroethane	41.36	5.0	50	0	82.7	55-120	38.38	7.47	20	
Indeno(1,2,3-cd)pyrene	36.71	5.0	50	0	73.4	55-120	36.31	1.08	20	
Isophorone	43.01	5.0	50	0	86	55-120	41.97	2.46	20	
N-Nitrosodi-n-propylamine	41.81	5.0	50	0	83.6	50-120	40.43	3.36	20	
N-Nitrosodimethylamine	39.68	5.0	50	0	79.4	45-120	37.79	4.88	20	
N-Nitrosodiphenylamine	41.17	5.0	50	0	82.3	55-120	40.24	2.29	20	
Naphthalene	40.53	5.0	50	0	81.1	55-120	40.25	0.683	20	
Nitrobenzene	40.12	5.0	50	0	80.2	55-120	39.48	1.61	20	
Pentachlorophenol	75.95	5.0	100	0	76	55-120	71.77	5.66	20	
Phenanthrene	41.64	5.0	50	0	83.3	55-120	39.92	4.21	20	
Phenol	81.2	5.0	100	0	81.2	50-120	77.57	4.58	20	
Pyrene	42.21	5.0	50	0	84.4	55-120	40.45	4.27	20	
Surr: 2,4,6-Tribromophenol	*73.12*	5.0	*100*	0	*73.1*	*42-124*	72.66	*0.63*	*20*	
Surr: 2-Fluorobiphenyl	*77.94*	5.0	*100*	0	*77.9*	*48-120*	77.75	*0.241*	*20*	
Surr: 2-Fluorophenol	*70.82*	5.0	*100*	0	*70.8*	*20-120*	68.18	*3.8*	*20*	
Surr: 4-Terphenyl-d14	*74.56*	5.0	*100*	0	*74.6*	*51-135*	76.16	*2.12*	*20*	
Surr: Nitrobenzene-d5	*77.03*	5.0	*100*	0	*77*	*41-120*	79.91	*3.68*	*20*	
Surr: Phenol-d6	*77.02*	5.0	*100*	0	*77*	*20-120*	72.59	*5.92*	*20*	

The following samples were analyzed in this batch: 0805558-01E

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
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E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: R63837 Instrument ID VOA2 Method: SW8260

MBLK Sample ID: VBLKW-052808 Units: µg/L Analysis Date: 5/28/2008 12:10 PM
Client ID: Run ID: VOA2_080528B SeqNo: 1406315 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*43.9*	5.0	*50*	0	*87.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*39.58*	5.0	*50*	0	*79.2*	*72-125*	0			
Surr: Dibromofluoromethane	*44.48*	5.0	*50*	0	*89*	*71-125*	0			
Surr: Toluene-d8	*42.61*	5.0	*50*	0	*85.2*	*75-125*	0			

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63837** Instrument ID **VOA2** Method: **SW8260**

LCS Sample ID: **VLCSW-052808** Units: **µg/L** Analysis Date: **5/28/2008 10:32 AM**
Client ID: Run ID: **VOA2_080528B** SeqNo: **1406314** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.59	5.0	50	0	107	80-120	0			
1,1,2,2-Tetrachloroethane	43.21	5.0	50	0	86.4	72-120	0			
1,1,2-Trichloroethane	45.61	5.0	50	0	91.2	80-120	0			
1,1-Dichloroethane	57.72	5.0	50	0	115	76-120	0			
1,1-Dichloroethene	59.25	5.0	50	0	118	73-124	0			
1,2-Dichloroethane	50.06	5.0	50	0	100	78-120	0			
2-Butanone	105.4	10	100	0	105	58-132	0			
2-Chloroethyl vinyl ether	113.7	10	100	0	114	74-120	0			
2-Hexanone	90.16	10	100	0	90.2	61-130	0			
4-Methyl-2-pentanone	92.78	10	100	0	92.8	65-127	0			
Acetone	112.7	10	100	0	113	59-137	0			
Benzene	49.49	5.0	50	0	99	73-121	0			
Bromodichloromethane	56.85	5.0	50	0	114	80-120	0			
Bromoform	43.63	5.0	50	0	87.3	79-120	0			
Bromomethane	55.41	5.0	50	0	111	66-137	0			
Carbon disulfide	120.7	10	100	0	121	68-141	0			
Carbon tetrachloride	46.35	5.0	50	0	92.7	75-124	0			
Chlorobenzene	45.69	5.0	50	0	91.4	80-120	0			
Chloroethane	56.2	5.0	50	0	112	76-121	0			
Chloroform	51.36	5.0	50	0	103	80-120	0			
Chloromethane	52.26	5.0	50	0	105	67-123	0			
cis-1,3-Dichloropropene	51.11	5.0	50	0	102	80-120	0			
Dibromochloromethane	43.19	5.0	50	0	86.4	80-120	0			
Ethylbenzene	48.15	5.0	50	0	96.3	80-120	0			
m,p-Xylene	95.83	10	100	0	95.8	78-121	0			
Methylene chloride	54.74	10	50	0	109	65-133	0			
Styrene	47.23	5.0	50	0	94.5	80-120	0			
Tetrachloroethene	48.06	5.0	50	0	96.1	79-120	0			
Toluene	46.84	5.0	50	0	93.7	80-120	0			
trans-1,3-Dichloropropene	41.8	5.0	50	0	83.6	80-120	0			
Trichloroethene	54.59	5.0	50	0	109	80-120	0			
Vinyl acetate	116.5	10	100	0	117	67-139	0			
Vinyl chloride	55.86	2.0	50	0	112	70-127	0			
Xylenes, Total	144.1	15	150	0	96.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	*43.38*	5.0	*50*	0	*86.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*42.1*	5.0	*50*	0	*84.2*	*72-125*	0			
Surr: Dibromofluoromethane	*46.28*	5.0	*50*	0	*92.6*	*71-125*	0			
Surr: Toluene-d8	*41.88*	5.0	*50*	0	*83.8*	*75-125*	0			

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63837** Instrument ID **VOA2** Method: **SW8260**

MS Sample ID: **0805601-04AMS** Units: **µg/L** Analysis Date: **5/28/2008 03:25 PM**

Client ID: Run ID: **VOA2_080528B** SeqNo: **1406317** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.89	5.0	50	0	91.8	80-120	0			
1,1,2,2-Tetrachloroethane	47.3	5.0	50	0	94.6	72-120	0			
1,1,2-Trichloroethane	47.41	5.0	50	0	94.8	80-120	0			
1,1-Dichloroethane	44.83	5.0	50	0	89.7	76-120	0			
1,1-Dichloroethene	44.54	5.0	50	0	89.1	73-124	0			
1,2-Dichloroethane	47.57	5.0	50	0	95.1	78-120	0			
2-Butanone	102.3	10	100	0	102	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	108.8	10	100	0	109	61-130	0			
4-Methyl-2-pentanone	111.4	10	100	0	111	65-127	0			
Acetone	106.9	10	100	0	107	59-137	0			
Benzene	47.77	5.0	50	0	95.5	73-121	0			
Bromodichloromethane	49.32	5.0	50	0	98.6	80-120	0			
Bromoform	44.57	5.0	50	0	89.1	79-120	0			
Bromomethane	46.98	5.0	50	0	94	66-137	0			
Carbon disulfide	86.27	10	100	0	86.3	68-141	0			
Carbon tetrachloride	38.35	5.0	50	0	76.7	75-124	0			
Chlorobenzene	43.93	5.0	50	0	87.9	80-120	0			
Chloroethane	43.52	5.0	50	0	87	76-121	0			
Chloroform	47.36	5.0	50	0	94.7	80-120	0			
Chloromethane	44.75	5.0	50	0	89.5	67-123	0			
cis-1,3-Dichloropropene	44.26	5.0	50	0	88.5	80-120	0			
Dibromochloromethane	42.95	5.0	50	0	85.9	80-120	0			
Ethylbenzene	58.52	5.0	50	15.72	85.6	80-120	0			
m,p-Xylene	88.48	10	100	0	88.5	78-121	0			
Methylene chloride	46.9	10	50	0	93.8	65-133	0			
Styrene	45.6	5.0	50	0	91.2	80-120	0			
Tetrachloroethene	41.8	5.0	50	0	83.6	79-120	0			
Toluene	44.02	5.0	50	0	88	80-120	0			
trans-1,3-Dichloropropene	40.8	5.0	50	0	81.6	80-120	0			
Trichloroethene	47.16	5.0	50	0	94.3	80-120	0			
Vinyl acetate	109.4	10	100	0	109	67-139	0			
Vinyl chloride	42.03	2.0	50	0	84.1	70-127	0			
Xylenes, Total	133.6	15	150	0	89	80-120	0			
Surr: 1,2-Dichloroethane-d4	*41.93*	5.0	*50*	0	*83.9*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*42.08*	5.0	*50*	0	*84.2*	*72-125*	0			
Surr: Dibromofluoromethane	*44.57*	5.0	*50*	0	*89.1*	*71-125*	0			
Surr: Toluene-d8	*41*	5.0	*50*	0	*82*	*75-125*	0			

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: R63837 Instrument ID VOA2 Method: SW8260

MSD Sample ID: 0805601-04AMSD Units: µg/L Analysis Date: 5/28/2008 03:49 PM

Client ID: Run ID: VOA2_080528B SeqNo: 1406318 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.03	5.0	50	0	98.1	80-120	45.89	6.62	20	
1,1,2,2-Tetrachloroethane	50.56	5.0	50	0	101	72-120	47.3	6.65	20	
1,1,2-Trichloroethane	49.8	5.0	50	0	99.6	80-120	47.41	4.93	20	
1,1-Dichloroethane	47.18	5.0	50	0	94.4	76-120	44.83	5.1	20	
1,1-Dichloroethene	47.98	5.0	50	0	96	73-124	44.54	7.43	20	
1,2-Dichloroethane	49.81	5.0	50	0	99.6	78-120	47.57	4.62	20	
2-Butanone	106.7	10	100	0	107	58-132	102.3	4.28	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	115.9	10	100	0	116	61-130	108.8	6.33	20	
4-Methyl-2-pentanone	116.8	10	100	0	117	65-127	111.4	4.73	20	
Acetone	109.6	10	100	0	110	59-137	106.9	2.52	20	
Benzene	50.81	5.0	50	0	102	73-121	47.77	6.17	20	
Bromodichloromethane	52.54	5.0	50	0	105	80-120	49.32	6.33	20	
Bromoform	47.3	5.0	50	0	94.6	79-120	44.57	5.96	20	
Bromomethane	50.64	5.0	50	0	101	66-137	46.98	7.51	20	
Carbon disulfide	93.63	10	100	0	93.6	68-141	86.27	8.18	20	
Carbon tetrachloride	41.62	5.0	50	0	83.2	75-124	38.35	8.18	20	
Chlorobenzene	46.42	5.0	50	0	92.8	80-120	43.93	5.51	20	
Chloroethane	46.89	5.0	50	0	93.8	76-121	43.52	7.44	20	
Chloroform	48.94	5.0	50	0	97.9	80-120	47.36	3.27	20	
Chloromethane	48.35	5.0	50	0	96.7	67-123	44.75	7.73	20	
cis-1,3-Dichloropropene	47.47	5.0	50	0	94.9	80-120	44.26	6.99	20	
Dibromochloromethane	45.31	5.0	50	0	90.6	80-120	42.95	5.36	20	
Ethylbenzene	62.77	5.0	50	15.72	94.1	80-120	58.52	7.01	20	
m,p-Xylene	94.53	10	100	0	94.5	78-121	88.48	6.61	20	
Methylene chloride	49.02	10	50	0	98	65-133	46.9	4.41	20	
Styrene	48.13	5.0	50	0	96.3	80-120	45.6	5.4	20	
Tetrachloroethene	44.75	5.0	50	0	89.5	79-120	41.8	6.82	20	
Toluene	46.63	5.0	50	0	93.3	80-120	44.02	5.77	20	
trans-1,3-Dichloropropene	43.88	5.0	50	0	87.8	80-120	40.8	7.28	20	
Trichloroethene	50.02	5.0	50	0	100	80-120	47.16	5.89	20	
Vinyl acetate	115.9	10	100	0	116	67-139	109.4	5.83	20	
Vinyl chloride	45.4	2.0	50	0	90.8	70-127	42.03	7.71	20	
Xylenes, Total	142	15	150	0	94.6	80-120	133.6	6.11	20	
Surr: 1,2-Dichloroethane-d4	*42.81*	5.0	*50*	0	*85.6*	*70-125*	41.93	*2.06*	*20*	
Surr: 4-Bromofluorobenzene	*44.6*	5.0	*50*	0	*89.2*	*72-125*	42.08	*5.81*	*20*	
Surr: Dibromofluoromethane	*46.59*	5.0	*50*	0	*93.2*	*71-125*	44.57	*4.43*	*20*	
Surr: Toluene-d8	*43.46*	5.0	*50*	0	*86.9*	*75-125*	41	*5.83*	*20*	

The following samples were analyzed in this batch: 0805558-01A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63600** Instrument ID **SWetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-052308** Units: **pH units** Analysis Date: **5/23/2008 10:00 AM**
Client ID: Run ID: **SWETCHEM_080523D** SeqNo: **1401952** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.08	0.10	6	0	101	90-110	0			

DUP Sample ID: **0805529-01ADUP** Units: **pH units** Analysis Date: **5/23/2008 10:00 AM**
Client ID: Run ID: **SWETCHEM_080523D** SeqNo: **1401961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	13.17	0.10	0	0	0	0-0	13.14	0.228	20	H

The following samples were analyzed in this batch: 0805558-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63719** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-052708** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403637** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-052708** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403638** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1420	1.0	1413	0	100	80-120	0			

DUP Sample ID: **0805363-01FDUP** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403641** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	3550	1.0	0	0	0	0-0	3570	0.562	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63797** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-052808** Units: **°F** Analysis Date: **5/28/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080528C** SeqNo: **1405214** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID: **0805558-01DDUP** Units: **°F** Analysis Date: **5/28/2008 03:00 PM**
Client ID: **Injection Well** Run ID: **WETCHEM_080528C** SeqNo: **1405217** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch: 0805558-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63808** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-052808** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405421** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-052808** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405422** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1003	5.0	1000	0	100	80-120	0			
Alkalinity, Total (As CaCO3)	1003	5.0	1000	0	100	80-120	0			

DUP Sample ID: **0805543-01FDUP** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405442** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	538	5.0	0	0	0	0-0	530	1.5	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	538	5.0	0	0	0	0-0	530	1.5	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63822** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **BALANCE1_080527K** SeqNo: **1405748** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **BALANCE1_080527K** SeqNo: **1405750** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1004	10	1000	0	100	85-115	0			

DUP Sample ID: **0805531-21BDUP** Units: **mg/L** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **BALANCE1_080527K** SeqNo: **1405729** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	5874	10	0	0	0	0-0	5882	0.136	20	

DUP Sample ID: **0805558-01CDUP** Units: **mg/L** Analysis Date: **5/27/2008 03:00 PM**
Client ID: **Injection Well** Run ID: **BALANCE1_080527K** SeqNo: **1405743** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1232	10	0	0	0	0-0	1238	0.486	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R64025** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 12:00 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410755** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*4.751*	0.10	*5*	0	*95*	*85-115*	0			

LCS Sample ID: **WLCSW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 12:25 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410757** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.8	0.50	20	0	99	90-110	0			
Sulfate	20.2	0.50	20	0	101	90-110	0			
Surr: Selenate (surr)	*4.969*	0.10	*5*	0	*99.4*	*85-115*	0			

MS Sample ID: **0805556-01BMS** Units: **mg/L** Analysis Date: **6/2/2008 03:39 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410766** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	284.1	0.50	10	280.2	38.6	80-120	0			SEO
Sulfate	1394	0.50	10	1422	-279	80-120	0			SEO
Surr: Selenate (surr)	*4.656*	0.10	*5*	0	*93.1*	*85-115*	0			

DUP Sample ID: **0805556-01BDUP** Units: **mg/L** Analysis Date: **6/2/2008 03:14 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410765** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	272.4	0.50	0	0	0	0-0	280.2	2.84	20	E
Sulfate	1384	0.50	0	0	0	0-0	1422	2.7	20	E
Surr: Selenate (surr)	*4.517*	0.10	*5*	0	*90.3*	*85-115*	4.649	*2.88*	*20*	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page ___ of ___

e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS

Project Manager: | **Work Order #:** 880555

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Qrtly.	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Injection Well	5/22/08	1410	L	Y	9	X	X	X	X	X	X	X	X	X		
2	Trip Blank																
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Aaron Strange

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☐ Std 10 Wk Days ☐ 7 Wk Days ☐ 2 Wk Days ☒ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
Aaron Strange	5/22/08	1615		10 Day TAT.
Relinquished by:	Date:	Time:	Received by (Laboratory): 5/22/08 05:40	
Logged by (Laboratory)	Date:	Time:	Checked by (Laboratory):	

Cooler ID	Cooler Temp:	QC Packages: (Check One Box Below)
		☑ Level II Std QC ☐ TRRP CheckList
		☐ Level III Std QC/Raw Data ☐ TRRP Level IV
		☐ Level IV SW846/CLP
		☐ Other

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 5/23/2008 08:40

Work Order Number 0805558 Received by: RNG

Checklist completed by [signature] 5/23/08 Reviewed by [initials] 5/27/08
Signature Date Initials Date

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ✓	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✓	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✓
Chain of custody present?	Yes ✓	No	
Chain of custody signed when relinquished and received?	Yes ✓	No	
Chain of custody agrees with sample labels?	Yes ✓	No	
Samples in proper container/bottle?	Yes ✓	No	
Sample containers intact?	Yes ✓	No	
Sufficient sample volume for indicated test?	Yes ✓	No	
All samples received within holding time?	Yes ✓	No	
Container/Temp Blank temperature in compliance?	Yes ✓	No	
Temperature(s)/Thermometer(s):	2.9c	002	
Cooler(s)/Kit(s):	2369		
Water - VOA vials have zero headspace?	Yes ✓	No	No VOA vials submitted
Water - pH acceptable upon receipt?	Yes ✓	No	N/A

Adjusted? Checked by

Login Notes:

Client contacted: Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action

D800250

ALS e-Lab Analytical
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

CUSTODY

Date: 5/27/08 Time

Name:

Company: Navajo Re

SEAL

1615

Seal Broken By:

Date:

ALS Laboratory Group

Date: 29-May-08

Client: ALS Laboratory Group
Project: 0805558
Work Order: **0805504**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0805504-01	0805558-01F	Water		5/22/2008 14:10	5/28/2008 09:40	☐

ALS Laboratory Group

Date: *29-May-08*

Client: ALS Laboratory Group
Project: 0805558
Sample ID: 0805558-01F
Collection Date: 5/22/2008 02:10 PM
Work Order: 0805504
Lab ID: 0805504-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **DB**
Cyanide, Reactive	ND		40.0	mg/Kg	1	5/29/2008
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **DB**
Sulfide, Reactive	ND		40.0	mg/Kg	1	5/29/2008

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Client: ALS Laboratory Group
Work Order: 0805504
Project: 0805558

Date: *29-May-08*

QC BATCH REPORT

Batch ID: **R59003** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID: **WBLKS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977280** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: **WLCSS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977281** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	220.2	40	250	0	88.1	75-125	0			

LCSD Sample ID: **WLCSDS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977290** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	220.2	40	250	0	88.1	75-125	220.2	0	35	

MS Sample ID: **0805504-01A MS** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: **0805558-01F** Run ID: **WETCHEM_080529E** SeqNo: **977283** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	264.2	40	250	0	106	50-150	0			

MSD Sample ID: **0805504-01A MSD** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: **0805558-01F** Run ID: **WETCHEM_080529E** SeqNo: **977284** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	264.2	40	250	0	106	50-150	264.2	0	35	

The following samples were analyzed in this batch: 0805504-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: ALS Laboratory Group
Work Order: 0805504
Project: 0805558

QC BATCH REPORT

Batch ID: **R59004** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID: **WBLKS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529F** SeqNo: **977295** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0805504-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

0805504

Subcontractor:
e-Lab Analytical, Inc.
3352 128th Ave.
Holland, MI 49424
TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Date: 23-May-08
COC ID: 6398
Due Date 04-Jun-08

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	0805558	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jeff.croston@alsenviro.com	eMail CC	glenda.ramos@alsenviro.com	J

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
0805558-01F (Injection Well)	Water	5/22/2008 14:10	(1) 1LPNEAT	X	X								

Comments:

Please analyze for Reactive Cyanide & Reactive Sulfide.

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
					Std
Relinquished by:	Date/Time 5.27.08	Received by:	Date/Time 5/28/08 0940		

ALS Laboratory Group

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 5/28/2008 09:40

Work Order Number 0805504 Received by: AJK

Checklist completed by _____ 5/28/08 Reviewed by _____ 5/28/08
Signature Date Initials Date

Matrix: Water Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.0°C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

UPS Next Day Air Saver

WEIGHT 49 | DIMENSIONAL WEIGHT | LARGE PACKAGE | SHIPPER RELEASE

1P

Saver

The shipper authorizes UPS to act as forwarding agent for export control and customs purposes. The shipper certifies that these commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to U.S. law is prohibited.

SHIPMENT FROM

UPS ACCOUNT NO. 698174

REFERENCE NUMBER
SUB CONTRACT

RICHARD SANCHEZ TELEPHONE 281-530-5656

ALS LABORATORY GROUP

1450 STANCLIFF RD STE # 210

HOUSTON TX 77099

MI 495 9-04

UPS Next Day Air Saver 1P

DELIVERY TO

RECEIVING TELEPHONE 616-399-6070

ALS LABORATORY GROUP

3352 128TH AVE

HOLLAND MI 49424

(URC 1.72 5/30/2007)
0201952502609 1/07

United Parcel Service, Louisville, KY

1Z 698 174 23 1005 3901

TRACKING NUMBER

SHIPMENT ID NUMBER 6981 747B BCW

3352 128TH AVE

HOLLAND MI 49424

P: S: I:

M220-RDL

1500

1Z 698 174 23 1005 3901

1256391 SS3004 US 04959 May 28 08:06:53 2008 HIP 7.0.1 INT4420

HEAVY HEAVY HEAVY HEAVY

49 lbs.
FedEx M-1578
119686 3/00 WCS

49 lbs.
FedEx M-1578
119685 3/00 WCS

e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

QUALITY • INTEGRITY • SERVICE

CUSTODY SEAL

Date: 5-27-08 Time: 1640
Name: RICHARD SANCHEZ
Company: ALS

Seal Broken By:
Date: 5/28/08

08055504

REFINING COMPANY, LLC

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 ENV/PURCH/MKTG
(505) 746-5421 ENGINEERING

January 18, 2008

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 Fourth Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

While generating this report an error was found and corrected on the 2007 third quarter monthly injection pressures, rates and volumes spread sheet. Please see the enclosed corrected spread sheet.

Also enclosed, please find the sampling results for the fourth quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2007 to December 31, 2007. We have disposed a total of 36,349,675 barrels of fluid into the two wells as of December 31, 2007. This is broken down as follows: 24,507,561 barrels into WDW-1 and 11,842,114 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Aaron Strange

Aaron Strange
Sr. Environmental Technician

Encl.

cc: DGM
File: REF:ART: 4 A 02 D

RECEIVED
2008 JAN 23 PM 2 01

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													Previous Quarter	23,700,982
Oct-07	273	316	1	281	304	162	96	194	18	9,624	10,435	5,543	298,355	23,999,337
Nov-07	293	386	87	242	280	64	206	333	29	8,297	9,597	2,184	257,219	24,256,556
Dec-07	395	468	368	236	264	146	193	272	113	8,097	9,036	5,000	251,005	24,507,561
WDW-2													Previous Quarter	11,362,072
Oct-07	339	406	30	133	160	0	477	500	168	4,546	5,469	0	140,915	11,502,987
Nov-07	347	401	121	144	176	36	486	500	303	4,925	6,038	1,237	152,676	11,655,663
Dec-07	410	443	367	175	187	153	455	500	310	6,015	6,428	5,242	186,452	11,842,114
													Total Injected fluids:	36,349,675

Page 2075 of 5828

Released to Imaging: 7/12/2024 10:49:45 AM

2007 THIRD QUARTER WEEKLY WHAMS LEVEL TABLE

	10/2/07	10/9/07	10/15/07	10/23/07	10/30/07	11/6/07	11/12/07	11/20/07	11/27/07	12/3/07	12/11/07	12/18/07	12/25/07
WDW -1[1]	200	200	200	200	200	200	200	200	190	190	190	190	190
WDW-2[1]	160	160	160	160	160	160	160	160	160	160	160	160	160
WDW-3[2]	*	*	*	*	*	*	*	*	*	*	240	240	240

[1] Graduated 200 gallon tank.

[2] 300 gallon tank, filled the week of 12/10/07, no fluids were injected as of 12/31/07.

Received by OCD: 5/16/2022 2:12:41 PM

November 30, 2007

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Well Quarterly

Work Order : **0711312**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 1 sample on 11/14/2007 09:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 35.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Rebecca L. Hunt

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: November 30, 2007

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312

LELAP Certificate #03087

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Dat	Date Received	Hold
0711312-01	Inj. Well	Water		11/13/2007 09:15	11/14/2007 09:20	☐

e-Lab Analytical, Inc.

Date: November 30, 2007

Client:	Navajo Refining Company	LELAP Certificate #03087
Project:	Injection Well Quarterly	**Case Narrative**
Work Order:	0711312	

Metals (sample Inj. Well) could not be reported at a lower dilution for all elements due the nature of the sample.

Batch 26751 Metals MS/MSD was an unrelated sample.

Batch 26771 Semivolatiles LCS/LCSD RPD recovery was above the control limits for Benzidine (23.7%). Recoveries met method criteria in both LCS/LCSD.

Batch R57123 Volatiles MS/MSD was an unrelated sample.

Batch R57038 Anions MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Inj. Well
Collection Date: 11/13/2007 9:15:00 AM

Work Order: 0711312
Lab ID: 0711312-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **11/24/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	11/25/2007 6:38:10 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **11/15/2007**	Analyst: **ALR**
Aluminum	**1.85**		**0.100**	**mg/L**	10	11/19/2007 8:55:00 PM
Arsenic	**0.147**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Barium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Beryllium	ND		0.00200	mg/L	1	11/19/2007 9:01:00 PM
Boron	**0.241**		**0.0200**	**mg/L**	1	11/19/2007 9:01:00 PM
Cadmium	ND		0.0200	mg/L	10	11/17/2007 12:10:00 AM
Calcium	**119**		**5.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Chromium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Cobalt	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Copper	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Iron	**4.17**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Lead	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Magnesium	**43.3**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Manganese	**0.117**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Molybdenum	**0.144**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Nickel	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Potassium	**27.4**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Selenium	**0.452**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Silver	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Sodium	**1,200**		**2.00**	**mg/L**	10	11/19/2007 8:55:00 PM
Vanadium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Zinc	**0.190**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **11/16/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Methylphenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Nitrophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
3-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
4-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
4-Nitrophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Acenaphthene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Acenaphthylene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Anthracene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Benzidine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Hexachloroethane	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Isophorone	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Naphthalene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Nitrobenzene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Pentachlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Phenanthrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Phenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Pyrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Surr: 2,4,6-Tribromophenol	*86.1*		*42-124*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 2-Fluorobiphenyl	*63.6*		*48-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 2-Fluorophenol	*64.9*		*20-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 4-Terphenyl-d14	*71.0*		*51-135*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: Nitrobenzene-d5	*65.9*		*41-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: Phenol-d6	*69.3*		*20-120*	*%REC*	1	11/19/2007 5:17:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
2-Butanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
2-Hexanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Acetone	**0.042**		**0.010**	**mg/L**	1	11/21/2007 5:00:00 PM
Benzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromodichloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromoform	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromomethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Carbon disulfide	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM

Qualifiers:
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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloroform	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Dibromochloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Ethylbenzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
m,p-Xylene	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Methylene chloride	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Styrene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Tetrachloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Toluene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Trichloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Vinyl acetate	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Vinyl chloride	ND		0.0020	mg/L	1	11/21/2007 5:00:00 PM
Xylenes, Total	ND		0.015	mg/L	1	11/21/2007 5:00:00 PM
Surr: 1,2-Dichloroethane-d4	*87.0*		*70-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: 4-Bromofluorobenzene	*92.8*		*72-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: Dibromofluoromethane	*102*		*71-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: Toluene-d8	*102*		*75-125*	*%REC*	1	11/21/2007 5:00:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	11/16/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	11/16/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **RPM**
Chloride	**889**		**50.0**	**mg/L**	100	11/20/2007 7:10:00 PM
Sulfate	**1,650**		**50.0**	**mg/L**	100	11/20/2007 7:10:00 PM
Surr: Selenate (surr)	*113*		*85-115*	*%REC*	100	11/20/2007 7:10:00 PM
ALKALINITY			**E310.1**			Analyst: **DM**
Alkalinity, Bicarbonate (As CaCO3)	**334**		**5.00**	**mg/L**	1	11/19/2007 4:00:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	11/19/2007 4:00:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	11/19/2007 4:00:00 PM
Alkalinity, Total (As CaCO3)	**334**		**5.00**	**mg/L**	1	11/19/2007 4:00:00 PM
CONDUCTIVITY			**E120.1**			Analyst: **DM**
Specific Conductance	**5,980**		**1.00**	**µmhos/cm**	1	11/16/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	11/15/2007

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	**7.37**	H	**0.100**	**pH units**	1	11/14/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	**4,300**		**10.0**	***mg/L***	1	11/15/2007 3:00:00 PM

Qualifiers:

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- E - Value above quantitation range
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e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

Date: *Nov 30 2007*

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID **MBLKW2-111507** Units: **mg/L** Analysis Date: **11/16/07 23:57**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264730** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	0.0003037	0.0020								J
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	0.0002719	0.0050								J
Copper	ND	0.0050								
Iron	0.05465	0.20								J
Lead	0.000386	0.0050								J
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	0.0004153	0.0050								J
Potassium	0.04252	0.20								J
Selenium	ND	0.0050								
Silver	ND	0.0050								
Vanadium	0.0006997	0.0050								J
Zinc	ND	0.0050								

MBLK Sample ID **MBLKW2-111507** Units: **mg/L** Analysis Date: **11/19/07 17:19**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265810** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.0003468	0.0020								J
Boron	ND	0.020								
Sodium	ND	0.20								

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O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID **MLCSW2-111507** Units: **mg/L** Analysis Date: **11/17/07 0:04**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264732** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04957	0.0050	0.05	0	99.1	80-120	0			
Barium	0.05136	0.0050	0.05	0	103	80-120	0			
Cadmium	0.05239	0.0020	0.05	0	105	80-120	0			
Calcium	5.456	0.50	5	0	109	80-120	0			
Chromium	0.05098	0.0050	0.05	0	102	80-120	0			
Cobalt	0.0535	0.0050	0.05	0	107	80-120	0			
Copper	0.05107	0.0050	0.05	0	102	80-120	0			
Iron	5.187	0.20	5	0	104	80-120	0			
Lead	0.05153	0.0050	0.05	0	103	80-120	0			
Magnesium	5.225	0.20	5	0	104	80-120	0			
Manganese	0.05052	0.0050	0.05	0	101	80-120	0			
Molybdenum	0.05028	0.0050	0.05	0	101	80-120	0			
Nickel	0.05157	0.0050	0.05	0	103	80-120	0			
Potassium	5.175	0.20	5	0	104	80-120	0			
Selenium	0.05426	0.0050	0.05	0	109	80-120	0			
Silver	0.04955	0.0050	0.05	0	99.1	80-120	0			
Vanadium	0.05257	0.0050	0.05	0	105	80-120	0			
Zinc	0.05273	0.0050	0.05	0	105	80-120	0			

LCS Sample ID **MLCSW2-111507** Units: **mg/L** Analysis Date: **11/19/07 17:26**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265811** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.05013	0.0020	0.05	0	100	80-120	0			
Boron	0.5145	0.020	0.5	0	103	80-120	0			
Sodium	4.668	0.20	5	0	93.4	80-120	0			

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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID **0711313-06EMS** Units: **mg/L** Analysis Date: **11/17/07 3:00**
Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264759** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06728	0.0050	0.05	0.01503	104	80-120	0			
Barium	0.1102	0.0050	0.05	0.06018	100	80-120	0			
Beryllium	0.05128	0.0020	0.05	0.0006468	101	80-120	0			
Boron	0.8142	0.020	0.5	0.2942	104	80-120	0			
Cadmium	0.04984	0.0020	0.05	0.0003068	99.1	80-120	0			
Calcium	149.3	0.50	5	148.6	14	80-120	0			SO
Chromium	0.045	0.0050	0.05	0.0002828	89.4	80-120	0			
Cobalt	0.05518	0.0050	0.05	0.007226	95.9	80-120	0			
Copper	0.04599	0.0050	0.05	0.0007485	90.5	80-120	0			
Iron	5.172	0.20	5	0.6444	90.6	80-120	0			
Lead	0.04957	0.0050	0.05	0.0003491	98.4	80-120	0			
Magnesium	31.26	0.20	5	28.38	57.6	80-120	0			SO
Manganese	2.072	0.0050	0.05	2.124	-104	80-120	0			SEO
Molybdenum	0.05029	0.0050	0.05	0.002178	96.2	80-120	0			
Nickel	0.0611	0.0050	0.05	0.01618	89.8	80-120	0			
Potassium	21.17	0.20	5	17.18	79.8	80-120	0			S
Selenium	0.05263	0.0050	0.05	0.001845	102	80-120	0			
Silver	0.04467	0.0050	0.05	0.0003217	88.7	80-120	0			
Sodium	139	0.20	5	141.8	-56	80-120	0			SO
Vanadium	0.06015	0.0050	0.05	0.01373	92.8	80-120	0			
Zinc	0.05148	0.0050	0.05	0.002264	98.4	80-120	0			

MS Sample ID **0711313-06EMS** Units: **mg/L** Analysis Date: **11/19/07 18:55**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265940** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05348	0.010	0.05	0.007074	92.8	80-120	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID **0711313-06EMSD** Units: **mg/L** Analysis Date: **11/17/07 3:06**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264760** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.07399	0.0050	0.05	0.01503	118	80-120	0.06728	9.5	15	
Barium	0.1087	0.0050	0.05	0.06018	97	80-120	0.1102	1.37	15	
Beryllium	0.04895	0.0020	0.05	0.0006468	96.6	80-120	0.05128	4.65	15	
Boron	0.7898	0.020	0.5	0.2942	99.1	80-120	0.8142	3.04	15	
Cadmium	0.04852	0.0020	0.05	0.0003068	96.4	80-120	0.04984	2.68	15	
Calcium	146	0.50	5	148.6	-52	80-120	149.3	2.24	15	SO
Chromium	0.04641	0.0050	0.05	0.0002828	92.3	80-120	0.045	3.09	15	
Cobalt	0.05651	0.0050	0.05	0.007226	98.6	80-120	0.05518	2.38	15	
Copper	0.04666	0.0050	0.05	0.0007485	91.8	80-120	0.04599	1.45	15	
Iron	5.181	0.20	5	0.6444	90.7	80-120	5.172	0.174	15	
Lead	0.0476	0.0050	0.05	0.0003491	94.5	80-120	0.04957	4.05	15	
Magnesium	30.78	0.20	5	28.38	48	80-120	31.26	1.55	15	SO
Manganese	2.107	0.0050	0.05	2.124	-34	80-120	2.072	1.68	15	SEO
Molybdenum	0.04949	0.0050	0.05	0.002178	94.6	80-120	0.05029	1.6	15	
Nickel	0.05928	0.0050	0.05	0.01618	86.2	80-120	0.0611	3.02	15	
Potassium	20.87	0.20	5	17.18	73.8	80-120	21.17	1.43	15	S
Selenium	0.05122	0.0050	0.05	0.001845	98.8	80-120	0.05263	2.72	15	
Silver	0.04655	0.0050	0.05	0.0003217	92.5	80-120	0.04467	4.12	15	
Sodium	137.8	0.20	5	141.8	-80	80-120	139	0.867	15	SO
Vanadium	0.06479	0.0050	0.05	0.01373	102	80-120	0.06015	7.43	15	
Zinc	0.05098	0.0050	0.05	0.002264	97.4	80-120	0.05148	0.976	15	

MSD Sample ID **0711313-06EMSD** Units: **mg/L** Analysis Date: **11/19/07 19:01**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265941** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05155	0.010	0.05	0.007074	89	80-120	0.05348	3.68	15	

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/17/07 2:47**
Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264757** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.01783	0.0050	0	0	0	0-0	0.01503	17	25	
Barium	0.06495	0.0050	0	0	0	0-0	0.06018	7.62	25	
Beryllium	0.0004054	0.0020	0	0	0	0-0	0.0006468	0	25	J
Boron	0.3056	0.020	0	0	0	0-0	0.2942	3.8	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.0003068	0	25	
Calcium	151.1	0.50	0	0	0	0-0	148.6	1.67	25	
Chromium	ND	0.0050	0	0	0	0-0	0.0002828	0	25	
Cobalt	0.007171	0.0050	0	0	0	0-0	0.007226	0.764	25	
Copper	0.0005842	0.0050	0	0	0	0-0	0.0007485	0	25	J
Iron	0.6462	0.20	0	0	0	0-0	0.6444	0.279	25	
Lead	ND	0.0050	0	0	0	0-0	0.0003491	0	25	
Magnesium	28.36	0.20	0	0	0	0-0	28.38	0.0705	25	
Molybdenum	0.002077	0.0050	0	0	0	0-0	0.002178	0	25	J
Nickel	0.0161	0.0050	0	0	0	0-0	0.01618	0.496	25	
Potassium	17.34	0.20	0	0	0	0-0	17.18	0.927	25	
Selenium	ND	0.0050	0	0	0	0-0	0.001845	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0003217	0	25	
Sodium	141.8	0.20	0	0	0	0-0	141.8	0	25	
Vanadium	0.01359	0.0050	0	0	0	0-0	0.01373	1.02	25	
Zinc	0.002235	0.0050	0	0	0	0-0	0.002264	0	25	J

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/19/07 17:38**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265813** Prep Date: **11/15/2007** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	2.195	0.25	0	0	0	0-0	2.163	1.47	25	

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/19/07 18:23**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265819** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.007846	0.010	0	0	0	0-0	0.007074	0	25	J

The following samples were analyzed in this batch: 0711312-01B

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26874** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID **GBLKW3-112407** Units: **mg/L** Analysis Date: **11/25/07 17:44**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269056** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID **GLCSW3-112407** Units: **mg/L** Analysis Date: **11/25/07 17:48**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269057** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00475	0.00020	0.005	0	95	85-115	0			

LCSD Sample ID **GLCSDW3-11240** Units: **mg/L** Analysis Date: **11/25/07 17:50**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269058** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00498	0.00020	0.005	0	99.6	85-115	0.00475	4.73	20	

MS Sample ID **0711456-01DMS** Units: **mg/L** Analysis Date: **11/25/07 18:02**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269061** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00478	0.00020	0.005	0.000033	94.9	85-115	0			

MSD Sample ID **0711456-01DMSD** Units: **mg/L** Analysis Date: **11/25/07 18:04**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269062** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00519	0.00020	0.005	0.000033	103	85-115	0.00478	8.22	20	

DUP Sample ID **0711456-01DDUP** Units: **mg/L** Analysis Date: **11/25/07 17:57**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269060** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0.000033	0	20	

The following samples were analyzed in this batch: 0711312-01B

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID **SBLKW1-071116** Units: **µg/L** Analysis Date: **11/19/07 14:34**

Client ID: Run ID: **SV-3_071119B** SeqNo: **1266313** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*92.41*	5.0	*100*	0	*92.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*69.89*	5.0	*100*	0	*69.9*	*48-120*	0			
Surr: 2-Fluorophenol	*68.99*	5.0	*100*	0	*69*	*20-120*	0			
Surr: 4-Terphenyl-d14	*74.64*	5.0	*100*	0	*74.6*	*51-135*	0			
Surr: Nitrobenzene-d5	*71.66*	5.0	*100*	0	*71.7*	*41-120*	0			
Surr: Phenol-d6	*75.26*	5.0	*100*	0	*75.3*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID **SLCSW1-071116** Units: **µg/L** Analysis Date: **11/19/07 15:01**

Client ID: Run ID: **SV-3_071119B** SeqNo: **1266314** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	39.4	5.0	50	0	78.8	54-118	0			
2,4,5-Trichlorophenol	89.6	5.0	100	0	89.6	52-115	0			
2,4,6-Trichlorophenol	81.96	5.0	100	0	82	56-115	0			
2-Methylnaphthalene	42.93	5.0	50	0	85.9	46-117	0			
2-Methylphenol	83.45	5.0	100	0	83.4	53-115	0			
2-Nitroaniline	54.19	5.0	50	0	108	53-123	0			
2-Nitrophenol	78.88	5.0	100	0	78.9	53-115	0			
3&4-Methylphenol	125.9	5.0	150	0	83.9	48-115	0			
3-Nitroaniline	43.56	5.0	50	0	87.1	26-115	0			
4-Nitroaniline	52.68	5.0	50	0	105	47-115	0			
4-Nitrophenol	116	5.0	100	0	116	26-133	0			
Acenaphthene	45.42	5.0	50	0	90.8	57-115	0			
Acenaphthylene	45.59	5.0	50	0	91.2	57-118	0			
Aniline	30.91	5.0	50	0	61.8	36-115	0			
Anthracene	45.48	5.0	50	0	91	65-115	0			
Benz(a)anthracene	47.55	5.0	50	0	95.1	53-115	0			
Benzidine	30.52	5.0	50	0	61	10-115	0			
Hexachloroethane	37.97	5.0	50	0	75.9	54-115	0			
Indeno(1,2,3-cd)pyrene	45.31	5.0	50	0	90.6	51-115	0			
Isophorone	40.34	5.0	50	0	80.7	55-115	0			
N-Nitrosodi-n-propylamine	40.38	5.0	50	0	80.8	55-115	0			
N-Nitrosodimethylamine	43.16	5.0	50	0	86.3	42-115	0			
N-Nitrosodiphenylamine	39.58	5.0	50	0	79.2	52-115	0			
Naphthalene	41.89	5.0	50	0	83.8	55-115	0			
Nitrobenzene	40.24	5.0	50	0	80.5	40-124	0			
Pentachlorophenol	105.5	5.0	100	0	106	45-125	0			
Phenanthrene	44.7	5.0	50	0	89.4	57-115	0			
Phenol	84.22	5.0	100	0	84.2	38-115	0			
Pyrene	47.35	5.0	50	0	94.7	51-115	0			
Surr: 2,4,6-Tribromophenol	*96.31*	5.0	*100*	0	*96.3*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*69.86*	5.0	*100*	0	*69.9*	*48-120*	0			
Surr: 2-Fluorophenol	*73.12*	5.0	*100*	0	*73.1*	*20-120*	0			
Surr: 4-Terphenyl-d14	*75.81*	5.0	*100*	0	*75.8*	*51-135*	0			
Surr: Nitrobenzene-d5	*68.53*	5.0	*100*	0	*68.5*	*41-120*	0			
Surr: Phenol-d6	*77.13*	5.0	*100*	0	*77.1*	*20-120*	0			

ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID **SLCSDW1-071116** Units: **µg/L** Analysis Date: **11/19/07 15:28**
Client ID: Run ID: **SV-3_071119B** SeqNo: **1266315** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.11	5.0	50	0	82.2	54-118	39.4	4.25	20	
2,4,5-Trichlorophenol	86.98	5.0	100	0	87	52-115	89.6	2.97	20	
2,4,6-Trichlorophenol	82.98	5.0	100	0	83	56-115	81.96	1.24	20	
2-Methylnaphthalene	45.1	5.0	50	0	90.2	46-117	42.93	4.93	20	
2-Methylphenol	83.41	5.0	100	0	83.4	53-115	83.45	0.0409	20	
2-Nitroaniline	51.42	5.0	50	0	103	53-123	54.19	5.26	20	
2-Nitrophenol	78.43	5.0	100	0	78.4	53-115	78.88	0.58	20	
3&4-Methylphenol	125.5	5.0	150	0	83.7	48-115	125.9	0.277	20	
3-Nitroaniline	44.89	5.0	50	0	89.8	26-115	43.56	3	20	
4-Nitroaniline	52.11	5.0	50	0	104	47-115	52.68	1.1	20	
4-Nitrophenol	115.8	5.0	100	0	116	26-133	116	0.18	20	
Acenaphthene	45.35	5.0	50	0	90.7	57-115	45.42	0.16	20	
Acenaphthylene	44.43	5.0	50	0	88.9	57-118	45.59	2.57	20	
Aniline	33.59	5.0	50	0	67.2	36-115	30.91	8.32	20	
Anthracene	45.52	5.0	50	0	91	65-115	45.48	0.0854	20	
Benz(a)anthracene	47.71	5.0	50	0	95.4	53-115	47.55	0.352	20	
Benzidine	38.73	5.0	50	0	77.5	10-115	30.52	23.7	20	R
Hexachloroethane	38.39	5.0	50	0	76.8	54-115	37.97	1.1	20	
Indeno(1,2,3-cd)pyrene	47.31	5.0	50	0	94.6	51-115	45.31	4.32	20	
Isophorone	43.3	5.0	50	0	86.6	55-115	40.34	7.06	20	
N-Nitrosodi-n-propylamine	40.39	5.0	50	0	80.8	55-115	40.38	0.0315	20	
N-Nitrosodimethylamine	45.31	5.0	50	0	90.6	42-115	43.16	4.87	20	
N-Nitrosodiphenylamine	40.7	5.0	50	0	81.4	52-115	39.58	2.79	20	
Naphthalene	43.92	5.0	50	0	87.8	55-115	41.89	4.71	20	
Nitrobenzene	40.55	5.0	50	0	81.1	40-124	40.24	0.773	20	
Pentachlorophenol	105.6	5.0	100	0	106	45-125	105.5	0.116	20	
Phenanthrene	45.06	5.0	50	0	90.1	57-115	44.7	0.812	20	
Phenol	86.8	5.0	100	0	86.8	38-115	84.22	3.02	20	
Pyrene	46.74	5.0	50	0	93.5	51-115	47.35	1.29	20	
Surr: 2,4,6-Tribromophenol	*94.74*	5.0	*100*	0	*94.7*	*42-124*	96.31	*1.64*	*20*	
Surr: 2-Fluorobiphenyl	*74.74*	5.0	*100*	0	*74.7*	*48-120*	69.86	*6.75*	*20*	
Surr: 2-Fluorophenol	*72.8*	5.0	*100*	0	*72.8*	*20-120*	73.12	*0.433*	*20*	
Surr: 4-Terphenyl-d14	*80.54*	5.0	*100*	0	*80.5*	*51-135*	75.81	*6.05*	*20*	
Surr: Nitrobenzene-d5	*76.56*	5.0	*100*	0	*76.6*	*41-120*	68.53	*11.1*	*20*	
Surr: Phenol-d6	*83.03*	5.0	*100*	0	*83*	*20-120*	77.13	*7.37*	*20*	

The following samples were analyzed in this batch: 0711312-01E

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID **VBLKW-112107** Units: **µg/L** Analysis Date: **11/21/07 12:49**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269780** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*42.59*	5.0	*50*	0	*85.2*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*50.37*	5.0	*50*	0	*101*	*72-125*	0			
Surr: Dibromofluoromethane	*48.48*	5.0	*50*	0	*97*	*71-125*	0			
Surr: Toluene-d8	*52.5*	5.0	*50*	0	*105*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID **VLCSW-112107** Units: **µg/L** Analysis Date: **11/21/07 14:55**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269782** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	55.83	5.0	50	0	112	80-120	0			
1,1,2,2-Tetrachloroethane	47.95	5.0	50	0	95.9	72-120	0			
1,1,2-Trichloroethane	45.77	5.0	50	0	91.5	80-120	0			
1,1-Dichloroethane	51.82	5.0	50	0	104	76-120	0			
1,1-Dichloroethene	53.78	5.0	50	0	108	73-124	0			
1,2-Dichloroethane	47.67	5.0	50	0	95.3	78-120	0			
2-Butanone	96.44	10	100	0	96.4	58-132	0			
2-Chloroethyl vinyl ether	77.45	10	100	0	77.4	74-120	0			
2-Hexanone	92.5	10	100	0	92.5	61-130	0			
4-Methyl-2-pentanone	105.7	10	100	0	106	65-127	0			
Acetone	100.1	10	100	0	100	59-137	0			
Benzene	47.01	5.0	50	0	94	73-121	0			
Bromodichloromethane	49.86	5.0	50	0	99.7	80-120	0			
Bromoform	45.58	5.0	50	0	91.2	79-120	0			
Bromomethane	52.49	5.0	50	0	105	66-137	0			
Carbon disulfide	102.6	10	100	0	103	68-141	0			
Carbon tetrachloride	49.23	5.0	50	0	98.5	75-124	0			
Chlorobenzene	49.24	5.0	50	0	98.5	80-120	0			
Chloroethane	50.21	5.0	50	0	100	76-121	0			
Chloroform	52.01	5.0	50	0	104	80-120	0			
Chloromethane	47.41	5.0	50	0	94.8	67-123	0			
cis-1,3-Dichloropropene	47.12	5.0	50	0	94.2	80-120	0			
Dibromochloromethane	52.13	5.0	50	0	104	80-120	0			
Ethylbenzene	51.73	5.0	50	0	103	80-120	0			
m,p-Xylene	98.1	10	100	0	98.1	78-121	0			
Methylene chloride	51.91	10	50	0	104	65-133	0			
Styrene	47.17	5.0	50	0	94.3	80-120	0			
Tetrachloroethene	47.43	5.0	50	0	94.9	79-120	0			
Toluene	52.88	5.0	50	0	106	80-120	0			
trans-1,3-Dichloropropene	49.9	5.0	50	0	99.8	80-120	0			
Trichloroethene	48.46	5.0	50	0	96.9	80-120	0			
Vinyl acetate	103.4	10	100	0	103	67-139	0			
Vinyl chloride	45.7	2.0	50	0	91.4	70-127	0			
Xylenes, Total	151.2	15	150	0	101	80-120	0			
Surr: 1,2-Dichloroethane-d4	*47.3*	5.0	*50*	0	*94.6*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*53.8*	5.0	*50*	0	*108*	*72-125*	0			
Surr: Dibromofluoromethane	*54.15*	5.0	*50*	0	*108*	*71-125*	0			
Surr: Toluene-d8	*57.23*	5.0	*50*	0	*114*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID **0711374-01AMS** Units: **µg/L** Analysis Date: **11/21/07 15:45**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269783** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.34	5.0	50	0	90.7	80-120	0			
1,1,2,2-Tetrachloroethane	50.58	5.0	50	0	101	72-120	0			
1,1,2-Trichloroethane	48.75	5.0	50	0	97.5	80-120	0			
1,1-Dichloroethane	48.63	5.0	50	0	97.3	76-120	0			
1,1-Dichloroethene	42.15	5.0	50	0	84.3	73-124	0			
1,2-Dichloroethane	47.99	5.0	50	0	96	78-120	0			
2-Butanone	91.89	10	100	0	91.9	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	95.1	10	100	0	95.1	61-130	0			
4-Methyl-2-pentanone	88.3	10	100	0	88.3	65-127	0			
Acetone	80.5	10	100	0	80.5	59-137	0			
Benzene	45.31	5.0	50	0	90.6	73-121	0			
Bromodichloromethane	48.38	5.0	50	0	96.8	80-120	0			
Bromoform	45.61	5.0	50	0	91.2	79-120	0			
Bromomethane	46.08	5.0	50	0	92.2	66-137	0			
Carbon disulfide	86.95	10	100	0	86.9	68-141	0			
Carbon tetrachloride	44.61	5.0	50	0	89.2	75-124	0			
Chlorobenzene	48.03	5.0	50	0	96.1	80-120	0			
Chloroethane	41.13	5.0	50	0	82.3	76-121	0			
Chloroform	46.71	5.0	50	0	93.4	80-120	0			
Chloromethane	43.96	5.0	50	0	87.9	67-123	0			
cis-1,3-Dichloropropene	49.34	5.0	50	0	98.7	80-120	0			
Dibromochloromethane	49.82	5.0	50	0	99.6	80-120	0			
Ethylbenzene	45.49	5.0	50	0	91	80-120	0			
m,p-Xylene	93.74	10	100	0	93.7	78-121	0			
Methylene chloride	47.25	10	50	0	94.5	65-133	0			
Styrene	45.63	5.0	50	0	91.3	80-120	0			
Tetrachloroethene	42.09	5.0	50	0	84.2	79-120	0			
Toluene	46.81	5.0	50	0	93.6	80-120	0			
trans-1,3-Dichloropropene	48.76	5.0	50	0	97.5	80-120	0			
Trichloroethene	42.4	5.0	50	0	84.8	80-120	0			
Vinyl acetate	95.18	10	100	0	95.2	67-139	0			
Vinyl chloride	38.53	2.0	50	0	77.1	70-127	0			
Xylenes, Total	141.8	15	150	0	94.5	80-120	0			
Surr: 1,2-Dichloroethane-d4	*45.18*	5.0	*50*	0	*90.4*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.35*	5.0	*50*	0	*109*	*72-125*	0			
Surr: Dibromofluoromethane	*49.56*	5.0	*50*	0	*99.1*	*71-125*	0			
Surr: Toluene-d8	*48.8*	5.0	*50*	0	*97.6*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID **0711374-01AMSD** Units: **µg/L** Analysis Date: **11/21/07 16:10**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269784** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	36.97	5.0	50	0	73.9	80-120	45.34	20.3	20	SR
1,1,2,2-Tetrachloroethane	46.06	5.0	50	0	92.1	72-120	50.58	9.35	20	
1,1,2-Trichloroethane	48.66	5.0	50	0	97.3	80-120	48.75	0.18	20	
1,1-Dichloroethane	43.48	5.0	50	0	87	76-120	48.63	11.2	20	
1,1-Dichloroethene	37.02	5.0	50	0	74	73-124	42.15	13	20	
1,2-Dichloroethane	39.89	5.0	50	0	79.8	78-120	47.99	18.4	20	
2-Butanone	91.95	10	100	0	91.9	58-132	91.89	0.0642	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	90.33	10	100	0	90.3	61-130	95.1	5.15	20	
4-Methyl-2-pentanone	102.6	10	100	0	103	65-127	88.3	14.9	20	
Acetone	84.77	10	100	0	84.8	59-137	80.5	5.17	20	
Benzene	45.96	5.0	50	0	91.9	73-121	45.31	1.43	20	
Bromodichloromethane	45.05	5.0	50	0	90.1	80-120	48.38	7.11	20	
Bromoform	47.11	5.0	50	0	94.2	79-120	45.61	3.24	20	
Bromomethane	42.14	5.0	50	0	84.3	66-137	46.08	8.93	20	
Carbon disulfide	82.75	10	100	0	82.8	68-141	86.95	4.94	20	
Carbon tetrachloride	40.68	5.0	50	0	81.4	75-124	44.61	9.22	20	
Chlorobenzene	48.73	5.0	50	0	97.5	80-120	48.03	1.44	20	
Chloroethane	35.91	5.0	50	0	71.8	76-121	41.13	13.6	20	S
Chloroform	42.13	5.0	50	0	84.3	80-120	46.71	10.3	20	
Chloromethane	37.08	5.0	50	0	74.2	67-123	43.96	17	20	
cis-1,3-Dichloropropene	43.91	5.0	50	0	87.8	80-120	49.34	11.7	20	
Dibromochloromethane	49.4	5.0	50	0	98.8	80-120	49.82	0.863	20	
Ethylbenzene	44.2	5.0	50	0	88.4	80-120	45.49	2.88	20	
m,p-Xylene	89.45	10	100	0	89.4	78-121	93.74	4.68	20	
Methylene chloride	42.99	10	50	0	86	65-133	47.25	9.45	20	
Styrene	42.78	5.0	50	0	85.6	80-120	45.63	6.45	20	
Tetrachloroethene	40.99	5.0	50	0	82	79-120	42.09	2.64	20	
Toluene	48.43	5.0	50	0	96.9	80-120	46.81	3.41	20	
trans-1,3-Dichloropropene	47.67	5.0	50	0	95.3	80-120	48.76	2.24	20	
Trichloroethene	44.91	5.0	50	0	89.8	80-120	42.4	5.76	20	
Vinyl acetate	83.17	10	100	0	83.2	67-139	95.18	13.5	20	
Vinyl chloride	32.62	2.0	50	0	65.2	70-127	38.53	16.6	20	S
Xylenes, Total	137.4	15	150	0	91.6	80-120	141.8	3.11	20	
Surr: 1,2-Dichloroethane-d4	*45.7*	5.0	*50*	0	*91.4*	*70-125*	45.18	*1.15*	*20*	
Surr: 4-Bromofluorobenzene	*53.77*	5.0	*50*	0	*108*	*72-125*	54.35	*1.06*	*20*	
Surr: Dibromofluoromethane	*47.75*	5.0	*50*	0	*95.5*	*71-125*	49.56	*3.72*	*20*	
Surr: Toluene-d8	*52.29*	5.0	*50*	0	*105*	*75-125*	48.8	*6.9*	*20*	

The following samples were analyzed in this batch: 0711312-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56779** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID **WLCSW1-111407** Units: **pH units** Analysis Date: **11/14/07 0:00**
Client ID: Run ID: **WETCHEM_071114H** SeqNo: **1261403** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.09	0.10	6	0	102	90-110	0			

DUP Sample ID **0711312-01DDUP** Units: **pH units** Analysis Date: **11/14/07 0:00**
Client ID: **Inj. Well** Run ID: **WETCHEM_071114H** SeqNo: **1261406** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.35	0.10	0	0	0	0-0	7.35	0	20	H

The following samples were analyzed in this batch: 0711312-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56807** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID **WLCSW1-111507** Units: **°F** Analysis Date: **11/15/07 0:00**
Client ID: Run ID: **WETCHEM_071115B** SeqNo: **1262473** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID **0711154-02ADUP** Units: **°F** Analysis Date: **11/15/07 0:00**
Client ID: Run ID: **WETCHEM_071115B** SeqNo: **1262478** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	145	50	0	0	0	0-0	145	0	25	

The following samples were analyzed in this batch: 0711312-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56853** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID **WBLKW1-111607** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: Run ID: **WETCHEM_071116C** SeqNo: **1263505** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID **WLCSW1-111607** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: Run ID: **WETCHEM_071116C** SeqNo: **1263506** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1426	1.0	1413	0	101	80-120	0			

DUP Sample ID **0711312-01CDUP** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: **Inj. Well** Run ID: **WETCHEM_071116C** SeqNo: **1263508** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	6050	1.0	0	0	0	0-0	5980	1.16	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56862** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID **BLANK** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263615** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID **LCS** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263616** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	968	10	1000	0	96.8	85-115	0			

DUP Sample ID **0711341-01EDUP** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263614** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	12470	10	0	0	0	0-0	12930	3.61	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56944** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID **WBLKW1-111907** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265713** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID **WLCSW1-111907** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265714** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1019	5.0	1000	0	102	80-120	0			
Alkalinity, Total (As CaCO3)	1019	5.0	1000	0	102	80-120	0			

DUP Sample ID **0711358-01ADUP** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265732** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	740	5.0	0	0	0	0-0	740	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	740	5.0	0	0	0	0-0	740	0	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57038** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID **WBLKW1-112007** Units: **mg/L** Analysis Date: **11/20/07 13:01**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267862** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*5.461*	0.10	*5*	0	*109*	*85-115*	0			

LCS Sample ID **WLCSW1-112007** Units: **mg/L** Analysis Date: **11/20/07 13:24**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267863** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.27	0.50	20	0	96.3	90-110	0			
Sulfate	20.72	0.50	20	0	104	90-110	0			
Surr: Selenate (surr)	*5.413*	0.10	*5*	0	*108*	*85-115*	0			

MS Sample ID **0711459-01AMS** Units: **mg/L** Analysis Date: **11/20/07 14:34**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267866** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	52.76	0.50	10	43.85	89.1	80-120	0			EO
Sulfate	323.3	0.50	10	320.5	28.5	80-120	0			SEO
Surr: Selenate (surr)	*5.487*	0.10	*5*	0	*110*	*85-115*	0			

MSD Sample ID **0711459-01AMSD** Units: **mg/L** Analysis Date: **11/20/07 14:57**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267867** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	52.71	0.50	10	43.85	88.6	80-120	52.76	0.0834	20	EO
Sulfate	322.1	0.50	10	320.5	16.5	80-120	323.3	0.374	20	SEO
Surr: Selenate (surr)	*5.468*	0.10	*5*	0	*109*	*85-115*	5.487	*0.347*	*20*	

DUP Sample ID **0711459-01ADUP** Units: **mg/L** Analysis Date: **11/20/07 14:11**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267865** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	43.6	0.50	0	0	0	0-0	43.85	0.556	20	
Sulfate	318.5	0.50	0	0	0	0-0	320.5	0.629	20	E
Surr: Selenate (surr)	*5.317*	0.10	*5*	0	*106*	*85-115*	5.347	*0.563*	*20*	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

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e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 17132

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Quarterly	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Well	11/13/07	0915	L	4	9	X	X	X	X	X	X	X	X	X		
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Heath Byrd

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Other ☐ 1 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☑ Std 10 WK Days

Results Due Date:

Relinquished by: Heath Byrd | Date: 11/13/07 | Time: 1615 | Received by:

Relinquished by: | Date: | Time: | Received by (Laboratory): | 11/14/07 0920

Notes: 10 Day TAT.

Logged by (Laboratory): | Date: | Time: | Checked by (Laboratory):

e-Lab Analytical Cooler ID: | Cooler Temp.:

QC Package: (Check One Box Below)
- ☑ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other _____
- ☐ TRRP CheckList
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 11/14/2007 9:20:00 AM

Work Order Number 0711312 Received by: RNG

Checklist completed by [signature] 11/14/07 Reviewed by [initials] 11/14/07
Signature Date Initials Date

Matrix: W Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.9c	002	
Cooler(s)/Kit(s):	1993		
Water - VOA vials have zero headspace?	Yes ☐	No ☑	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes: Voa vials have excessive headspace. Trip blanks logged in work order 0711305 (received in same kit).

Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab Analytical, Inc

Date: *November 16, 2007*

CLIENT: e-Lab Analytical, Inc
Project: 0711312
Work Order: **0711346**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0711346-01	0711312-01F	Water		11/13/2007 09:15	11/16/2007 09:30	☐

e-Lab Analytical, Inc

Date: *November 16, 2007*

CLIENT: e-Lab Analytical, Inc
Work Order: 0711346
Project: 0711312
Lab ID: 0711346-01

Client Sample ID: 0711312-01F
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **DB**
Cyanide, Reactive	ND	40.0		mg/Kg	1	11/16/2007
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **DB**
Sulfide, Reactive	ND	40.0		mg/Kg	1	11/16/2007

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

NAVAJO REFINING COMPANY, LLC

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 ENV/PURCH/MKTG
(505) 746-5421 ENGINEERING

October 30, 2007

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 Third Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the third quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the 200 gallon tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2007 to September 30, 2007. We have disposed a total of 45,570,021 barrels of fluid into the two wells as of September 30, 2007. This is broken down as follows: 34,648,931 barrels into WDW-1 and 10,921,089 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Environmental Scientist

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

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2007 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	33,831,096
Jul-07	517	718	307	263	281	248	157	188	122	9,022	9,636	8,495	279,688	34,110,784
Aug-07	303	348	242	252	280	222	91	137	46	8,647	9,588	7,620	268,056	34,378,840
Sep-07	329	493	62	254	285	83	166	215	19	8,713	9,787	2,832	270,092	34,648,931
WDW-2													**Previous Quarter**	10,506,967
Jul-07	532	723	313	149	170	128	500	500	500	5,093	5,824	4,375	157,870	10,664,837
Aug-07	311	373	247	117	146	80	481	500	398	4,001	5,011	2,732	124,025	10,788,861
Sep-07	321	384	72	124	156	19	479	500	204	4,265	5,359	653	132,228	10,921,089
													Total Injected fluids:	45,570,021

Page 2108 of 5828

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2007 THIRD QUARTER WEEKLY WHAMS LEVEL TABLE

	7/2/07	7/10/07	7/17/07	7/23/07	7/30/07	8/7/07	8/13/07	8/20/07	8/27/07	9/4/07	9/10/07	9/17/07	9/24/07
WDW -1	200	200	200	200	200	200	200	200	200	200	200	200	200
WDW-2	160	160	160	160	160	160	160	160	160	160	160	160	160

Page 2109 of 5828

October 09, 2007

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Well Quarterly

Work Order : **0709522**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 2 samples on 9/27/2007 09:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 34.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Rebecca L. Hunt

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: **0709522**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0709522-01	Effluent	Water		9/26/2007 13:15	9/27/2007 09:00	☐
0709522-02	Trip Blank	Water		9/26/2007 13:15	9/27/2007 09:00	☐

e-Lab Analytical, Inc. **Date:** *October 09, 2007*

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0709522

Case Narrative

pH samples were received outside of the recommended holding time, but the samples were analyzed immediately upon receipt of the laboratory.

Batch 25842 Metals Duplicate RPD was an unrelated sample.

Batch's R55052 and R55288 Volatiles MS/MSD were unrelated samples.

Batch R54877 Anions MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **10/5/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	10/5/2007 3:58:46 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **10/1/2007**	Analyst: **SA**
Aluminum	**2.46**		**0.100**	**mg/L**	10	10/2/2007 1:28:00 PM
Arsenic	**0.135**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Barium	**0.0535**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Beryllium	ND		0.00400	mg/L	2	10/2/2007 1:34:00 PM
Boron	**0.202**		**0.0400**	**mg/L**	2	10/2/2007 1:34:00 PM
Cadmium	ND		0.00200	mg/L	1	10/2/2007 4:06:00 AM
Calcium	**101**		**5.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Chromium	**0.00503**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Cobalt	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Copper	**0.0130**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Iron	**2.87**		**0.200**	**mg/L**	1	10/2/2007 4:06:00 AM
Lead	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Magnesium	**36.7**		**0.200**	**mg/L**	1	10/2/2007 4:06:00 AM
Manganese	**0.0869**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Molybdenum	**0.104**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Nickel	**0.0141**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Potassium	**48.2**		**2.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Selenium	**0.388**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Silver	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Sodium	**1,220**		**2.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Vanadium	**0.00709**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Zinc	**0.192**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **10/2/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2,4,5-Trichlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2,4,6-Trichlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Methylnaphthalene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Methylphenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Nitrophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
3&4-Methylphenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
3-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
4-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
4-Nitrophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Acenaphthene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Acenaphthylene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Anthracene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Benz(a)anthracene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Benzidine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Hexachloroethane	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Indeno(1,2,3-cd)pyrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Isophorone	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodi-n-propylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodimethylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodiphenylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Naphthalene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Nitrobenzene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Pentachlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Phenanthrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Phenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Pyrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Surr: 2,4,6-Tribromophenol	*69.7*		*42-124*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 2-Fluorobiphenyl	*64.0*		*48-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 2-Fluorophenol	*61.1*		*20-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 4-Terphenyl-d14	*71.6*		*51-135*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: Nitrobenzene-d5	*67.1*		*41-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: Phenol-d6	*71.0*		*20-120*	*%REC*	1	10/3/2007 2:31:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
2-Butanone	**23**		**10**	**µg/L**	1	10/8/2007 3:07:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	10/8/2007 3:07:00 PM
2-Hexanone	ND		10	µg/L	1	10/8/2007 3:07:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Acetone	**110**		**10**	**µg/L**	1	10/8/2007 3:07:00 PM
Benzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromoform	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromomethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Carbon disulfide	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloroform	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Ethylbenzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
m,p-Xylene	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Methylene chloride	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Styrene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Toluene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Trichloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Vinyl acetate	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Vinyl chloride	ND		2.0	µg/L	1	10/8/2007 3:07:00 PM
Xylenes, Total	ND		15	µg/L	1	10/8/2007 3:07:00 PM
Surr: 1,2-Dichloroethane-d4	*92.6*		*70-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: 4-Bromofluorobenzene	*96.6*		*72-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: Dibromofluoromethane	*95.9*		*71-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: Toluene-d8	*104*		*75-125*	*%REC*	1	10/8/2007 3:07:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	10/4/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	10/4/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **RPM**
Chloride	**1,010**		**50.0**	**mg/L**	100	9/27/2007 8:01:00 PM
Sulfate	**1,660**		**50.0**	**mg/L**	100	9/27/2007 8:01:00 PM
Surr: Selenate (surr)	*106*		*85-115*	*%REC*	100	9/27/2007 8:01:00 PM
ALKALINITY			**E310.1**			Analyst: **DM**
Alkalinity, Bicarbonate (As CaCO3)	**243**		**5.00**	**mg/L**	1	10/1/2007 10:00:00 AM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	10/1/2007 10:00:00 AM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	10/1/2007 10:00:00 AM
Alkalinity, Total (As CaCO3)	**243**		**5.00**	**mg/L**	1	10/1/2007 10:00:00 AM
CONDUCTIVITY			**E120.1**			Analyst: **DM**
Specific Conductance	**6,620**		**1.00**	**µmhos/cm**	1	10/4/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	10/3/2007

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E - Value above quantitation range
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e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	7.26	H	0.100	pH units	1	9/27/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	4,240		10.0	mg/L	1	9/28/2007 5:00:00 PM

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- P - Dual Column results percent difference > 40%
- E - Value above quantitation range
- H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-02

Client Sample ID: Trip Blank
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
2-Butanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	10/2/2007 9:11:00 PM
2-Hexanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Acetone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Benzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromoform	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromomethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Carbon disulfide	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chlorobenzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloroform	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Ethylbenzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
m,p-Xylene	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Methylene chloride	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Styrene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Toluene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Trichloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Vinyl acetate	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Vinyl chloride	ND		2.0	µg/L	1	10/2/2007 9:11:00 PM
Xylenes, Total	ND		15	µg/L	1	10/2/2007 9:11:00 PM
Surr: 1,2-Dichloroethane-d4	*93.2*		*70-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: 4-Bromofluorobenzene	*103*		*72-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: Dibromofluoromethane	*101*		*71-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: Toluene-d8	*99.2*		*75-125*	*%REC*	1	10/2/2007 9:11:00 PM

Qualifiers:

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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
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e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

Date: *Oct 09 2007*

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MBLK Sample ID: **MBLKW1-100107** Units: **mg/L** Analysis Date: **10/02/07 13:16**

Client ID: Run ID: **ICP7500_071002A** SeqNo: **1223370** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	0.02979	0.20								J
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

LCS Sample ID: **MLCSW1-100107** Units: **mg/L** Analysis Date: **10/02/07 2:02**
Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222688** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04977	0.0050	0.05	0	99.5	80-120	0			
Barium	0.05117	0.0050	0.05	0	102	80-120	0			
Beryllium	0.04988	0.0020	0.05	0	99.8	80-120	0			
Boron	0.5115	0.020	0.5	0	102	80-120	0			
Cadmium	0.05125	0.0020	0.05	0	102	80-120	0			
Calcium	5.686	0.50	5	0	114	80-120	0			
Chromium	0.05016	0.0050	0.05	0	100	80-120	0			
Cobalt	0.05384	0.0050	0.05	0	108	80-120	0			
Copper	0.04738	0.0050	0.05	0	94.8	80-120	0			
Iron	5.179	0.20	5	0	104	80-120	0			
Lead	0.05113	0.0050	0.05	0	102	80-120	0			
Magnesium	5.396	0.20	5	0	108	80-120	0			
Manganese	0.05067	0.0050	0.05	0	101	80-120	0			
Molybdenum	0.04869	0.0050	0.05	0	97.4	80-120	0			
Nickel	0.0503	0.0050	0.05	0	101	80-120	0			
Potassium	5.29	0.20	5	0	106	80-120	0			
Selenium	0.05047	0.0050	0.05	0	101	80-120	0			
Silver	0.05062	0.0050	0.05	0	101	80-120	0			
Sodium	5.267	0.20	5	0	105	80-120	0			
Vanadium	0.05116	0.0050	0.05	0	102	80-120	0			
Zinc	0.0518	0.0050	0.05	0	104	80-120	0			

LCS Sample ID: **MLCSW1-100107** Units: **mg/L** Analysis Date: **10/02/07 13:22**
Client ID: Run ID: **ICP7500_071002A** SeqNo: **1223371** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05671	0.010	0.05	0	113	80-120	0			

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R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MS Sample ID: **0709546-01CMS** Units: **mg/L** Analysis Date: **10/02/07 4:30**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222710** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05928	0.010	0.05	0.01003	98.5	80-120	0			
Arsenic	0.05069	0.0050	0.05	0.0002553	101	80-120	0			
Barium	0.05145	0.0050	0.05	0.00009868	103	80-120	0			
Beryllium	0.05116	0.0020	0.05	-0.00001769	102	80-120	0			
Boron	0.5303	0.020	0.5	0.0007129	106	80-120	0			
Cadmium	0.05218	0.0020	0.05	-0.00004231	104	80-120	0			
Calcium	5.928	0.50	5	0.1835	115	80-120	0			
Chromium	0.05106	0.0050	0.05	0.0002195	102	80-120	0			
Cobalt	0.05426	0.0050	0.05	-0.00003043	109	80-120	0			
Copper	0.04954	0.0050	0.05	-0.00257	104	80-120	0			
Iron	5.357	0.20	5	0.06073	106	80-120	0			
Lead	0.0523	0.0050	0.05	0.00004196	105	80-120	0			
Magnesium	5.389	0.20	5	0.03021	107	80-120	0			
Manganese	0.05263	0.0050	0.05	0.0005422	104	80-120	0			
Molybdenum	0.05117	0.0050	0.05	0.001057	100	80-120	0			
Nickel	0.0525	0.0050	0.05	-0.0005035	106	80-120	0			
Potassium	5.447	0.20	5	0.03845	108	80-120	0			
Selenium	0.05162	0.0050	0.05	0.0007415	102	80-120	0			
Silver	0.0526	0.0050	0.05	-0.0003616	106	80-120	0			
Sodium	5.548	0.20	5	0.7029	96.9	80-120	0			
Vanadium	0.05219	0.0050	0.05	0.00007382	104	80-120	0			
Zinc	0.05427	0.0050	0.05	0.001848	105	80-120	0			

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not deteeted
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MSD Sample ID: **0709546-01CMSD** Units: **mg/L** Analysis Date: **10/02/07 4:42**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222712** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.061	0.010	0.05	0.01003	102	80-120	0.05928	2.86	15	
Arsenic	0.04963	0.0050	0.05	0.0002553	98.7	80-120	0.05069	2.11	15	
Barium	0.05188	0.0050	0.05	0.00009868	104	80-120	0.05145	0.832	15	
Beryllium	0.05124	0.0020	0.05	-0.00001769	103	80-120	0.05116	0.156	15	
Boron	0.5277	0.020	0.5	0.0007129	105	80-120	0.5303	0.491	15	
Cadmium	0.0522	0.0020	0.05	-0.00004231	104	80-120	0.05218	0.0383	15	
Calcium	5.917	0.50	5	0.1835	115	80-120	5.928	0.186	15	
Chromium	0.05035	0.0050	0.05	0.0002195	100	80-120	0.05106	1.4	15	
Cobalt	0.05383	0.0050	0.05	-0.00003043	108	80-120	0.05426	0.796	15	
Copper	0.04969	0.0050	0.05	-0.00257	105	80-120	0.04954	0.302	15	
Iron	5.378	0.20	5	0.06073	106	80-120	5.357	0.391	15	
Lead	0.05116	0.0050	0.05	0.00004196	102	80-120	0.0523	2.2	15	
Magnesium	5.381	0.20	5	0.03021	107	80-120	5.389	0.149	15	
Manganese	0.05201	0.0050	0.05	0.0005422	103	80-120	0.05263	1.19	15	
Molybdenum	0.05122	0.0050	0.05	0.001057	100	80-120	0.05117	0.0977	15	
Nickel	0.05136	0.0050	0.05	-0.0005035	104	80-120	0.0525	2.2	15	
Potassium	5.405	0.20	5	0.03845	107	80-120	5.447	0.774	15	
Selenium	0.05111	0.0050	0.05	0.0007415	101	80-120	0.05162	0.993	15	
Silver	0.05207	0.0050	0.05	-0.0003616	105	80-120	0.0526	1.01	15	
Sodium	5.493	0.20	5	0.7029	95.8	80-120	5.548	0.996	15	
Vanadium	0.05168	0.0050	0.05	0.00007382	103	80-120	0.05219	0.982	15	
Zinc	0.05368	0.0050	0.05	0.001848	104	80-120	0.05427	1.09	15	

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

DUP Sample ID: **0709546-01CDUP** Units: **mg/L** Analysis Date: **10/02/07 4:24**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222709** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.008914	0.010	0	0	0	0-0	0.01003	0	25	J
Arsenic	ND	0.0050	0	0	0	0-0	0.0002553	0	25	
Barium	ND	0.0050	0	0	0	0-0	0.00009868	0	25	
Beryllium	ND	0.0020	0	0	0	0-0	-0.00001769	0	25	
Boron	ND	0.020	0	0	0	0-0	0.0007129	0	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.00004231	0	25	
Calcium	0.1347	0.50	0	0	0	0-0	0.1835	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0002195	0	25	
Cobalt	ND	0.0050	0	0	0	0-0	-0.00003043	0	25	
Copper	ND	0.0050	0	0	0	0-0	-0.00257	0	25	
Iron	0.05713	0.20	0	0	0	0-0	0.06073	0	25	J
Lead	ND	0.0050	0	0	0	0-0	0.00004196	0	25	
Magnesium	ND	0.20	0	0	0	0-0	0.03021	0	25	
Manganese	ND	0.0050	0	0	0	0-0	0.0005422	0	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.001057	0	25	
Nickel	ND	0.0050	0	0	0	0-0	-0.0005035	0	25	
Potassium	ND	0.20	0	0	0	0-0	0.03845	0	25	
Selenium	ND	0.0050	0	0	0	0-0	0.0007415	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003616	0	25	
Sodium	0.3724	0.20	0	0	0	0-0	0.7029	61.5	25	R
Vanadium	ND	0.0050	0	0	0	0-0	0.00007382	0	25	
Zinc	ND	0.0050	0	0	0	0-0	0.001848	0	25	

The following samples were analyzed in this batch: 0709522-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25937** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:12**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226768** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:14**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226769** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00564	0.00020	0.005	0	113	85-115	0			

LCSD Sample ID: **GLCSDW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:16**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226770** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00558	0.00020	0.005	0	112	85-115	0.00564	1.07	20	

MS Sample ID: **0710043-01DMS** Units: **mg/L** Analysis Date: **10/05/07 15:25**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226773** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00547	0.00020	0.005	-0.000019	110	85-115	0			

MSD Sample ID: **0710043-01DMSD** Units: **mg/L** Analysis Date: **10/05/07 15:27**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226774** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0054	0.00020	0.005	-0.000019	108	85-115	0.00547	1.29	20	

DUP Sample ID: **0710043-01DDUP** Units: **mg/L** Analysis Date: **10/05/07 15:23**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226772** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000019	0	20	

The following samples were analyzed in this batch: 0709522-01B

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKW2-071002** Units: **µg/L** Analysis Date: **10/03/07 13:13**

Client ID: Run ID: **SV-3_071003A** SeqNo: **1224776** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*70.36*	5.0	*100*	0	*70.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*81.07*	5.0	*100*	0	*81.1*	*48-120*	0			
Surr: 2-Fluorophenol	*72.2*	5.0	*100*	0	*72.2*	*20-120*	0			
Surr: 4-Terphenyl-d14	*84.88*	5.0	*100*	0	*84.9*	*51-135*	0			
Surr: Nitrobenzene-d5	*80.2*	5.0	*100*	0	*80.2*	*41-120*	0			
Surr: Phenol-d6	*78.44*	5.0	*100*	0	*78.4*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID: **SLCSW2-071002** Units: **µg/L** Analysis Date: **10/03/07 13:39**
Client ID: Run ID: **SV-3_071003A** SeqNo: **1224777** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	40.57	5.0	50	0	81.1	54-118	0			
2,4,5-Trichlorophenol	79.26	5.0	100	0	79.3	52-115	0			
2,4,6-Trichlorophenol	82.62	5.0	100	0	82.6	56-115	0			
2-Methylnaphthalene	41.13	5.0	50	0	82.3	46-117	0			
2-Methylphenol	83.9	5.0	100	0	83.9	53-115	0			
2-Nitroaniline	51.02	5.0	50	0	102	53-123	0			
2-Nitrophenol	80.37	5.0	100	0	80.4	53-115	0			
3&4-Methylphenol	121.7	5.0	150	0	81.1	48-115	0			
3-Nitroaniline	34.34	5.0	50	0	68.7	26-115	0			
4-Nitroaniline	40.81	5.0	50	0	81.6	47-115	0			
4-Nitrophenol	84.47	5.0	100	0	84.5	26-133	0			
Acenaphthene	42.71	5.0	50	0	85.4	57-115	0			
Acenaphthylene	42.99	5.0	50	0	86	57-118	0			
Aniline	32.19	5.0	50	0	64.4	36-115	0			
Anthracene	45.41	5.0	50	0	90.8	65-115	0			
Benz(a)anthracene	43.8	5.0	50	0	87.6	53-115	0			
Benzidine	37.43	5.0	50	0	74.9	10-115	0			
Hexachloroethane	41.72	5.0	50	0	83.4	54-115	0			
Indeno(1,2,3-cd)pyrene	43.31	5.0	50	0	86.6	51-115	0			
Isophorone	42.31	5.0	50	0	84.6	55-115	0			
N-Nitrosodi-n-propylamine	43.02	5.0	50	0	86	55-115	0			
N-Nitrosodimethylamine	44.13	5.0	50	0	88.3	42-115	0			
N-Nitrosodiphenylamine	46.03	5.0	50	0	92.1	52-115	0			
Naphthalene	41.17	5.0	50	0	82.3	55-115	0			
Nitrobenzene	41.52	5.0	50	0	83	40-124	0			
Pentachlorophenol	87.37	5.0	100	0	87.4	45-125	0			
Phenanthrene	44.76	5.0	50	0	89.5	57-115	0			
Phenol	77.8	5.0	100	0	77.8	38-115	0			
Pyrene	45.47	5.0	50	0	90.9	51-115	0			
Surr: 2,4,6-Tribromophenol	*73.07*	5.0	*100*	0	*73.1*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*78.63*	5.0	*100*	0	*78.6*	*48-120*	0			
Surr: 2-Fluorophenol	*76.86*	5.0	*100*	0	*76.9*	*20-120*	0			
Surr: 4-Terphenyl-d14	*82.95*	5.0	*100*	0	*82.9*	*51-135*	0			
Surr: Nitrobenzene-d5	*77.13*	5.0	*100*	0	*77.1*	*41-120*	0			
Surr: Phenol-d6	*82.83*	5.0	*100*	0	*82.8*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-071002** Units: **µg/L** Analysis Date: **10/03/07 14:05**
Client ID: Run ID: **SV-3_071003A** SeqNo: **1224778** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.1	5.0	50	0	86.2	54-118	40.57	6.06	20	
2,4,5-Trichlorophenol	84.74	5.0	100	0	84.7	52-115	79.26	6.68	20	
2,4,6-Trichlorophenol	82.76	5.0	100	0	82.8	56-115	82.62	0.165	20	
2-Methylnaphthalene	42.64	5.0	50	0	85.3	46-117	41.13	3.62	20	
2-Methylphenol	79.87	5.0	100	0	79.9	53-115	83.9	4.92	20	
2-Nitroaniline	55.31	5.0	50	0	111	53-123	51.02	8.07	20	
2-Nitrophenol	82.51	5.0	100	0	82.5	53-115	80.37	2.63	20	
3&4-Methylphenol	116.6	5.0	150	0	77.7	48-115	121.7	4.29	20	
3-Nitroaniline	34.18	5.0	50	0	68.4	26-115	34.34	0.475	20	
4-Nitroaniline	40	5.0	50	0	80	47-115	40.81	2.01	20	
4-Nitrophenol	85.01	5.0	100	0	85	26-133	84.47	0.637	20	
Acenaphthene	43.63	5.0	50	0	87.3	57-115	42.71	2.12	20	
Acenaphthylene	43.76	5.0	50	0	87.5	57-118	42.99	1.77	20	
Aniline	31.72	5.0	50	0	63.4	36-115	32.19	1.49	20	
Anthracene	44.26	5.0	50	0	88.5	65-115	45.41	2.57	20	
Benz(a)anthracene	43.37	5.0	50	0	86.7	53-115	43.8	0.974	20	
Benzidine	39.36	5.0	50	0	78.7	10-115	37.43	5.04	20	
Hexachloroethane	39.71	5.0	50	0	79.4	54-115	41.72	4.93	20	
Indeno(1,2,3-cd)pyrene	44.07	5.0	50	0	88.1	51-115	43.31	1.75	20	
Isophorone	43.22	5.0	50	0	86.4	55-115	42.31	2.13	20	
N-Nitrosodi-n-propylamine	41.5	5.0	50	0	83	55-115	43.02	3.59	20	
N-Nitrosodimethylamine	41.57	5.0	50	0	83.1	42-115	44.13	5.98	20	
N-Nitrosodiphenylamine	44.75	5.0	50	0	89.5	52-115	46.03	2.82	20	
Naphthalene	43.41	5.0	50	0	86.8	55-115	41.17	5.29	20	
Nitrobenzene	42.24	5.0	50	0	84.5	40-124	41.52	1.71	20	
Pentachlorophenol	84.38	5.0	100	0	84.4	45-125	87.37	3.48	20	
Phenanthrene	43.93	5.0	50	0	87.9	57-115	44.76	1.88	20	
Phenol	74.76	5.0	100	0	74.8	38-115	77.8	3.98	20	
Pyrene	44.4	5.0	50	0	88.8	51-115	45.47	2.38	20	
Surr: 2,4,6-Tribromophenol	*78.09*	5.0	*100*	0	*78.1*	*42-124*	73.07	*6.64*	*20*	
Surr: 2-Fluorobiphenyl	*80.06*	5.0	*100*	0	*80.1*	*48-120*	78.63	*1.8*	*20*	
Surr: 2-Fluorophenol	*76.52*	5.0	*100*	0	*76.5*	*20-120*	76.86	*0.439*	*20*	
Surr: 4-Terphenyl-d14	*84.19*	5.0	*100*	0	*84.2*	*51-135*	82.95	*1.48*	*20*	
Surr: Nitrobenzene-d5	*82.56*	5.0	*100*	0	*82.6*	*41-120*	77.13	*6.8*	*20*	
Surr: Phenol-d6	*81.29*	5.0	*100*	0	*81.3*	*20-120*	82.83	*1.87*	*20*	

The following samples were analyzed in this batch: 0709522-01E

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-100207** Units: **µg/L** Analysis Date: **10/02/07 11:55**
Client ID: Run ID: **VOA1_071002A** SeqNo: **1224017** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*46.56*	5.0	*50*	0	*93.1*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.31*	5.0	*50*	0	*109*	*72-125*	0			
Surr: Dibromofluoromethane	*49.81*	5.0	*50*	0	*99.6*	*71-125*	0			
Surr: Toluene-d8	*47.52*	5.0	*50*	0	*95*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-100207** Units: **µg/L** Analysis Date: **10/02/07 12:20**
Client ID: Run ID: **VOA1_071002A** SeqNo: **1224018** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.93	5.0	50	0	97.9	80-120	0			
1,1,2,2-Tetrachloroethane	47.7	5.0	50	0	95.4	72-120	0			
1,1,2-Trichloroethane	41.01	5.0	50	0	82	80-120	0			
1,1-Dichloroethane	46.59	5.0	50	0	93.2	76-120	0			
1,1-Dichloroethene	52.67	5.0	50	0	105	73-124	0			
1,2-Dichloroethane	47.28	5.0	50	0	94.6	78-120	0			
2-Butanone	94.24	10	100	0	94.2	58-132	0			
2-Chloroethyl vinyl ether	94.01	10	100	0	94	74-120	0			
2-Hexanone	90.75	10	100	0	90.7	61-130	0			
4-Methyl-2-pentanone	89.26	10	100	0	89.3	65-127	0			
Acetone	105.9	10	100	0	106	59-137	0			
Benzene	46.59	5.0	50	0	93.2	73-121	0			
Bromodichloromethane	47.71	5.0	50	0	95.4	80-120	0			
Bromoform	46.17	5.0	50	0	92.3	79-120	0			
Bromomethane	55.86	5.0	50	0	112	66-137	0			
Carbon disulfide	99.02	10	100	0	99	68-141	0			
Carbon tetrachloride	50.87	5.0	50	0	102	75-124	0			
Chlorobenzene	45.07	5.0	50	0	90.1	80-120	0			
Chloroethane	46.57	5.0	50	0	93.1	76-121	0			
Chloroform	47.49	5.0	50	0	95	80-120	0			
Chloromethane	42.38	5.0	50	0	84.8	67-123	0			
cis-1,3-Dichloropropene	47.68	5.0	50	0	95.4	80-120	0			
Dibromochloromethane	46.42	5.0	50	0	92.8	80-120	0			
Ethylbenzene	46.41	5.0	50	0	92.8	80-120	0			
m,p-Xylene	92.21	10	100	0	92.2	78-121	0			
Methylene chloride	48.44	10	50	0	96.9	65-133	0			
Styrene	49.6	5.0	50	0	99.2	80-120	0			
Tetrachloroethene	41.98	5.0	50	0	84	79-120	0			
Toluene	40.21	5.0	50	0	80.4	80-120	0			
trans-1,3-Dichloropropene	47.77	5.0	50	0	95.5	80-120	0			
Trichloroethene	47.94	5.0	50	0	95.9	80-120	0			
Vinyl acetate	105.4	10	100	0	105	67-139	0			
Vinyl chloride	48.49	2.0	50	0	97	74-122	0			
Xylenes, Total	140.1	15	150	0	93.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	*47.68*	5.0	*50*	0	*95.4*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*47.98*	5.0	*50*	0	*96*	*72-125*	0			
Surr: Dibromofluoromethane	*49.97*	5.0	*50*	0	*99.9*	*71-125*	0			
Surr: Toluene-d8	*43.91*	5.0	*50*	0	*87.8*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0710031-02AMS** Units: **µg/L** Analysis Date: **10/02/07 15:17**

Client ID: Run ID: **VOA1_071002A** SeqNo: **1224026** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.87	5.0	50	0	89.7	80-120	0			
1,1,2,2-Tetrachloroethane	45.96	5.0	50	0	91.9	72-120	0			
1,1,2-Trichloroethane	44.46	5.0	50	0	88.9	80-120	0			
1,1-Dichloroethane	42.73	5.0	50	0	85.5	76-120	0			
1,1-Dichloroethene	38.74	5.0	50	0	77.5	73-124	0			
1,2-Dichloroethane	44.47	5.0	50	0	88.9	78-120	0			
2-Butanone	89.25	10	100	0	89.3	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	92.96	10	100	0	93	61-130	0			
4-Methyl-2-pentanone	92.63	10	100	0	92.6	65-127	0			
Acetone	81.48	10	100	0	81.5	59-137	0			
Benzene	41.84	5.0	50	0	83.7	73-121	0			
Bromodichloromethane	40.9	5.0	50	0	81.8	80-120	0			
Bromoform	50.46	5.0	50	0	101	79-120	0			
Bromomethane	46.42	5.0	50	0	92.8	66-137	0			
Carbon disulfide	78.45	10	100	0	78.5	68-141	0			
Carbon tetrachloride	43.78	5.0	50	0	87.6	75-124	0			
Chlorobenzene	45.71	5.0	50	0	91.4	80-120	0			
Chloroethane	38.42	5.0	50	0	76.8	76-121	0			
Chloroform	44.35	5.0	50	0	88.7	80-120	0			
Chloromethane	33.49	5.0	50	0	67	67-123	0			S
cis-1,3-Dichloropropene	40.56	5.0	50	0	81.1	80-120	0			
Dibromochloromethane	46.35	5.0	50	0	92.7	80-120	0			
Ethylbenzene	43.12	5.0	50	0.2648	85.7	80-120	0			
m,p-Xylene	94.64	10	100	0	94.6	78-121	0			
Methylene chloride	42.23	10	50	0	84.5	65-133	0			
Styrene	51.99	5.0	50	0	104	80-120	0			
Tetrachloroethene	43.57	5.0	50	0	87.1	79-120	0			
Toluene	40.4	5.0	50	0	80.8	80-120	0			
trans-1,3-Dichloropropene	42.81	5.0	50	0	85.6	80-120	0			
Trichloroethene	41.14	5.0	50	0	82.3	80-120	0			
Vinyl acetate	95.38	10	100	0	95.4	67-139	0			
Vinyl chloride	41.2	2.0	50	0	82.4	74-122	0			
Xylenes, Total	145.3	15	150	0	96.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	*46.41*	5.0	*50*	0	*92.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*55.24*	5.0	*50*	0	*110*	*72-125*	0			
Surr: Dibromofluoromethane	*50.03*	5.0	*50*	0	*100*	*71-125*	0			
Surr: Toluene-d8	*46.33*	5.0	*50*	0	*92.7*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0710031-02AMSD** Units: **µg/L** Analysis Date: **10/02/07 15:43**

Client ID: Run ID: **VOA1_071002A** SeqNo: **1224028** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	40.38	5.0	50	0	80.8	80-120	44.87	10.5	20	
1,1,2,2-Tetrachloroethane	49.43	5.0	50	0	98.9	72-120	45.96	7.28	20	
1,1,2-Trichloroethane	42.67	5.0	50	0	85.3	80-120	44.46	4.1	20	
1,1-Dichloroethane	40.39	5.0	50	0	80.8	76-120	42.73	5.62	20	
1,1-Dichloroethene	36.01	5.0	50	0	72	73-124	38.74	7.3	20	S
1,2-Dichloroethane	46.55	5.0	50	0	93.1	78-120	44.47	4.57	20	
2-Butanone	88.95	10	100	0	88.9	58-132	89.25	0.338	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	105.3	10	100	0	105	61-130	92.96	12.5	20	
4-Methyl-2-pentanone	101.8	10	100	0	102	65-127	92.63	9.42	20	
Acetone	84.42	10	100	0	84.4	59-137	81.48	3.55	20	
Benzene	44.88	5.0	50	0	89.8	73-121	41.84	7	20	
Bromodichloromethane	41.71	5.0	50	0	83.4	80-120	40.9	1.96	20	
Bromoform	49.95	5.0	50	0	99.9	79-120	50.46	1.02	20	
Bromomethane	45.06	5.0	50	0	90.1	66-137	46.42	2.97	20	
Carbon disulfide	74.77	10	100	0	74.8	68-141	78.45	4.81	20	
Carbon tetrachloride	41.11	5.0	50	0	82.2	75-124	43.78	6.28	20	
Chlorobenzene	45.07	5.0	50	0	90.1	80-120	45.71	1.4	20	
Chloroethane	38.48	5.0	50	0	77	76-121	38.42	0.153	20	
Chloroform	40.32	5.0	50	0	80.6	80-120	44.35	9.52	20	
Chloromethane	33.29	5.0	50	0	66.6	67-123	33.49	0.601	20	S
cis-1,3-Dichloropropene	43.02	5.0	50	0	86	80-120	40.56	5.9	20	
Dibromochloromethane	46.49	5.0	50	0	93	80-120	46.35	0.299	20	
Ethylbenzene	43.09	5.0	50	0.2648	85.7	80-120	43.12	0.0729	20	
m,p-Xylene	85.85	10	100	0	85.9	78-121	94.64	9.74	20	
Methylene chloride	39.68	10	50	0	79.4	65-133	42.23	6.21	20	
Styrene	49.34	5.0	50	0	98.7	80-120	51.99	5.22	20	
Tetrachloroethene	41.09	5.0	50	0	82.2	79-120	43.57	5.86	20	
Toluene	40.47	5.0	50	0	80.9	80-120	40.4	0.192	20	
trans-1,3-Dichloropropene	44.01	5.0	50	0	88	80-120	42.81	2.78	20	
Trichloroethene	42.87	5.0	50	0	85.7	80-120	41.14	4.13	20	
Vinyl acetate	96.85	10	100	0	96.8	67-139	95.38	1.53	20	
Vinyl chloride	37.49	2.0	50	0	75	74-122	41.2	9.43	20	
Xylenes, Total	132.7	15	150	0	88.5	80-120	145.3	9.03	20	
Surr: 1,2-Dichloroethane-d4	*43.35*	5.0	*50*	0	*86.7*	*70-125*	46.41	*6.8*	*20*	
Surr: 4-Bromofluorobenzene	*53.6*	5.0	*50*	0	*107*	*72-125*	55.24	*3.02*	*20*	
Surr: Dibromofluoromethane	*46.35*	5.0	*50*	0	*92.7*	*71-125*	50.03	*7.63*	*20*	
Surr: Toluene-d8	*46.85*	5.0	*50*	0	*93.7*	*75-125*	46.33	*1.12*	*20*	

The following samples were analyzed in this batch: 0709522-02A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-100807** Units: **µg/L** Analysis Date: **10/08/07 12:11**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229041** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*46.74*	5.0	*50*	0	*93.5*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*47.18*	5.0	*50*	0	*94.4*	*72-125*	0			
Surr: Dibromofluoromethane	*46.65*	5.0	*50*	0	*93.3*	*71-125*	0			
Surr: Toluene-d8	*50.14*	5.0	*50*	0	*100*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-100807** Units: **µg/L** Analysis Date: **10/08/07 11:21**
Client ID: Run ID: **VOA1_071008A** SeqNo: **1229040** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.58	5.0	50	0	103	80-120	0			
1,1,2,2-Tetrachloroethane	45.6	5.0	50	0	91.2	72-120	0			
1,1,2-Trichloroethane	45.17	5.0	50	0	90.3	80-120	0			
1,1-Dichloroethane	48.34	5.0	50	0	96.7	76-120	0			
1,1-Dichloroethene	45.07	5.0	50	0	90.1	73-124	0			
1,2-Dichloroethane	47.89	5.0	50	0	95.8	78-120	0			
2-Butanone	103.6	10	100	0	104	58-132	0			
2-Chloroethyl vinyl ether	95.96	10	100	0	96	74-120	0			
2-Hexanone	98.25	10	100	0	98.3	61-130	0			
4-Methyl-2-pentanone	95.73	10	100	0	95.7	65-127	0			
Acetone	97.54	10	100	0	97.5	59-137	0			
Benzene	46.98	5.0	50	0	94	73-121	0			
Bromodichloromethane	48.6	5.0	50	0	97.2	80-120	0			
Bromoform	47.79	5.0	50	0	95.6	79-120	0			
Bromomethane	41.9	5.0	50	0	83.8	66-137	0			
Carbon disulfide	90.43	10	100	0	90.4	68-141	0			
Carbon tetrachloride	46.7	5.0	50	0	93.4	75-124	0			
Chlorobenzene	48.47	5.0	50	0	96.9	80-120	0			
Chloroethane	46.05	5.0	50	0	92.1	76-121	0			
Chloroform	47.6	5.0	50	0	95.2	80-120	0			
Chloromethane	53.25	5.0	50	0	106	67-123	0			
cis-1,3-Dichloropropene	49.92	5.0	50	0	99.8	80-120	0			
Dibromochloromethane	49.38	5.0	50	0	98.8	80-120	0			
Ethylbenzene	44.73	5.0	50	0	89.5	80-120	0			
m,p-Xylene	89.94	10	100	0	89.9	78-121	0			
Methylene chloride	48.19	10	50	0	96.4	65-133	0			
Styrene	51.09	5.0	50	0	102	80-120	0			
Tetrachloroethene	50.09	5.0	50	0	100	79-120	0			
Toluene	46.47	5.0	50	0	92.9	80-120	0			
trans-1,3-Dichloropropene	47.75	5.0	50	0	95.5	80-120	0			
Trichloroethene	47.13	5.0	50	0	94.3	80-120	0			
Vinyl acetate	114.5	10	100	0	115	67-139	0			
Vinyl chloride	51.35	2.0	50	0	103	70-127	0			
Xylenes, Total	140.4	15	150	0	93.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	*48.01*	5.0	*50*	0	*96*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*46.24*	5.0	*50*	0	*92.5*	*72-125*	0			
Surr: Dibromofluoromethane	*49.62*	5.0	*50*	0	*99.2*	*71-125*	0			
Surr: Toluene-d8	*50.57*	5.0	*50*	0	*101*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0710089-05AMS** Units: **µg/L** Analysis Date: **10/08/07 15:33**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229044** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	43.71	5.0	50	0	87.4	80-120	0			
1,1,2,2-Tetrachloroethane	48.37	5.0	50	0	96.7	72-120	0			
1,1,2-Trichloroethane	51.72	5.0	50	0	103	80-120	0			
1,1-Dichloroethane	44.38	5.0	50	0	88.8	76-120	0			
1,1-Dichloroethene	39.51	5.0	50	0	79	73-124	0			
1,2-Dichloroethane	45.58	5.0	50	0	91.2	78-120	0			
2-Butanone	105.2	10	100	0	105	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	124.7	10	100	0	125	61-130	0			
4-Methyl-2-pentanone	117.9	10	100	0	118	65-127	0			
Acetone	90.25	10	100	0	90.2	59-137	0			
Benzene	43.71	5.0	50	0	87.4	73-121	0			
Bromodichloromethane	44.59	5.0	50	0	89.2	80-120	0			
Bromoform	51.49	5.0	50	0	103	79-120	0			
Bromomethane	27.69	5.0	50	0	55.4	66-137	0			S
Carbon disulfide	77.05	10	100	0	77	68-141	0			
Carbon tetrachloride	41.6	5.0	50	0	83.2	75-124	0			
Chlorobenzene	48.23	5.0	50	0	96.5	80-120	0			
Chloroethane	40.79	5.0	50	0	81.6	76-121	0			
Chloroform	46.76	5.0	50	0	93.5	80-120	0			
Chloromethane	42.22	5.0	50	0	84.4	67-123	0			
cis-1,3-Dichloropropene	47.43	5.0	50	0	94.9	80-120	0			
Dibromochloromethane	52.32	5.0	50	0	105	80-120	0			
Ethylbenzene	47.27	5.0	50	0	94.5	80-120	0			
m,p-Xylene	95.43	10	100	0	95.4	78-121	0			
Methylene chloride	44.6	10	50	0	89.2	65-133	0			
Styrene	49.37	5.0	50	0	98.7	80-120	0			
Tetrachloroethene	46.3	5.0	50	0	92.6	79-120	0			
Toluene	47.75	5.0	50	0	95.5	80-120	0			
trans-1,3-Dichloropropene	46.71	5.0	50	0	93.4	80-120	0			
Trichloroethene	44.21	5.0	50	0	88.4	80-120	0			
Vinyl acetate	109.2	10	100	0	109	67-139	0			
Vinyl chloride	43.32	2.0	50	0	86.6	70-127	0			
Xylenes, Total	140.9	15	150	0	94	80-120	0			
Surr: 1,2-Dichloroethane-d4	*44.42*	5.0	*50*	0	*88.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*51.65*	5.0	*50*	0	*103*	*72-125*	0			
Surr: Dibromofluoromethane	*47.12*	5.0	*50*	0	*94.2*	*71-125*	0			
Surr: Toluene-d8	*52.33*	5.0	*50*	0	*105*	*75-125*	0			

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0710089-05AMSD** Units: **µg/L** Analysis Date: **10/08/07 15:58**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229045** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.14	5.0	50	0	92.3	80-120	43.71	5.4	20	
1,1,2,2-Tetrachloroethane	50.59	5.0	50	0	101	72-120	48.37	4.48	20	
1,1,2-Trichloroethane	50.33	5.0	50	0	101	80-120	51.72	2.72	20	
1,1-Dichloroethane	45.29	5.0	50	0	90.6	76-120	44.38	2.02	20	
1,1-Dichloroethene	42.57	5.0	50	0	85.1	73-124	39.51	7.46	20	
1,2-Dichloroethane	49.29	5.0	50	0	98.6	78-120	45.58	7.82	20	
2-Butanone	121.7	10	100	0	122	58-132	105.2	14.5	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	126.8	10	100	0	127	61-130	124.7	1.67	20	
4-Methyl-2-pentanone	123	10	100	0	123	65-127	117.9	4.26	20	
Acetone	99.42	10	100	0	99.4	59-137	90.25	9.67	20	
Benzene	47.35	5.0	50	0	94.7	73-121	43.71	8	20	
Bromodichloromethane	47.59	5.0	50	0	95.2	80-120	44.59	6.5	20	
Bromoform	52.33	5.0	50	0	105	79-120	51.49	1.62	20	
Bromomethane	35.73	5.0	50	0	71.5	66-137	27.69	25.4	20	R
Carbon disulfide	83.89	10	100	0	83.9	68-141	77.05	8.5	20	
Carbon tetrachloride	42.59	5.0	50	0	85.2	75-124	41.6	2.36	20	
Chlorobenzene	50.01	5.0	50	0	100	80-120	48.23	3.63	20	
Chloroethane	43.82	5.0	50	0	87.6	76-121	40.79	7.15	20	
Chloroform	47.52	5.0	50	0	95	80-120	46.76	1.6	20	
Chloromethane	47.83	5.0	50	0	95.7	67-123	42.22	12.5	20	
cis-1,3-Dichloropropene	50.18	5.0	50	0	100	80-120	47.43	5.64	20	
Dibromochloromethane	54.06	5.0	50	0	108	80-120	52.32	3.27	20	
Ethylbenzene	47.95	5.0	50	0	95.9	80-120	47.27	1.43	20	
m,p-Xylene	92	10	100	0	92	78-121	95.43	3.65	20	
Methylene chloride	47.01	10	50	0	94	65-133	44.6	5.25	20	
Styrene	47.6	5.0	50	0	95.2	80-120	49.37	3.66	20	
Tetrachloroethene	47	5.0	50	0	94	79-120	46.3	1.52	20	
Toluene	50.3	5.0	50	0	101	80-120	47.75	5.19	20	
trans-1,3-Dichloropropene	51.33	5.0	50	0	103	80-120	46.71	9.42	20	
Trichloroethene	44.95	5.0	50	0	89.9	80-120	44.21	1.64	20	
Vinyl acetate	119.1	10	100	0	119	67-139	109.2	8.74	20	
Vinyl chloride	45.65	2.0	50	0	91.3	70-127	43.32	5.22	20	
Xylenes, Total	137.9	15	150	0	91.9	80-120	140.9	2.16	20	
Surr: 1,2-Dichloroethane-d4	*49.08*	5.0	*50*	0	*98.2*	*70-125*	44.42	*9.98*	*20*	
Surr: 4-Bromofluorobenzene	*49.11*	5.0	*50*	0	*98.2*	*72-125*	51.65	*5.04*	*20*	
Surr: Dibromofluoromethane	*49.13*	5.0	*50*	0	*98.3*	*71-125*	47.12	*4.17*	*20*	
Surr: Toluene-d8	*51.14*	5.0	*50*	0	*102*	*75-125*	52.33	*2.3*	*20*	

The following samples were analyzed in this batch: 0709522-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54877** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-092707** Units: **mg/L** Analysis Date: **09/27/07 14:45**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220057** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*5.189*	0.10	*5*	0	*104*	*85-115*		0		

LCS Sample ID: **WLCSW1-092707** Units: **mg/L** Analysis Date: **09/27/07 15:09**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220058** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.38	0.50	20	0	102	90-110		0		
Sulfate	20.33	0.50	20	0	102	90-110		0		
Surr: Selenate (surr)	*5.072*	0.10	*5*	0	*101*	*85-115*		0		

MS Sample ID: **0709516-01BMS** Units: **mg/L** Analysis Date: **09/27/07 13:56**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220055** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	69.82	0.50	10	61.55	82.7	80-120		0		EO
Sulfate	342.8	0.50	10	340.2	26.4	80-120		0		SEO
Surr: Selenate (surr)	*5.168*	0.10	*5*	0	*103*	*85-115*		0		

MSD Sample ID: **0709516-01BMSD** Units: **mg/L** Analysis Date: **09/27/07 14:20**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220056** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	69.89	0.50	10	61.55	83.4	80-120	69.82	0.1	20	EO
Sulfate	343.2	0.50	10	340.2	30.8	80-120	342.8	0.126	20	SEO
Surr: Selenate (surr)	*5.176*	0.10	*5*	0	*104*	*85-115*	5.168	*0.155*	*20*	

DUP Sample ID: **0709516-01BDUP** Units: **mg/L** Analysis Date: **09/27/07 13:31**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220054** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	61.49	0.50	0	0	0	0-0	61.55	0.101	20	E
Sulfate	339.8	0.50	0	0	0	0-0	340.2	0.109	20	E
Surr: Selenate (surr)	*5.213*	0.10	*5*	0	*104*	*85-115*	5.216	*0.0575*	*20*	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54887** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW3-092707** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: Run ID: **WETCHEM_070927I** SeqNo: **1220276** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.07	0.10	6	0	101	90-110	0			

DUP Sample ID: **0709520-20EDUP** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: Run ID: **WETCHEM_070927I** SeqNo: **1220293** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.22	0.10	0	0	0	0-0	7.25	0.415	20	H

DUP Sample ID: **0709522-01DDUP** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: **Effluent** Run ID: **WETCHEM_070927I** SeqNo: **1220294** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.27	0.10	0	0	0	0-0	7.26	0.138	20	H

The following samples were analyzed in this batch: 0709522-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54965** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-100107** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222179** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-100107** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222180** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1055	5.0	1000	0	106	80-120	0			
Alkalinity, Total (As CaCO3)	1055	5.0	1000	0	106	80-120	0			

DUP Sample ID: **0709520-02FDUP** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222188** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	381.9	5.0	0	0	0	0-0	381.9	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	381.9	5.0	0	0	0	0-0	381.9	0	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54971** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222279** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222280** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	928	10	1000	0	92.8	85-115	0			

DUP Sample ID: **0709529-16CDUP** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222278** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	642	10	0	0	0	0-0	646	0.621	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55088** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-100307** Units: **°F** Analysis Date: **10/03/07 0:00**

Client ID: Run ID: **WETCHEM_071003H** SeqNo: **1224653** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120		0		

DUP Sample ID: **0709574-02EDUP** Units: **°F** Analysis Date: **10/03/07 0:00**

Client ID: Run ID: **WETCHEM_071003H** SeqNo: **1224657** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch: 0709522-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55131** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **MBLKW1-100407** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225720** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-100407** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225721** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1425	1.0	1413	0	101	80-120	0			

DUP Sample ID: **0710048-01GDUP** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225724** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	3390	1.0	0	0	0	0-0	3400	0.295	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
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e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Chain of Custody Form

e-Lab Project Manager:

e-Lab Work Order #: 5109522

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Quarterly	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Effluent	9/26/07	1315	L	Y	9	X	X	X	X	X	X	X	X	X		
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: [signature] B.E.D.

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☑ Std 10 WK Days ☐ 6 WK Days ☐ Other 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by: [signature] Jeff Byrd — Date: 9/25/07 — Time: 1615

Received by: — Date: 9/27/07

Relinquished by: — Date: — Time:

Received by (Laboratory): [signature] — Time: 1415

Notes: 10 Day TAT.

Logged by (Laboratory): — Date: — Time:

Checked by (Laboratory): [signature]

e-Lab Analytical Cooler ID: — Cooler Temp.:

QC Package: (Check One Box Below)
- ☑ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other
- ☐ TRRP CheckList
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 9/27/2007 9:00:00 AM

Work Order Number 0709522 Received by: RNG

Checklist completed by RMGM 9/27/07 (Signature / Date) Reviewed by QL 9/28/07 (Initials / Date)

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.3c	002	
Cooler(s)/Kit(s):	1447		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

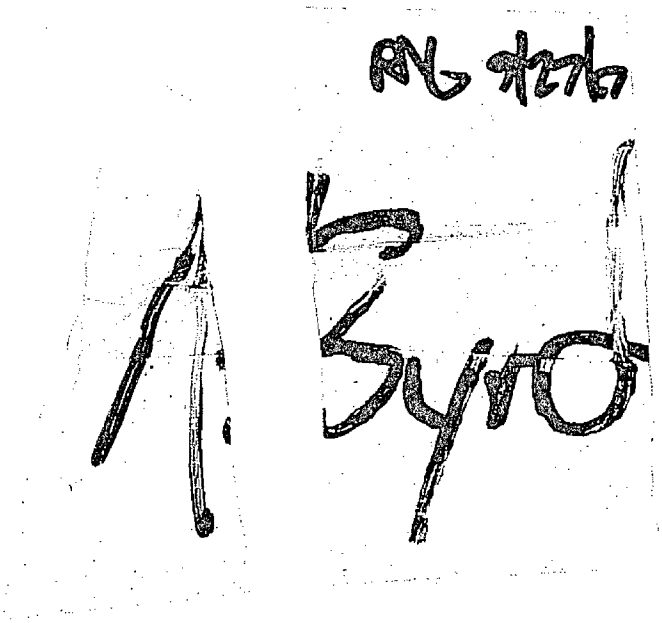
Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

P.O # 179522



Navajo REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P.O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
2007 SEP 20 AM 10 09

September 19, 2007

FedEx Overnight Delivery

Wayne Price
Environmental Bureau Chief
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Re: Navajo Refining Company, L.L.C., Class 1 Injection Well Discharge Permit WDW-3 UICCL-1-008-3 (I-008)

Dear Mr. Price:

Enclosed pursuant to your August 13, 2007 letter to Darrell Moore are (1) the signed copy of the above-referenced discharge permit for Navajo Refining Company, LLC ("Navajo") and (2) the permit fee in the amount of $4,500.00.

Navajo has agreed to sign the conditions listed in the permit based on your statements during our August 28, 2007 phone conversation that the conditions in the permit only apply to equipment at the site of the injection well covered by the permit (WDW-3), not the Artesia Refinery.

We strongly support your suggestion that we schedule a meeting with you and your staff to review the draft Navajo Refinery Discharge Permit that is currently in the renewal process to discuss certain conditions that may be included in the refinery permit which need further clarification and to address any concerns we may have prior to issuance of the final permit.

As we discussed, Navajo is concerned that the permit conditions, including conditions to retrofit storage tanks to include impermeable containment under all tanks and "bermed" areas, have not been thoroughly evaluated or discussed with Navajo prior to imposition. Navajo continues to believe that such evaluation and discussion prior to finalizing these conditions is necessary and appropriate.

Please contact me at 505-746-5490 if you have any questions.

Sincerely,

Johnny Lackey
Environmental Manager

Cc (w/enclosure): JER
Electronic cc (w/o enclosure): DGM, PLY
Environmental Files: REF.ART.07-4.A.02
(WDW-3 Discharge Permit)

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Check Date		09/13/2007
Check Amount	$	4,500.00
Vendor No		5102035
Payment Document		2000023164
Company Code		1020

Invoice Date	Invoice Number	Description	Invoice Amount	Discount Amount	Net Amount
08/13/2007	081307		4,500.00	0.00	4,500.00

Payment document	Check number	Date	Currency	Payment amount
2000023164	1000009940	09/13/2007	USD	*********4,500.00*

↓ PLEASE FOLD ON PERFORATION AND DETACH HERE ↓

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

ANTI-FRAUD PROTECTION - PATENTS 5,197,765

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

64-1278/611
1000009940
09/13/2007

PAY EXACTLY
*********4,500.00*USD

VOID AFTER 180 DAYS

PAY *** FOUR THOUSAND FIVE HUNDRED and 00 /100 USD***

TO THE
ORDER OF WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Stephen D Wise
AUTHORIZED SIGNATURE

⑈1000009940⑈ ⑆061112788⑆ 329905321⑦

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

August 13, 2007

Mr. Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company
501 East Main Street, P.O. Drawer 159
Artesia, New Mexico 88211-0159

Re: **Approval of Class I Injection Well Discharge Permit WDW-3 UICCL1-008-3 (I-008)**
Class I Non-Hazardous Oil Field Waste Disposal Well
WDW-3, API No. 30-015-26575
790 FSL and 2250 FWL UL: N Section 1, T 18 S, R 27 E
Eddy County, New Mexico

Dear Mr. Moore:

Pursuant to all applicable parts of the Water Quality Control Commission (WQCC) Regulations 20.6.2 NMAC and more specifically 20.6.2.3104 - 20.6.2.3999 discharge permit, and 20.6.2.5000-.5299 Underground Injection Control, the Oil Conservation Division (OCD), the applicant is hereby authorized to utilize its Navajo Refining Company Class I WDW-3 Waste Disposal Well (API No. 30-015-26575) located 790 feet from the South line and 2250 feet from the West line in the SE/4, SW/4 of Section 1, Township 18 South, and Range27 East, NMPM, Eddy County, New Mexico, under the conditions specified in the enclosed **Attachment To The Class I Injection Well Discharge Permit**.

Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the New Mexico Oil Conservation Division (OCD) Santa Fe Office within 30 working days of receipt of this letter-including permit fees.**

Please be advised that approval of this permit does not relieve the Navajo Refining Company of responsibility should operations result in pollution of surface water, ground water or the environment. Nor does approval of the permit relieve the Navajo Refining Company of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If you have any questions, please contact Carl Chavez of my staff at (505-476-3491) or E-mail address: carlj.chavez@state.nm.us. On behalf of the staff of the OCD, I wish to thank you and your staff for your cooperation during this discharge permit review.

Sincerely,

Wayne Price
Environmental Bureau Chief

LWP/cc
Attachments-1
xc: OCD District Office

Released to Imaging: 7/12/2024 10:49:45 AM

ATTACHMENT TO THE DISCHARGE PERMIT
Navajo Refining Company WDW-3 Class I Waste Disposal Well UICCL1-008-3 (I-008)
DISCHARGE PERMIT APPROVAL CONDITIONS

August 13, 2007

Please remit a check for $4,500.00 made payable to Water Quality Management Fund:

Water Quality Management Fund
C/o: Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, New Mexico 87505

1. **Payment of Discharge Plan Fees:** All discharge permits are subject to WQCC Regulations. Every billable facility that submits a discharge permit application will be assessed a filing fee of $100.00, plus a renewal flat fee (*see* WQCC Regulation 20.6.2.3114 NMAC). The Oil Conservation Division ("OCD") has received the required $100.00 filing fee and the Navajo Refining Company still owes the required $4500.00 permit fee. The total fee amount due is $4500 for the Class I Well.

2. **Permit Expiration and Renewal Conditions and Penalties:** Pursuant to WQCC Regulation 20.6.2.3109.H.4 NMAC, this permit is valid for a period of five years. **The permit will expire on June 1, 2012** and an application for renewal should be submitted no later than 120 days before that expiration date. Pursuant to WQCC Regulation 20.6.2.3106.F NMAC, if a discharger submits a discharge permit renewal application at least 120 days before the discharge permit expires and is in compliance with the approved permit, then the existing discharge permit will not expire until the application for renewal has been approved or disapproved. ***Expired permits are a violation of the Water Quality Act (Chapter 74, Article 6, NMSA 1978) and civil penalties may be assessed accordingly.***

3. **Permit Terms and Conditions:** Pursuant to WQCC Regulation 20.6.2.3104 NMAC, when a permit has been issued, the Navajo Refining Company must ensure that all discharges shall be consistent with the terms and conditions of the permit. In addition, all facilities shall abide by the applicable rules and regulations administered by the OCD pursuant to the Oil and Gas Act, NMSA 1978, Sections 70-2-1 through 70-2-38. All injection operations related to oil and natural gas production in New Mexico are regulated under the provisions of the Oil and Gas Act, NMSA 1978, Sections 70-2-1 *et seq.* and the Water Quality Act, NMSA 1978, Sections 74-6-1 *et seq.* These Acts delegate authority for enforcement of their provisions relating to oil and natural gas drilling, production, processing, and transportation to the Oil Conservation Division (OCD) of the New Mexico Energy, Minerals and Natural Resources Department, and to the Oil Conservation Commission (OCC) and the Water Quality Control Commission (WQCC). To carry out its authority, the OCC has promulgated rules (19 NMAC) and numerous orders. Navajo Refining Company shall comply with WQCC Regulations 20.6.2 *et seq.* NMAC relating to Class I Waste Disposal Wells.

4. **Navajo Refining Company Commitments:** The Navajo Refining Company shall abide by all commitments submitted in its June 28, 2006 Application for Permit to Drill, Re-enter, Deepen, Plug back or Add a Zone API No. 30-015-26575" including subsequent attachments and amendments; letters and conditions herein for approval. Permit applications that reference previously approved plans on file with the division shall

be incorporated in this permit and the Navajo Refining Company shall abide by all previous commitments of such plans and these conditions for approval.

5. Modifications: WQCC Regulation 20.6.2.3107.C, 20.6.2.3109 and 20.6.2.5101.I NMAC addresses possible future modifications of a permit. The Navajo Refining Company (discharger) shall notify the OCD of any facility expansion, production increase or process modification that would result in any significant modification in the discharge of water contaminants. The Division Director may require a permit modification if any water quality standard specified at 20.6.2.3103 NMAC is or will be exceeded, or if a toxic pollutants as defined in WQCC Regulation 20.6.2.7 NMAC is present in ground water at any place of withdrawal for present or reasonably foreseeable future use, or that the Water Quality Standards for Interstate and Intrastate streams as specified in 20.6.4 NMAC are being or may be violated in surface water in New Mexico.

6. Waste Disposal and Storage: Navajo Refining Company shall dispose of all other non-injected wastes at an OCD-approved facility. Only oil field RCRA-exempt wastes may be disposed of by injection in a Class I well. RCRA non-hazardous, exempt and non-exempt oil field wastes may be disposed of at an OCD-approved facility upon proper waste determination pursuant to 40 CFR Part 261. Any waste stream that is not listed in the discharge permit application must be approved by the OCD on a case-by-case basis.

A. OCD Rule 712 Waste: Pursuant to OCD Rule 712 (19.15.9.712 NMAC) disposal of certain non-domestic waste without notification to the OCD is allowed at NMED permitted solid waste facilities if the waste stream has been identified in the discharge permit and existing process knowledge of the waste stream does not change.

B. Waste Storage: The Navajo Refining Company shall store all waste in an impermeable bermed area, except waste generated during emergency response operations for up to 72 hours. All waste storage areas shall be identified in the discharge permit application. Any waste storage area not identified in the permit shall be approved on a case-by-case basis only. The Navajo Refining Company shall not store oil field waste on-site for more than 180 days unless approved by the OCD.

7. Drum Storage: The Navajo Refining Company must store all drums, including empty drums, containing materials other than fresh water on an impermeable pad with curbing. The Navajo Refining Company must store empty drums on their sides with the bungs in place and lined up on a horizontal plane. The Navajo Refining Company must store chemicals in other containers, such as tote tanks, sacks, or buckets on an impermeable pad with curbing.

8. Process, Maintenance and Yard Areas: The Navajo Refining Company shall either pave and curb or have some type of spill collection device incorporated into the design at all process, maintenance, and yard areas which show evidence that water contaminants from releases, leaks and spills have reached the ground surface.

9. Above Ground Tanks: The Navajo Refining Company shall ensure that all aboveground tanks have impermeable secondary containment (e.g., liners and berms), which will contain a volume of at least one-third greater than the total volume of the largest tank or all interconnected tanks. The Navajo Refining Company shall retrofit all existing tanks before discharge permit renewal. Tanks that contain fresh water or fluids that are gases at atmospheric temperature and pressure are exempt from this condition.

10. Labeling: The Navajo Refining Company shall clearly label all tanks, drums, and containers to identify their contents and other emergency notification information. The Navajo Refining Company may use a tank code numbering system, which is incorporated into their emergency response plans.

11. Below-Grade Tanks/Sumps and Pits/Ponds.

A. All below-grade tanks and sumps must be approved by the OCD prior to installation and must incorporate secondary containment with leak detection into the design. The Navajo Refining Company shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal. All existing below-grade tanks and sumps without secondary containment and leak detection must be tested annually or as specified herein. Systems that have secondary containment with leak detection shall have a monthly inspection of the leak detection system to determine if the primary containment is leaking. Small sumps or depressions in secondary containment systems used to facilitate fluid removal are exempt from these requirements if fluids are removed within 72 hours.

B. All pits and ponds, including modifications and retrofits, shall be designed by a certified registered professional engineer and approved by the OCD prior to installation. In general, all pits or ponds shall have approved hydrologic and geologic reports, location, foundation, liners, and secondary containment with leak detection, monitoring and closure plans. All pits or ponds shall be designed, constructed and operated so as to contain liquids and solids in a manner that will protect fresh water, public health, safety and the environment for the foreseeable future. The Navajo Refining Company shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal.

C. The Navajo Refining Company shall ensure that all exposed pits, including lined pits and open top tanks (8 feet in diameter or larger) shall be fenced, screened, netted, or otherwise rendered non-hazardous to wildlife, including migratory birds.

D. The Navajo Refining Company shall maintain the results of tests and inspections at the facility covered by this discharge permit and available for OCD inspection. The Navajo Refining Company shall report the discovery of any system which is found to be leaking or has lost integrity to the OCD within 15 days. The Navajo Refining Company may propose various methods for testing such as pressure testing to 3 pounds per square inch greater than normal operating pressure and/or visual inspection of cleaned tanks and/or sumps, or other OCD-approved methods. The Navajo Refining Company shall notify the OCD at least 72 hours prior to all testing.

12. Underground Process/Wastewater Lines:

A. The Navajo Refining Company shall test all underground process/wastewater pipelines at least once every five (5) years to demonstrate their mechanical integrity, except lines containing fresh water or fluids that are gases at atmospheric temperature and pressure. Pressure rated pipe shall be tested by pressuring up to one and one-half times the normal operating pressure, if possible, or for atmospheric drain systems, to 3 pounds per square inch greater than normal operating pressure, and pressure held for a minimum of 30 minutes with no more

than a 1% loss/gain in pressure. The Navajo Refining Company may use other methods for testing if approved by the OCD.

B. Navajo Refining Company shall maintain underground process and wastewater pipeline schematic diagrams or plans showing all drains, vents, risers, valves, underground piping, pipe type, rating, size, and approximate location. All new underground piping must be approved by the OCD prior to installation. The Navajo Refining Company shall report any leaks or loss of integrity to the OCD within 15 days of discovery.

Navajo Refining Company shall maintain the results of all tests at the facility covered by this discharge permit and they shall be available for OCD inspection. The Navajo Refining Company shall notify the OCD at least 72 hours prior to all testing.

13. Class V Wells: The Navajo Refining Company shall close all Class V wells (e.g., septic systems, leach fields, dry wells, etc.) that inject non-hazardous industrial wastes or a mixture of industrial wastes and domestic wastes unless it can be demonstrated that ground water will not be impacted in the reasonably foreseeable future. Leach fields and other wastewater disposal systems at OCD-regulated facilities that inject non-hazardous fluid into or above an underground source of drinking water are considered Class V Waste Disposal Wells under the EPA UIC program. Class V wells that inject domestic waste only, must be permitted by the New Mexico Environment Department (NMED).

14. Housekeeping: The Navajo Refining Company shall inspect all systems designed for spill collection/prevention and leak detection at least monthly to ensure proper operation and to prevent over topping or system failure. All spill collection and/or secondary containment devices shall be emptied of fluids within 72 hours of discovery. The Navajo Refining Company shall maintain all records at the facility and available for OCD inspection.

15. Spill Reporting: The Navajo Refining Company shall report all unauthorized discharges, spills, leaks and releases and conduct corrective action pursuant to WQCC Regulation 20.5.12.1203 NMAC and OCD Rule 116 (19.15.3.116 NMAC). The Navajo Refining Company shall notify both the OCD District Office and the Santa Fe Office within 24 hours and file a written report within 15 days.

16. OCD Inspections: The OCD may place additional requirements on the facility and modify the permit conditions based on well emergencies, OCD inspections, and/or quarterly reporting information.

17. Storm Water: The Navajo Refining Company shall implement and maintain run-on and runoff plans and controls. The Navajo Refining Company shall not discharge any water contaminant that exceeds the WQCC standards specified in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) including any oil sheen in any stormwater run-off. The Navajo Refining Company shall notify the OCD within 24 hours of discovery of any releases and shall take immediate corrective action(s) to stop the discharge.

18. Unauthorized Discharges: The Navajo Refining Company shall not allow or cause water pollution, discharge or release of any water contaminant that exceeds the WQCC standards listed in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) unless specifically listed in the permit application approved herein.

An unauthorized discharge is a violation of this permit.

19. Vadose Zone and Water Pollution: The Navajo Refining Company shall address any contamination through the discharge permit process or pursuant to WQCC 20.6.2.4000-.4116 NMAC (Prevention and Abatement of Water Pollution). The OCD may require the Navajo Refining Company to modify its permit for investigation, remediation, abatement, and monitoring requirements for any vadose zone or water pollution. Failure to perform any required investigation, remediation, abatement and submit subsequent reports will be a violation of the permit.

20. Additional Site Specific Conditions: The Navajo Refining Company shall notify the OCD within 24 hours after having knowledge of ground water pollution complaints or well problems within a 1-mile radius of WDW-3.

21. Class I Injection Well(s) Construction Conditions.
All wells, except those municipal wells injection of non-corrosive wastes, shall inject fluids through tubing with a packer set immediately above the injection zone.

A. Construction: The tubing and packer shall be designed and maintained for the duration of expected service.

B. Logs or tests required for the following situations:

a. For surface casing intended to protect underground sources of drinking water:
   i. Resistivity, spontaneous potential, and caliper logs before the casing is installed; and
   ii. A cement bond, temperature, or density log after the casing is set and cemented.

b. For intermediate and long strings of casing intended to facilitate injection:
   i. Resistivity, spontaneous potential, porosity, and gamma ray logs before the casing is installed.
   ii. Fracture finder logs; and
   iii. A cement bond, temperature, or density log after the casing is set and cemented.
   iv. At a minimum, the following information concerning the injection formation shall be determined or calculated for new Class I wells:
      1. Fluid pressure;
      2. Temperature;
      3. Fracture pressure;
      4. Other physical and chemical characteristics of the injection matrix; and
      5. Physical and chemical characteristics of the formation fluids.

22. Class I Injection Well(s) Identification, Operation, Monitoring, Bonding and Reporting.

A. Well Identification: API # 30-015-26575

B. Well Work Over Operations: OCD approval will be obtained prior to performing remedial work, pressure test or any other work. Approval will be requested on OCD Form C-103 "Sundry Notices and Reports on Wells" (OCD Rule 1103.A) with appropriate copies sent to the OCD Environmental Bureau and District Office.

C. Injection Formation, Interval & Waste: Injected refinery exempt/non-exempt non-hazardous wastes will be injected into the Lower-Wolfcamp Formation at the interval 7650 ft to 8450 ft and 8450 ft to 8620 ft. Tubing shall be surrounded by surface casing set to a depth protective of fresh ground water (< 10,000 ppm TDS). The owner/operator shall take all steps necessary to ensure that the injected waste enters only the above specified injection interval and is not permitted to escape to other formations or onto the surface. The operator shall provide written notice of the date of commencement of injection to the Santa Fe Office of the Division.

D. Well Injection Pressure Limits: The wellhead injection pressure on the well shall be limited to no more than 1530 psig. In addition, the injection well or system shall be equipped with a pressure limiting device in workable condition, which shall, at all times, limit surface injection pressure to the maximum allowable pressure for this well. The maximum operating surface injection and/or test pressure measured at the wellhead shall not exceed 1530 psig unless otherwise approved by the OCD. The pressure-limiting device shall monthly be demonstrated and reported quarterly to the OCD. Navajo Refining Company shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the ground surface. Any pressure that causes new fractures or propagation in existing fractures or causes damage to the system shall be reported to OCD within 24 hours of discovery.

The Director of the OCD may authorize an increase in injection pressure upon demonstration by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formation. Such demonstration shall consist of a valid step-rate test run in accordance with and acceptable to the OCD.

E. Mechanical Integrity Testing (MIT):

The owner/operator shall complete an annual casing-tubing annulus pressure test from the surface to the approved injection depth and below the depth of fresh ground water (< 10,000 ppm TDS) to assess casing and tubing integrity. The MIT shall consist of a 30-minute test at a minimum pressure from 300 to 500 psig measured at the surface. A Bradenhead test(s) shall also be performed annually along with the casing-tubing annulus test. A Bradenhead test(s) shall be performed in all annular spaces including surface casing if not cemented.

The owner/operator shall complete an annual pressure fall-off test to monitor the pressure buildup in the injection zone. The well shall be shut down for a period sufficient to conduct the test and shall be submitted to the OCD in the annual report (see Section 22K (11)).

All well testing shall be performed annually or shall also be performed whenever the tubing is pulled or the packer reseated or when the injection formation will be isolated from the casing/tubing annuals.

The operator shall notify the supervisor of the Santa Fe Office of the Division of the date, time and time of the installation of disposal equipment and of any MIT so that it may be inspected and witnessed.

1. General Requirements:

   a. If the testing requires a packer then casing-tubing annulus must be loaded with inert fluid 24 hours prior to testing.
   b. Have manpower and equipment available for pressure test. Wellhead shall be prepared for test and all valves and gauges should be in good working order.
   c. Pumps, tanks, external lines etc. must be isolated from the wellhead during test.
   d. A continuous recording pressure device with a maximum 4-hour clock shall be installed on the casing-tubing annulus. The pressure range shall not be greater than 500 psig. The operator must provide proof that the pressure-recording device has been calibrated within the past 6 months.
   e. A minimum of one pressure gauge shall be installed on the casing/tubing annulus.
   f. OCD must witness the beginning of test (putting chart on) and ending of test (removing chart). At the end of test, the operator may be required to bleed-off well pressure to demonstrate recorder and gauge response.
   g. The Operator shall supply the following information on the pressure chart that the inspector will file in the well records:
      1. Company Name, Well Name, API #, Legal Location.
      2. Test Procedure with "Pass/Fail" designation.
      3. Testing Media: Water, Gas, Oil, Etc.
      4. Date, time started and ending.
      5. Name (printed) and signature of company representative and OCD Inspector

2. Test Acceptance:

The OCD will use the following criteria in determining if a well has passed the Mechanical Integrity Test:

   a. Passes if Zero Bleed-Off during the test.
   b. Passes if Final Test Pressure is within ± 10% of Starting Pressure, if approved by the OCD inspector.
   c. Fails if any Final Test Pressure is greater than ± 10% of Starting Pressure. Operators must investigate for leaks and demonstrate that mechanical integrity of the well(s) by ensuring there are no leaks in the tubing, casing, or packer, and injected/produced fluids are confined within the piping and/or injection zones. Wells shall not resume operations until approved by OCD.

   Note: OCD recognizes that different operations, well designs, formation characteristics and field conditions may cause variations in the above procedures. If the operator wishes to make or discuss anticipate changes, please notify the OCD for approval. All operators are responsible to notify OCD of any procedure that may cause harm to the well system or formation. Please be advised that OCD approval does not relieve any operator of liability should operations result in pollution of surface water, groundwater, or the environment.

d. When the MIT is not witnessed by an OCD Representative and fails, the owner/operator shall notify the OCD within 24 hours after having knowledge of well MIT failure.

F. Loss of Mechanical Integrity: The operator shall report within 24 hours of discovery any failure of the casing, tubing or packer, or movement of fluids outside of the injection zone. The operator shall cease operations until proper repairs are made and receive OCD approval to re-start injection operations. In addition, any associated fresh ground water monitor wells, which exhibit anomalous static water levels, detection of elevated general chemistry constituents, public health issues, etc. shall be immediately reported to the OCD.

G. Injection Record Volumes and Pressures: The owner/operator shall submit quarterly reports of its disposal, operation and well workovers provided herein. The minimum, maximum, average flow waste injection volumes (including total volumes) and annular pressures of waste (oil field exempt/non-exempt non-hazardous waste) injected will be recorded monthly and submitted to the OCD Santa Fe Office on a quarterly basis.

The casing-tubing annulus shall contain fluid and be equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. Due to pressure fluctuations observed at Navajo's other two nearby Class I Injection Wells, WDW-3 shall be equipped with an expansion tank under constant 100 psig pressure connected to the casing-annulus and maintained under constant pressure. The expansion tank shall initially be filled half-full (250 gallon expansion tank) with an approved fluid to establish an equilibrium volume and fluid level. Weekly monitoring of fluid levels in the expansion tank coupled with documented additions/ removals of fluids into or out of the expansion tank is required to maintain the equilibrium volume. Any loss or gain of fluids in the expansion tank shall be recorded, and if significant, reported to the OCD within 24 hours of discovery. The owner/operator shall provide the following information on a quarterly basis: weekly expansion tank volume readings shall be provided in a table in the cover letter of each quarterly report. Navajo shall monitor, record and note any fluid volume additions or removals from the expansion tank on a quarterly basis. In addition, any well activity (i.e., plugging, changing injection intervals, etc.) shall be conducted in accordance with all applicable New Mexico Oil Conservation Division regulations.

H. Analysis of Injected Waste: Provide an analytical data or test results summary of the injection waste water with each annual report. The analytical testing shall be conducted on a quarterly basis with any exceedence reported to the OCD within 24 hours after having knowledge of an exceedence(s). Records shall be maintained at Navajo for the life of the well. The required analytical test methods are:

a. Aromatic and halogenated volatile hydrocarbon scan by EPA Method 8260C GC/MS. Semi-volatile Organics GC/MS EPA Method 8270B including 1 and 2-methylnaphthalene.
b. General water chemistry (Method 40 CFR 136.3) to include calcium, potassium, magnesium, sodium, bicarbonate, carbonate, chloride, sulfate, total dissolved solids (TDS), pH, and conductivity.

c. Heavy metals using the ICP scan (EPA Method 6010) and Arsenic and Mercury using atomic absorption (EPA Methods 7060 and 7470).
d. EPA RCRA Characteristics for Ignitability, Corrosivity and Reactivity (40 CFR part 261 Subpart C Sections 261.21 – 261.23, July 1, 1992).

I. Area of Review (AOR): The operator shall report within 24 hours of discovery of any new wells, conduits, or any other device that penetrates or may penetrate the injection zone within a 1-mile radius from the Class I Well. Documentation of new wells shall be added to the existing AOR information in the well file within 30 days of the discovery.

J. Bonding or Financial Assurance: The operator shall maintain at a minimum, a one well plugging bond in the amount of $95,000 or the actual amount required to plug/abandon the well pursuant to OCD and WQCC rules and regulations. If warranted, OCD may require additional financial assurance to ensure adequate funding to plug and abandon the well or for any corrective actions.

K. Annual Report: All operators shall submit an annual report due on January 31 of each year. The report shall include the following information:

1. Cover sheet marked as "Annual Class I Well Report, name of operator, permit #, API# of well(s), date of report, and person submitting report.
2. Brief summary of Class I Well(s) operations including description and reason for any remedial or major work on the well with a copy of OCD Form C-103.
3. Production volumes as required above in 22.G. including a running total should be carried over to each year. The maximum and average injection pressure.
4. A copy of the chemical analysis as required above in 22.H.
5. A copy of any mechanical integrity test chart, including the type of test, i.e. duration, gauge pressure, etc.
6. Brief explanation describing deviations from normal production methods.
7. A copy of any expansion tank monitoring pressure, fluid removals/additions, well problems, drinking water impacts, leaks and spills reports.
8. If applicable, results of any groundwater monitoring.
9. An Area of Review (AOR) update summary.
10. Sign-off requirements pursuant to WQCC Subsection G 20.6.2.5101.
11. A summary with interpretation of MITs, Fall-Off Tests, etc., with conclusion(s) and recommendation(s).
12. Annual facility training.

23. Transfer of Discharge Permit: Pursuant to WQCC 20.6.2.5101.H the Navajo Refining Company and any new owner/operator shall provide written notice of any transfer of the permit in accordance with WQCC 20.6.2.3104 (Discharge Permit Required), 20.6.2.3111 (Transfer of Discharge Permit), 20.6.2.5101 (Discharge Permit and Other Requirements for Class I Non-Hazardous Waste Waste Disposal Wells, and Class III Wells). Both parties shall sign the notice 30 days prior to any transfer of ownership, control or possession of a Class I Well with an approved discharge permit. In addition, the purchaser shall include a written commitment to comply with the terms and conditions of the previously approved discharge permit. OCD will not transfer Class I Well operations until: correspondence between the transferor and transferee is submitted along with a signed

certification of acceptance by the transferee, and proper bonding or financial assurance is in place and approved by the division. OCD reserves the right to require a major modification of the permit during the transfer process.

24. Training: All personnel associated with operations at the Navajo Class I disposal well shall have appropriate training in accepting, processing, and disposing of Class I non exempt non-hazardous refinery waste to insure proper disposal. Provide training documentation in annual report under Section 22K(12).

25. Closure: The Navajo Refining Company shall notify the OCD when operations of the facility are to be discontinued for a period in excess of six months. Prior to closure of the facility, the operator shall submit for OCD approval, a closure plan including a completed C-103 form for plugging and abandonment of the well(s). Closure and waste disposal shall be in accordance with the statutes, rules and regulations in effect at the time of closure.

26. Certification: Navajo Refining Company, by the officer whose signature appears below, accepts this permit and agrees to comply with all submitted commitments, including these terms and conditions contained here. **Navajo Refining Company** further acknowledges that the OCD may, for good cause shown, as necessary to protect fresh water, public health, safety, and the environment, change the conditions and requirements of this permit administratively.

Conditions accepted by: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

Navajo Refining Company- print name above

JAMES RESINGER

Company Representative- print name

Company Representative- signature

Title VP - NAVAJO REFINERY

Date: 9/18/07

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Check Date		09/13/2007
Check Amount	$	4,500.00
Vendor No		5102035
Payment Document		2000023164
Company Code		1020

Invoice Date	Invoice Number	Description	Invoice Amount	Discount Amount	Net Amount
08/13/2007	081307		4,500.00	0.00	4,500.00

Payment document	Check number	Date	Currency	Payment amount
2000023164	1000009940	09/13/2007	USD	*********4,500.00*

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. 1000009940 dated 9/13/07

or cash received on _____ in the amount of $ 4500 00

from Navajo Refining Co LP

for WDW-3 UICCL-1-008-3 (CI-008)

Submitted by: Lawrence Romero Date: 9/24/07

Submitted to ASD by: Lawrence Romero Date: 9/24/07

Received in ASD by: _____ Date: _____

Filing Fee _____ New Facility _____ Renewal _____

Modification _____ Other _____

Organization Code 521.07 Applicable FY 2004

To be deposited in the Water Quality Management Fund.

Full Payment ✓ or Annual Increment _____

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

64-1278/611 1000009940
09/13/2007

PAY EXACTLY
*********4,500.00*USD

VOID AFTER 180 DAYS

PAY *** FOUR THOUSAND FIVE HUNDRED and 00 /100 USD***

TO THE ORDER OF WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Stephen D Wise
AUTHORIZED SIGNATURE

⑈1000009940⑈ ⑆111278833⑆ 29905321⑆

REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

April 25, 2007

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 First Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the first quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the 200 gallon tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2007 to March 31, 2007. We have disposed a total of 32,545,353 barrels of fluid into the two wells as of March 31, 2007. This is broken down as follows: 22,038,386 barrels into WDW-1 and 10,506,967 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Sr. Environmental Specialist

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	21,268,940
Jan-07	374	417	339	199	263	40	82	143	33	6,821	9,002	1,370	211,459	21,480,399
Feb-07	290	388	222	250	351	17	250	381	38	8,574	12,032	580	265,809	21,746,208
Mar-07	284	340	221	275	295	234	427	500	319	9,425	10,101	8,019	292,178	22,038,386
WDW-2													**Previous Quarter**	10,091,491
Jan-07	223	455	28	119	129	105	0	2	0	4,090	4,415	3,583	126,789	10,218,280
Feb-07	315	500	0	123	158	75	0	0	0	4,219	5,410	2,556	130,779	10,349,059
Mar-07	36	188	0	149	170	124	0	0	0	5,094	5,819	4,238	157,907	10,506,967
													Total Injected fluids:	32,545,353

Page 2160 of 5828

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 FIRST QUARTER WEEKLY WHAMS LEVEL TABLE

	1/1/07	1/8/07	1/15/07	1/22/07	1/29/07	2/5/07	2/12/07	2/19/07	2/26/07	3/5/07	3/12/07	3/19/07	3/26/07
WDW -1	300	300	300	300	200[1]	200	200	200	200	200	200	200	200
WDW-2	250	250	250	250	160[1]	160	160	160	160	160	160	160	160

[1] Removed material to ensure tanks don't overflow.

Page 2161 of 5828

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 (281) 530-5656 Fax (281) 530-5887

April 24, 2007

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj. Well Work Order : **0704309**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 1 sample on 4/17/2007 8:40:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 37.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Jeffrey L Croston

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Project: Inj. Well
Work Order: **0704309**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0704309-01	Inj. Well	Water		4/16/2007 13:30	4/17/2007 08:40	☐

e-Lab Analytical, Inc. **Date:** *April 24, 2007*

CLIENT: Navajo Refining Company
Project: Inj. Well
Work Order: 0704309

Case Narrative

pH sample was analyzed within 24 hours of collection.

Batch 22974 Metals MS/MSD was an unrelated sample.collection.

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **4/19/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	4/19/2007 5:03:37 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **4/19/2007**	Analyst: **ALR**
Aluminum	**2.63**		**1.00**	**mg/L**	100	4/20/2007 5:47:00 PM
Arsenic	**0.189**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Barium	**0.0462**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Beryllium	ND		0.00200	mg/L	1	4/20/2007 6:56:00 AM
Boron	**0.188**		**0.0200**	**mg/L**	1	4/20/2007 6:56:00 AM
Cadmium	ND		0.00200	mg/L	1	4/20/2007 6:56:00 AM
Calcium	**46.2**		**0.500**	**mg/L**	1	4/20/2007 6:56:00 AM
Chromium	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Cobalt	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Copper	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Iron	**0.286**		**0.200**	**mg/L**	1	4/20/2007 6:56:00 AM
Lead	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Magnesium	**43.0**		**1.00**	**mg/L**	5	4/23/2007 3:50:00 PM
Manganese	**0.0249**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Molybdenum	**0.0890**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Nickel	**0.00511**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Potassium	**82.8**		**1.00**	**mg/L**	5	4/23/2007 3:50:00 PM
Selenium	**0.170**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Silver	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Sodium	**2,000**		**20.0**	**mg/L**	100	4/20/2007 5:47:00 PM
Vanadium	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Zinc	**0.0201**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **4/20/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2,4,5-Trichlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2,4,6-Trichlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Methylnaphthalene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Methylphenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Nitrophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
3&4-Methylphenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
3-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
4-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
4-Nitrophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Acenaphthene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Acenaphthylene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Anthracene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Benz(a)anthracene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Benzidine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Hexachloroethane	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Indeno(1,2,3-cd)pyrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Isophorone	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodi-n-propylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodimethylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodiphenylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Naphthalene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Nitrobenzene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Pentachlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Phenanthrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Phenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Pyrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Surr: 2,4,6-Tribromophenol	*75.6*		*42-124*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 2-Fluorobiphenyl	*69.1*		*48-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 2-Fluorophenol	*65.6*		*20-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 4-Terphenyl-d14	*72.1*		*51-135*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: Nitrobenzene-d5	*76.7*		*41-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: Phenol-d6	*70.7*		*20-120*	*%REC*	1	4/20/2007 3:25:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
2-Butanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	4/20/2007 4:54:00 PM
2-Hexanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Acetone	**130**		**10**	**µg/L**	1	4/20/2007 4:54:00 PM
Benzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromoform	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromomethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Carbon disulfide	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloroform	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Ethylbenzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
m,p-Xylene	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Methylene chloride	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Styrene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Toluene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Trichloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Vinyl acetate	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Vinyl chloride	ND		2.0	µg/L	1	4/20/2007 4:54:00 PM
Xylenes, Total	ND		15	µg/L	1	4/20/2007 4:54:00 PM
Surr: 1,2-Dichloroethane-d4	*98.9*		*70-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: 4-Bromofluorobenzene	*100*		*72-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: Dibromofluoromethane	*97.6*		*71-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: Toluene-d8	*101*		*75-125*	*%REC*	1	4/20/2007 4:54:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	4/18/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	4/18/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **LMD**
Chloride	**953**		**25.0**	**mg/L**	50	4/19/2007 12:47:00 AM
Sulfate	**2,420**		**50.0**	**mg/L**	50	4/19/2007 12:47:00 AM
Surr: Selenate (surr)	*100*		*85-115*	*%REC*	50	4/19/2007 12:47:00 AM
ALKALINITY			**E310.1**			Analyst: **PV**
Alkalinity, Bicarbonate (As CaCO3)	**846**		**5.00**	**mg/L**	1	4/18/2007
Alkalinity, Carbonate (As CaCO3)	**124**		**5.00**	**mg/L**	1	4/18/2007
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	4/18/2007
Alkalinity, Total (As CaCO3)	**970**		**5.00**	**mg/L**	1	4/18/2007
CONDUCTIVITY			**E120.1**			Analyst: **PV**
Specific Conductance	**8,030**		**1.00**	**µmhos/cm**	1	4/17/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>200**		**50.0**	**°F**	1	4/19/2007

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	**8.72**	H	**0.100**	**pH units**	1	4/17/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	**6,740**		**10.0**	**mg/L**	1	4/17/2007

Qualifiers:

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E - Value above quantitation range
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e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

Date: *Apr 24 2007*

QC BATCH REPORT

Batch ID: **22964** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:27**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095860** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:29**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095861** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00548	0.00020	0.005	0	110	85-115	0			

LCSD Sample ID: **GLCSDW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:31**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095862** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00553	0.00020	0.005	0	111	85-115	0.00548	0.908	20	

MS Sample ID: **0704314-01DMS** Units: **mg/L** Analysis Date: **04/19/07 16:41**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095865** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00536	0.00020	0.005	-0.000016	108	85-115	0			

MSD Sample ID: **0704314-01DMSD** Units: **mg/L** Analysis Date: **04/19/07 16:43**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095866** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00551	0.00020	0.005	-0.000016	111	85-115	0.00536	2.76	20	

DUP Sample ID: **0704314-01DDUP** Units: **mg/L** Analysis Date: **04/19/07 16:35**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095864** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000016	0	20	

The following samples were analyzed in this batch: 0704309-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW2-041907** Units: **mg/L** Analysis Date: **04/20/07 6:43**
Client ID: Run ID: **ICPMS02_070419A** SeqNo: **1096355** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	0.153	0.50								J
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	0.0004649	0.0050								J
Iron	ND	0.20								
Lead	ND	0.0050								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

MBLK Sample ID: **MBLKW2-041907** Units: **mg/L** Analysis Date: **04/20/07 17:35**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097433** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002384	0.010								J
Magnesium	ND	0.20								
Potassium	ND	0.20								
Sodium	ND	0.20								

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW2-041907** Units: **mg/L** Analysis Date: **04/20/07 6:50**
Client ID: Run ID: **ICPMS02_070419A** SeqNo: **1096356** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04694	0.0050	0.05	0	93.9	80-120	0			
Barium	0.0492	0.0050	0.05	0	98.4	80-120	0			
Beryllium	0.04661	0.0020	0.05	0	93.2	80-120	0			
Boron	0.4886	0.020	0.5	0	97.7	80-120	0			
Cadmium	0.04819	0.0020	0.05	0	96.4	80-120	0			
Calcium	4.432	0.50	5	0	88.6	80-120	0			
Chromium	0.04374	0.0050	0.05	0	87.5	80-120	0			
Cobalt	0.04761	0.0050	0.05	0	95.2	80-120	0			
Copper	0.04604	0.0050	0.05	0	92.1	80-120	0			
Iron	4.78	0.20	5	0	95.6	80-120	0			
Lead	0.04708	0.0050	0.05	0	94.2	80-120	0			
Manganese	0.04577	0.0050	0.05	0	91.5	80-120	0			
Molybdenum	0.04668	0.0050	0.05	0	93.4	80-120	0			
Nickel	0.04595	0.0050	0.05	0	91.9	80-120	0			
Selenium	0.04865	0.0050	0.05	0	97.3	80-120	0			
Silver	0.04866	0.0050	0.05	0	97.3	80-120	0			
Vanadium	0.04467	0.0050	0.05	0	89.3	80-119	0			
Zinc	0.04782	0.0050	0.05	0	95.6	80-118	0			

LCS Sample ID: **MLCSW2-041907** Units: **mg/L** Analysis Date: **04/20/07 17:41**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097434** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.04611	0.010	0.05	0	92.2	80-120	0			
Magnesium	4.742	0.20	5	0	94.8	80-120	0			
Potassium	4.78	0.20	5	0	95.6	80-120	0			
Sodium	4.681	0.20	5	0	93.6	80-120	0			

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R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/20/07 23:33**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097709** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06546	0.0050	0.05	0.01224	106	80-120	0			
Barium	0.07401	0.0050	0.05	0.0219	104	80-120	0			
Cadmium	0.04766	0.0020	0.05	0.0003782	94.6	80-120	0			
Calcium	788.7	0.50	5	784.1	92	80-120	0			EO
Chromium	0.0485	0.0050	0.05	0.0001179	96.8	80-120	0			
Cobalt	0.04993	0.0050	0.05	-4.907E-05	100	80-120	0			
Copper	0.04552	0.0050	0.05	0.0001244	90.8	80-120	0			
Iron	7.65	0.20	5	2.781	97.4	80-120	0			
Lead	0.05079	0.0050	0.05	0.0001332	101	80-120	0			
Manganese	0.3215	0.0050	0.05	0.2683	106	80-120	0			O
Molybdenum	0.0586	0.0050	0.05	0.007029	103	80-120	0			
Nickel	0.04825	0.0050	0.05	0.0035	89.5	80-120	0			
Selenium	0.05793	0.0050	0.05	0.00277	110	80-120	0			
Silver	0.04486	0.0050	0.05	-0.0003654	90.5	80-120	0			
Sodium	ND	0.20	5	0	0	80-120	0			SX
Zinc	0.05858	0.0050	0.05	0.01406	89	80-118	0			

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/23/07 16:38**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098464** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04792	0.0040	0.05	-0.0001226	96.1	80-120	0			
Boron	1.713	0.040	0.5	1.21	100	80-120	0			
Vanadium	0.05208	0.010	0.05	-0.0005382	105	80-119	0			

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/23/07 18:54**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098605** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06834	0.020	0.05	0.01825	100	80-120	0			
Magnesium	258	0.40	5	259.2	-24	80-120	0			SEO
Potassium	39.84	0.40	5	35.54	86	80-120	0			O

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/20/07 23:39**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097710** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06506	0.0050	0.05	0.01224	106	80-120	0.06546	0.613	15	
Barium	0.07081	0.0050	0.05	0.0219	97.8	80-120	0.07401	4.42	15	
Cadmium	0.04533	0.0020	0.05	0.0003782	89.9	80-120	0.04766	5.01	15	
Calcium	751.3	0.50	5	784.1	-656	80-120	788.7	4.86	15	SEO
Chromium	0.04705	0.0050	0.05	0.0001179	93.9	80-120	0.0485	3.04	15	
Cobalt	0.04893	0.0050	0.05	-4.907E-05	98	80-120	0.04993	2.02	15	
Copper	0.04465	0.0050	0.05	0.0001244	89.1	80-120	0.04552	1.93	15	
Iron	7.313	0.20	5	2.781	90.6	80-120	7.65	4.5	15	
Lead	0.04983	0.0050	0.05	0.0001332	99.4	80-120	0.05079	1.91	15	
Manganese	0.3116	0.0050	0.05	0.2683	86.6	80-120	0.3215	3.13	15	O
Molybdenum	0.0569	0.0050	0.05	0.007029	99.7	80-120	0.0586	2.94	15	
Nickel	0.04624	0.0050	0.05	0.0035	85.5	80-120	0.04825	4.25	15	
Selenium	0.05633	0.0050	0.05	0.00277	107	80-120	0.05793	2.8	15	
Silver	0.04482	0.0050	0.05	-0.0003654	90.4	80-120	0.04486	0.0892	15	
Sodium	ND	0.20	5	0	0	80-120	0	0	15	SX
Zinc	0.04966	0.0050	0.05	0.01406	71.2	80-118	0.05858	16.5	15	SR

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/23/07 16:51**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098465** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04966	0.0040	0.05	-0.0001226	99.6	80-120	0.04792	3.57	15	
Boron	1.749	0.040	0.5	1.21	108	80-120	1.713	2.11	15	
Vanadium	0.05126	0.010	0.05	-0.0005382	104	80-119	0.05208	1.59	15	

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/23/07 19:06**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098606** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06672	0.020	0.05	0.01825	96.9	80-120	0.06834	2.4	15	
Magnesium	252.2	0.40	5	259.2	-140	80-120	258	2.27	15	SEO
Potassium	38.96	0.40	5	35.54	68.4	80-120	39.84	2.23	15	SO

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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/20/07 18:18**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097442** Prep Date: **4/19/2007** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	746.2	50	0	0	0	0-0	738.2	1.08	25	
Magnesium	243.9	20	0	0	0	0-0	240.3	1.49	25	
Sodium	2752	20	0	0	0	0-0	2751	0.0363	25	

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/20/07 23:21**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097707** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.01246	0.0050	0	0	0	0-0	0.01224	1.78	25	
Barium	0.02203	0.0050	0	0	0	0-0	0.0219	0.592	25	
Cadmium	0.0002431	0.0020	0	0	0	0-0	0.0003782	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0001179	0	25	
Cobalt	ND	0.0050	0	0	0	0-0	-4.907E-05	0	25	
Copper	ND	0.0050	0	0	0	0-0	0.0001244	0	25	
Iron	2.77	0.20	0	0	0	0-0	2.781	0.396	25	
Lead	ND	0.0050	0	0	0	0-0	0.0001332	0	25	
Manganese	0.2679	0.0050	0	0	0	0-0	0.2683	0.149	25	
Molybdenum	0.00692	0.0050	0	0	0	0-0	0.007029	1.56	25	
Nickel	0.003014	0.0050	0	0	0	0-0	0.0035	0	25	J
Selenium	0.002389	0.0050	0	0	0	0-0	0.00277	0	25	J
Silver	ND	0.0050	0	0	0	0-0	-0.0003654	0	25	
Zinc	0.005127	0.0050	0	0	0	0-0	0.01406	93.1	25	R

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/23/07 16:07**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098409** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01785	0.020	0	0	0	0-0	0.01825	0	25	J
Beryllium	ND	0.0040	0	0	0	0-0	-0.0001226	0	25	
Boron	1.185	0.040	0	0	0	0-0	1.21	2.14	25	
Potassium	34.9	0.40	0	0	0	0-0	35.54	1.82	25	
Vanadium	ND	0.010	0	0	0	0-0	-0.0005382	0	25	

The following samples were analyzed in this batch: 0704309-01B

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:09**

Client ID: Run ID: **SV-3_070420A** SeqNo: **1097700** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*76.15*	5.0	*100*	0	*76.1*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*81.66*	5.0	*100*	0	*81.7*	*48-120*	0			
Surr: 2-Fluorophenol	*74.34*	5.0	*100*	0	*74.3*	*20-120*	0			
Surr: 4-Terphenyl-d14	*87.27*	5.0	*100*	0	*87.3*	*51-135*	0			
Surr: Nitrobenzene-d5	*81.15*	5.0	*100*	0	*81.2*	*41-120*	0			
Surr: Phenol-d6	*76.4*	5.0	*100*	0	*76.4*	*20-120*	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID: **SLCSW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:34**
Client ID: Run ID: **SV-3_070420A** SeqNo: **1097701** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	40.98	5.0	50	0	82	54-118	0			
2,4,5-Trichlorophenol	82.74	5.0	100	0	82.7	52-115	0			
2,4,6-Trichlorophenol	85.08	5.0	100	0	85.1	56-115	0			
2-Methylnaphthalene	43.85	5.0	50	0	87.7	46-117	0			
2-Methylphenol	81.32	5.0	100	0	81.3	53-115	0			
2-Nitroaniline	45.33	5.0	50	0	90.7	53-123	0			
2-Nitrophenol	79.93	5.0	100	0	79.9	53-115	0			
3&4-Methylphenol	118.5	5.0	150	0	79	48-115	0			
3-Nitroaniline	36.53	5.0	50	0	73.1	26-115	0			
4-Nitroaniline	41.73	5.0	50	0	83.5	47-115	0			
4-Nitrophenol	94.88	5.0	100	0	94.9	26-133	0			
Acenaphthene	43.38	5.0	50	0	86.8	57-115	0			
Acenaphthylene	45.78	5.0	50	0	91.6	57-118	0			
Aniline	32.26	5.0	50	0	64.5	36-115	0			
Anthracene	44.87	5.0	50	0	89.7	65-115	0			
Benz(a)anthracene	38.95	5.0	50	0	77.9	53-115	0			
Benzidine	15.57	5.0	50	0	31.1	10-115	0			
Hexachloroethane	41.99	5.0	50	0	84	54-115	0			
Indeno(1,2,3-cd)pyrene	42.04	5.0	50	0	84.1	51-115	0			
Isophorone	41.19	5.0	50	0	82.4	55-115	0			
N-Nitrosodi-n-propylamine	40.8	5.0	50	0	81.6	55-115	0			
N-Nitrosodimethylamine	37.08	5.0	50	0	74.2	42-115	0			
N-Nitrosodiphenylamine	44.27	5.0	50	0	88.5	52-115	0			
Naphthalene	42.77	5.0	50	0	85.5	55-115	0			
Nitrobenzene	40.53	5.0	50	0	81.1	40-124	0			
Pentachlorophenol	90.61	5.0	100	0	90.6	45-125	0			
Phenanthrene	44.33	5.0	50	0	88.7	57-115	0			
Phenol	77.82	5.0	100	0	77.8	38-115	0			
Pyrene	41.57	5.0	50	0	83.1	51-115	0			
Surr: 2,4,6-Tribromophenol	*84.37*	5.0	*100*	0	*84.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*83.81*	5.0	*100*	0	*83.8*	*48-120*	0			
Surr: 2-Fluorophenol	*76*	5.0	*100*	0	*76*	*20-120*	0			
Surr: 4-Terphenyl-d14	*78.04*	5.0	*100*	0	*78*	*51-135*	0			
Surr: Nitrobenzene-d5	*81.76*	5.0	*100*	0	*81.8*	*41-120*	0			
Surr: Phenol-d6	*79.46*	5.0	*100*	0	*79.5*	*20-120*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:58**

Client ID: Run ID: **SV-3_070420A** SeqNo: **1097702** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	42.92	5.0	50	0	85.8	54-118	40.98	4.62	20	
2,4,5-Trichlorophenol	89.79	5.0	100	0	89.8	52-115	82.74	8.17	20	
2,4,6-Trichlorophenol	89.01	5.0	100	0	89	56-115	85.08	4.52	20	
2-Methylnaphthalene	45.67	5.0	50	0	91.3	46-117	43.85	4.07	20	
2-Methylphenol	85.68	5.0	100	0	85.7	53-115	81.32	5.22	20	
2-Nitroaniline	47.16	5.0	50	0	94.3	53-123	45.33	3.98	20	
2-Nitrophenol	86.43	5.0	100	0	86.4	53-115	79.93	7.81	20	
3&4-Methylphenol	126.7	5.0	150	0	84.5	48-115	118.5	6.72	20	
3-Nitroaniline	37.83	5.0	50	0	75.7	26-115	36.53	3.49	20	
4-Nitroaniline	42.27	5.0	50	0	84.5	47-115	41.73	1.29	20	
4-Nitrophenol	94.83	5.0	100	0	94.8	26-133	94.88	0.048	20	
Acenaphthene	45.32	5.0	50	0	90.6	57-115	43.38	4.39	20	
Acenaphthylene	48.52	5.0	50	0	97	57-118	45.78	5.82	20	
Aniline	36.05	5.0	50	0	72.1	36-115	32.26	11.1	20	
Anthracene	45.5	5.0	50	0	91	65-115	44.87	1.38	20	
Benz(a)anthracene	40.58	5.0	50	0	81.2	53-115	38.95	4.11	20	
Benzidine	18.35	5.0	50	0	36.7	10-115	15.57	16.4	20	
Hexachloroethane	44.99	5.0	50	0	90	54-115	41.99	6.9	20	
Indeno(1,2,3-cd)pyrene	44	5.0	50	0	88	51-115	42.04	4.55	20	
Isophorone	42.55	5.0	50	0	85.1	55-115	41.19	3.25	20	
N-Nitrosodi-n-propylamine	43.4	5.0	50	0	86.8	55-115	40.8	6.18	20	
N-Nitrosodimethylamine	41.08	5.0	50	0	82.2	42-115	37.08	10.2	20	
N-Nitrosodiphenylamine	46.04	5.0	50	0	92.1	52-115	44.27	3.92	20	
Naphthalene	45.39	5.0	50	0	90.8	55-115	42.77	5.93	20	
Nitrobenzene	42.89	5.0	50	0	85.8	40-124	40.53	5.65	20	
Pentachlorophenol	90.27	5.0	100	0	90.3	45-125	90.61	0.378	20	
Phenanthrene	45.7	5.0	50	0	91.4	57-115	44.33	3.04	20	
Phenol	82.62	5.0	100	0	82.6	38-115	77.82	5.98	20	
Pyrene	42.88	5.0	50	0	85.8	51-115	41.57	3.09	20	
Surr: 2,4,6-Tribromophenol	*81.47*	5.0	*100*	0	*81.5*	*42-124*	84.37	*3.5*	*20*	
Surr: 2-Fluorobiphenyl	*80.25*	5.0	*100*	0	*80.2*	*48-120*	83.81	*4.34*	*20*	
Surr: 2-Fluorophenol	*75.96*	5.0	*100*	0	*76*	*20-120*	76	*0.0635*	*20*	
Surr: 4-Terphenyl-d14	*74.62*	5.0	*100*	0	*74.6*	*51-135*	78.04	*4.48*	*20*	
Surr: Nitrobenzene-d5	*80.37*	5.0	*100*	0	*80.4*	*41-120*	81.76	*1.71*	*20*	
Surr: Phenol-d6	*83.42*	5.0	*100*	0	*83.4*	*20-120*	79.46	*4.86*	*20*	

The following samples were analyzed in this batch: 0704309-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
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R - RPD outside accepted recovery limits
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-042007** Units: **µg/L** Analysis Date: **04/20/07 11:51**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096817** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*48.6*	5.0	*50*	0	*97.2*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*50.22*	5.0	*50*	0	*100*	*72-125*	0			
Surr: Dibromofluoromethane	*49.42*	5.0	*50*	0	*98.8*	*71-125*	0			
Surr: Toluene-d8	*50.95*	5.0	*50*	0	*102*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-042007** Units: **µg/L** Analysis Date: **04/20/07 11:00**
Client ID: Run ID: **VOA1_070420A** SeqNo: **1096816** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.57	5.0	50	0	97.1	80-120	0			
1,1,2,2-Tetrachloroethane	50.18	5.0	50	0	100	72-120	0			
1,1,2-Trichloroethane	50.68	5.0	50	0	101	80-120	0			
1,1-Dichloroethane	48.74	5.0	50	0	97.5	76-120	0			
1,1-Dichloroethene	47.27	5.0	50	0	94.5	73-124	0			
1,2-Dichloroethane	49.42	5.0	50	0	98.8	78-120	0			
2-Butanone	105.8	10	100	0	106	58-132	0			
2-Chloroethyl vinyl ether	105.8	10	100	0	106	74-120	0			
2-Hexanone	103.7	10	100	0	104	61-130	0			
4-Methyl-2-pentanone	107.1	10	100	0	107	65-127	0			
Acetone	98.11	10	100	0	98.1	59-137	0			
Benzene	48.83	5.0	50	0	97.7	73-121	0			
Bromodichloromethane	48.22	5.0	50	0	96.4	80-120	0			
Bromoform	46.52	5.0	50	0	93	79-120	0			
Bromomethane	47.32	5.0	50	0	94.6	66-137	0			
Carbon disulfide	94.62	10	100	0	94.6	68-141	0			
Carbon tetrachloride	46.42	5.0	50	0	92.8	75-124	0			
Chlorobenzene	48.72	5.0	50	0	97.4	80-120	0			
Chloroethane	47.15	5.0	50	0	94.3	76-121	0			
Chloroform	48.82	5.0	50	0	97.6	80-120	0			
Chloromethane	42.92	5.0	50	0	85.8	67-123	0			
cis-1,3-Dichloropropene	49.93	5.0	50	0	99.9	80-120	0			
Dibromochloromethane	50.55	5.0	50	0	101	80-120	0			
Ethylbenzene	48.19	5.0	50	0	96.4	80-120	0			
m,p-Xylene	95.22	10	100	0	95.2	78-121	0			
Methylene chloride	46.36	10	50	0	92.7	65-133	0			
Styrene	49.71	5.0	50	0	99.4	80-120	0			
Tetrachloroethene	47.21	5.0	50	0	94.4	79-120	0			
Toluene	47.98	5.0	50	0	96	80-120	0			
trans-1,3-Dichloropropene	50.69	5.0	50	0	101	80-120	0			
Trichloroethene	48.41	5.0	50	0	96.8	80-120	0			
Vinyl acetate	108.6	10	100	0	109	67-139	0			
Vinyl chloride	43.31	2.0	50	0	86.6	74-122	0			
Xylenes, Total	143.3	15	150	0	95.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	*50.26*	5.0	*50*	0	*101*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*51.33*	5.0	*50*	0	*103*	*72-125*	0			
Surr: Dibromofluoromethane	*50.99*	5.0	*50*	0	*102*	*71-125*	0			
Surr: Toluene-d8	*51.95*	5.0	*50*	0	*104*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0704367-01AMS** Units: **µg/L** Analysis Date: **04/20/07 12:41**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096823** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.57	5.0	50	0	93.1	80-120		0		
1,1,2,2-Tetrachloroethane	51.33	5.0	50	0	103	72-120		0		
1,1,2-Trichloroethane	51.95	5.0	50	0	104	80-120		0		
1,1-Dichloroethane	48.37	5.0	50	0	96.7	76-120		0		
1,1-Dichloroethene	45.82	5.0	50	0	91.6	73-124		0		
1,2-Dichloroethane	50.11	5.0	50	0	100	78-120		0		
2-Butanone	110.2	10	100	0	110	58-132		0		
2-Chloroethyl vinyl ether	109.7	10	100	0	110	74-120		0		
2-Hexanone	111.7	10	100	0	112	61-130		0		
4-Methyl-2-pentanone	112.1	10	100	0	112	65-127		0		
Acetone	103.2	10	100	0.8797	102	59-137		0		
Benzene	47.63	5.0	50	0	95.3	73-121		0		
Bromodichloromethane	49.95	5.0	50	0	99.9	80-120		0		
Bromoform	47.58	5.0	50	0	95.2	79-120		0		
Bromomethane	43.93	5.0	50	0	87.9	66-137		0		
Carbon disulfide	90.67	10	100	0	90.7	68-141		0		
Carbon tetrachloride	44.69	5.0	50	0	89.4	75-124		0		
Chlorobenzene	47.56	5.0	50	0	95.1	80-120		0		
Chloroethane	43.04	5.0	50	0	86.1	76-121		0		
Chloroform	49.18	5.0	50	0	98.4	80-120		0		
Chloromethane	41.05	5.0	50	0	82.1	67-123		0		
cis-1,3-Dichloropropene	50.92	5.0	50	0	102	80-120		0		
Dibromochloromethane	52.39	5.0	50	0	105	80-120		0		
Ethylbenzene	46.46	5.0	50	0	92.9	80-120		0		
m,p-Xylene	94.12	10	100	0	94.1	78-121		0		
Methylene chloride	45.96	10	50	0	91.9	65-133		0		
Styrene	48.39	5.0	50	0	96.8	80-120		0		
Tetrachloroethene	45.71	5.0	50	0	91.4	79-120		0		
Toluene	46.08	5.0	50	0	92.2	80-120		0		
trans-1,3-Dichloropropene	50.97	5.0	50	0	102	80-120		0		
Trichloroethene	47.15	5.0	50	0	94.3	80-120		0		
Vinyl acetate	111.9	10	100	0	112	67-139		0		
Vinyl chloride	40.33	2.0	50	0	80.7	74-122		0		
Xylenes, Total	141	15	150	0	94	80-120		0		
Surr: 1,2-Dichloroethane-d4	*50.37*	5.0	*50*	0	*101*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*50.31*	5.0	*50*	0	*101*	*72-125*		0		
Surr: Dibromofluoromethane	*51.6*	5.0	*50*	0	*103*	*71-125*		0		
Surr: Toluene-d8	*51.99*	5.0	*50*	0	*104*	*75-125*		0		

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0704367-01AMSD** Units: **µg/L** Analysis Date: **04/20/07 13:06**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096824** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	43.74	5.0	50	0	87.5	80-120	46.57	6.27	20	
1,1,2,2-Tetrachloroethane	53.33	5.0	50	0	107	72-120	51.33	3.81	20	
1,1,2-Trichloroethane	52.88	5.0	50	0	106	80-120	51.95	1.78	20	
1,1-Dichloroethane	47.37	5.0	50	0	94.7	76-120	48.37	2.09	20	
1,1-Dichloroethene	42.93	5.0	50	0	85.9	73-124	45.82	6.51	20	
1,2-Dichloroethane	48.84	5.0	50	0	97.7	78-120	50.11	2.57	20	
2-Butanone	110.9	10	100	0	111	58-132	110.2	0.693	20	
2-Chloroethyl vinyl ether	111.3	10	100	0	111	74-120	109.7	1.44	20	
2-Hexanone	113	10	100	0	113	61-130	111.7	1.13	20	
4-Methyl-2-pentanone	116.9	10	100	0	117	65-127	112.1	4.23	20	
Acetone	99.56	10	100	0.8797	98.7	59-137	103.2	3.57	20	
Benzene	46.66	5.0	50	0	93.3	73-121	47.63	2.07	20	
Bromodichloromethane	50.08	5.0	50	0	100	80-120	49.95	0.258	20	
Bromoform	48.99	5.0	50	0	98	79-120	47.58	2.93	20	
Bromomethane	45.06	5.0	50	0	90.1	66-137	43.93	2.54	20	
Carbon disulfide	86.9	10	100	0	86.9	68-141	90.67	4.25	20	
Carbon tetrachloride	41.85	5.0	50	0	83.7	75-124	44.69	6.56	20	
Chlorobenzene	46.5	5.0	50	0	93	80-120	47.56	2.24	20	
Chloroethane	41.73	5.0	50	0	83.5	76-121	43.04	3.07	20	
Chloroform	48.58	5.0	50	0	97.2	80-120	49.18	1.21	20	
Chloromethane	40.89	5.0	50	0	81.8	67-123	41.05	0.403	20	
cis-1,3-Dichloropropene	50.77	5.0	50	0	102	80-120	50.92	0.297	20	
Dibromochloromethane	52.86	5.0	50	0	106	80-120	52.39	0.889	20	
Ethylbenzene	43.35	5.0	50	0	86.7	80-120	46.46	6.94	20	
m,p-Xylene	91.01	10	100	0	91	78-121	94.12	3.37	20	
Methylene chloride	46.2	10	50	0	92.4	65-133	45.96	0.53	20	
Styrene	47.29	5.0	50	0	94.6	80-120	48.39	2.29	20	
Tetrachloroethene	42.07	5.0	50	0	84.1	79-120	45.71	8.3	20	
Toluene	45.9	5.0	50	0	91.8	80-120	46.08	0.395	20	
trans-1,3-Dichloropropene	52.11	5.0	50	0	104	80-120	50.97	2.22	20	
Trichloroethene	45.17	5.0	50	0	90.3	80-120	47.15	4.29	20	
Vinyl acetate	108.9	10	100	0	109	67-139	111.9	2.66	20	
Vinyl chloride	38.59	2.0	50	0	77.2	74-122	40.33	4.41	20	
Xylenes, Total	135.2	15	150	0	90.1	80-120	141	4.21	20	
Surr: 1,2-Dichloroethane-d4	*49.77*	5.0	*50*	0	*99.5*	*70-125*	50.37	*1.18*	*20*	
Surr: 4-Bromofluorobenzene	*49.34*	5.0	*50*	0	*98.7*	*72-125*	50.31	*1.96*	*20*	
Surr: Dibromofluoromethane	*50.41*	5.0	*50*	0	*101*	*71-125*	51.6	*2.33*	*20*	
Surr: Toluene-d8	*50.95*	5.0	*50*	0	*102*	*75-125*	51.99	*2.03*	*20*	

The following samples were analyzed in this batch: 0704309-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48864** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-041707** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093574** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-041707** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093575** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1410	1.0	1413	0	99.8	80-120		0		

DUP Sample ID: **0704241-01BDUP** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093581** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	42.93	1.0	0	0	0	0-0	43.13	0.465	20	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48869** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-041707** Units: **pH units** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417G** SeqNo: **1093613** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.02	0.10	6	0	100	90-110	0			

DUP Sample ID: **0704322-01ADUP** Units: **pH units** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417G** SeqNo: **1093616** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.71	0.10	0	0	0	0-0	7.69	0.26	20	H

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48897** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094263** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094264** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	971	10	1000	0	97.1	85-115		0		

DUP Sample ID: **0704293-18CDUP** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094254** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1422	10	0	0	0	0-0	1347	5.42	20	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48926** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-041807** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094851** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-041807** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094852** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1006	5.0	1000	0	101	80-120	0			

DUP Sample ID: **0704260-04FDUP** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094866** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	371.5	5.0	0	0	0	0-0	356	4.26	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	371.5	5.0	0	0	0	0-0	356	4.26	20	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48945** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-041907** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095481** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID: **0704158-01EDUP** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095487** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

DUP Sample ID: **0704338-01ADUP** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095488** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48972** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-041707** Units: **mg/L** Analysis Date: **04/17/07 21:23**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096082** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Selenate (surr)	*4.803*	0.10	*5*	0	*96.1*	*85-115*		0		

LCS Sample ID: **WLCSW1-041707/** Units: **mg/L** Analysis Date: **04/17/07 21:47**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096083** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.12	0.50	20	0	101	90-110		0		
Sulfate	20.19	1.0	20	0	101	90-110		0		
Surr: Selenate (surr)	*5.152*	0.10	*5*	0	*103*	*85-115*		0		

MS Sample ID: **0704301-01FMS** Units: **mg/L** Analysis Date: **04/17/07 23:00**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096086** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	53.34	0.50	10	44.17	91.7	80-120		0		EO
Sulfate	87.46	1.0	10	78.84	86.2	80-120		0		EO
Surr: Selenate (surr)	*4.848*	0.10	*5*	0	*97*	*85-115*		0		

MSD Sample ID: **0704301-01FMSD** Units: **mg/L** Analysis Date: **04/17/07 23:25**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096087** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	53.3	0.50	10	44.17	91.3	80-120	53.34	0.0731	20	EO
Sulfate	87.29	1.0	10	78.84	84.5	80-120	87.46	0.195	20	EO
Surr: Selenate (surr)	*4.833*	0.10	*5*	0	*96.7*	*85-115*	4.848	*0.31*	*20*	

DUP Sample ID: **0704301-01FDUP** Units: **mg/L** Analysis Date: **04/17/07 22:36**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096085** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	44.13	0.50	0	0	0	0-0	44.17	0.0861	20	
Sulfate	78.82	1.0	0	0	0	0-0	78.84	0.019	20	E
Surr: Selenate (surr)	*4.843*	0.10	*5*	0	*96.9*	*85-115*	4.847	*0.0826*	*20*	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48972** Instrument ID **ICS3000** Method: **E300**

DUP Sample ID: **0704301-01FDUP** Units: **mg/L** Analysis Date: **04/18/07 9:33**

Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096131** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	43.19	5.0	0	0	0	0-0	43.34	0.337	20	
Sulfate	76.4	10	0	0	0	0-0	76.35	0.0615	20	
Surr: Selenate (surr)	*48.09*	1.0	*50*	0	*96.2*	*85-115*	47.96	*0.273*	*20*	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

The Chain of Custody is a Legal Document. All information must be completed accurately.

e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager:

e-Lab Work Order #: 0704309

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Well	A	Injection Well Quarterly
Work Order		Project Number		B	
Company Name	Navajo Refining	Bill To Company	Same	C	
Send Report To	Jeff Byrd	Invoice Attn		D	
Address		Address		E	
				F	
City/State/Zip	Artesia	City/State/Zip		G	
Phone		Phone		H	
Fax		Fax		I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Well	4/16/07	1330	L	Y	8	X										
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Jeff Byrd

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Other ☐ STD-10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour X

Results Due Date:

Relinquished by: Jeff Byrd	Date: 4/16/07	Time: 1615	Received by:	Notes:	
Relinquished by:	Date:	Time:	Received by (Laboratory): 4/17/07 08:46	e-Lab Analytical Cooler ID	Trip Blank Number
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 4/17/2007 8:40:00 AM

Work Order Number 0704309 Received by: RNG

Checklist completed by RMR 4-17-07 Reviewed by 9L 4/18/07

Signature Date Initials Date

Matrix: Liquid Carrier name: E-Lab

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.7c	002	
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

FedEx
Emp# 520550 01:01 17APR07

STANDARD OVERNIGHT

TUE

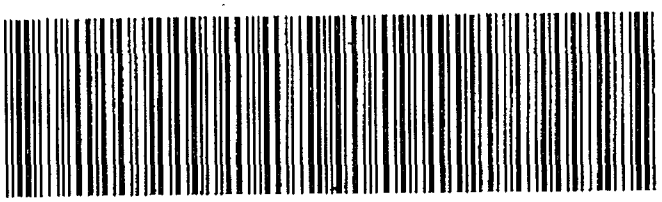
Deliver By:
17APR07

TRK# 9046 7991 1241 FORM 0201

IAH

77099 -TX-US

XH JGQA



e-Lab Analytical, Inc.
10460 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.6887

CUSTOD
Date: 4/16/07
Name:
Company:

DY SEAL
me: 1615

Seal Broken By:

Date: 4/17/07

e-Lab Analytical, Inc

Date: *April 20, 2007*

CLIENT: e-Lab Analytical, Inc
Project: 0704309
Work Order: **0704354**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0704354-01	0704309-01E	Water		4/16/2007 13:30	4/18/2007 10:00	☐

e-Lab Analytical, Inc

Date: *April 20, 2007*

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309
Lab ID: 0704354-01

Client Sample ID: 0704309-01E
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **RAR**
Cyanide, Reactive	ND	40.0		mg/Kg	1	4/18/2007
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **RAR**
Sulfide, Reactive	ND	40.0		mg/Kg	1	4/18/2007

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- P - Dual Column results percent difference > 40%
- E - Value above quantitation range
- H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309

Date: *Apr 20 2007*

QC BATCH REPORT

Batch ID: **R48120** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID **WBLKW1-041707** Units: **mg/Kg** Analysis Date: **04/18/07 0:00**

Client ID: Run ID: **WETCHEM_070417P** SeqNo: **764493** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0704354-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309

QC BATCH REPORT

Batch ID: **R48121** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID **WBLKW1-041707** Units: **mg/Kg** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764522** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID **WLCSW1-041707** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764531** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	190.8	40	619	0	30.8	2.8-70	0			

LCSD Sample ID **WLCSDW1-04170** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764530** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	194.5	40	619	0	31.4	2.8-70	190.8	1.92	35	

MS Sample ID **0704315-01A MS** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764532** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	157	40	619	0	25.4	2.8-70	0			

MSD Sample ID **0704315-01A MSD** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764533** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	131	40	619	0	21.2	2.8-70	157	18.1	35	

The following samples were analyzed in this batch: 0704354-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

0704354

Subcontractor:
e-Lab Analytical, Inc.
3352 128th Ave.
Holland, MI 49424
TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

QUALITY • INTEGRITY • SERVICE

CHAIN-OF-CUSTODY RECORD

Date: Apr 17, 2007
COC ID: 4918
Due Date 4/23/2007

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	0704309	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jcroston@elabi.com	eMail CC	oelliston@elabi.com	J

Sample ID	Matrix	Collection Date	Bottle	A	B	C	D	E	F	G	H	I	J
0704309-01E (Inj. Well)	Water	4/16/2007 13:30	(1) 1LPNEAT	X	X								

Comments:

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
					Std
Relinquished by:	Date/Time	Received by:	Date/Time		
UPS	4-17-07/UPS 4/18/07 1000	UPS	4/17/07 4/18/07 1000		

e-Lab Analytical, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 4/18/2007 10:00:00 AM

Work Order Number 0704354 Received by: AJK

Checklist completed by Signature 4/18/07 Date Reviewed by Initials 4/18/07 Date

Matrix: Water Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.2 C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

UPS Next Day Air Saver
Signature Required

WEIGHT 1 0 | DIMENSIONAL WEIGHT | LARGE AIR PACKAGE ☐ | SHIPPER RELEASE ☐

Saver

SHIPMENT FROM
UPS ACCOUNT NO. 698174
REFERENCE NUMBER SUB
R2 SANCHEZ
TELEPHONE 281-530-5656

E-LAB, INC.
10450 STANCLIFF RD STE #210
HOUSTON TX 77099

MI 495 9-04

UPS Next Day Air Saver 1P

DELIVER TO
TELEPHONE 616-399-6070
RECEIVING
E-LAB, INC.
3352 128TH AVE
HOLLAND MI 49424

1Z 678 17[illegible] 23 1002 7565

(URC v.48.0A 10/2005)
0201952542609 1:05 S
United Parcel Service, Louisville, KY

SHIPMENT ID NUMBER 6981 7479 [illegible]

e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel: 281.530.5656
Fax: 281.530.5887
QUALITY - DEPENDABILITY

CUSTODY SEAL
Date: 4-11-07
Time: [illegible]
Signature: RICHARD CAN

070435

OK cc. 5/17/07 Sam Gamboa

NAVAJO REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

April 16, 2006

RECEIVED

APR 19 2007

Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2006 Fourth Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the fourth quarter of 2006 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2006 to December 31, 2006. We have disposed a total of 31,360,431 barrels of fluid into the two wells as of December 31, 2006. This is broken down as follows: 21,268,940 barrels into WDW-1 and 10,091,491 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Sr. Environmental Specialist

Encl.

ccc: DGM
File; REF:ART: 4 A 02 D

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2006 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	20,500,126
Oct-06	229	353	7	242	312	125	241	349	154	8,311	10,708	4,296	257,630	20,757,756
Nov-06	279	368	36	248	298	122	267	325	130	8,491	10,221	4,189	263,211	21,020,967
Dec-06	349	402	294	233	342	129	157	232	102	7,999	11,712	4,420	247,973	21,268,940
WDW-2													**Previous Quarter**	9,745,400
Oct-06	481	500	358	94	150	0	0	0	0	3,237	5,160	0	100,352	9,845,752
Nov-06	497	500	447	109	154	0	0	0	0	3,735	5,291	0	115,797	9,961,549
Dec-06	406	500	205	122	140	69	0	0	0	4,192	4,799	2,382	129,942	10,091,491
													Total Injected fluids:	31,360,431

Page 2200 of 5828

Navajo Refining Company, L.P.

2006 FOURTH QUARTER WEEKLY WHAMS LEVEL TABLE

	12/4/06	12/11/06	12/18/06	12/25/06
	Gallons	Gallons	Gallons	Gallons
WDW-1	300	300	300	300
WDW-2	250	250	250	250

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 (281) 530-5656 Fax (281) 530-5887

December 29, 2006

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Wells Work Order : **0612199**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 2 samples on 12/12/2006 10:35:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 45.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Odette E. Elliston

Jeffrey L Croston
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: **0612199**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0612199-01	Injection Wells	Water		12/11/2006 13:30	12/12/2006 10:35	☐
0612199-02	Trip Blank 1338	Trip Blank		12/11/2006	12/12/2006 10:35	☑

e-Lab Analytical, Inc. **Date:** *December 29, 2006*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0612199

Case Narrative

Batch's 21185 and 21217 Metals MS/MSD were unrelated samples.

Batch's R44863 and R45027 Volatiles MS/MSD were unrelated samples.

Batch R44808 Anions (sample Injection Wells) MS/MSD recoveries were below the control limits for Sulfate (76.4% and 64.8%). Recoveries were E/O-flagged.

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **12/18/2006**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	12/18/2006 5:21:59 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **12/13/2006**	Analyst: **ALR**
Aluminum	**1.27**		**0.0100**	**mg/L**	1	12/15/2006 12:10:00 AM
Arsenic	**0.159**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Barium	**0.0250**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Beryllium	ND		0.00200	mg/L	1	12/15/2006 12:10:00 AM
Boron	**0.237**		**0.0200**	**mg/L**	1	12/19/2006 8:58:00 AM
Cadmium	ND		0.00100	mg/L	1	12/15/2006 12:10:00 AM
Calcium	**121**		**0.500**	**mg/L**	1	12/15/2006 12:10:00 AM
Chromium	**0.00234**		**0.00200**	**mg/L**	1	12/15/2006 12:10:00 AM
Cobalt	ND		0.00200	mg/L	1	12/15/2006 12:10:00 AM
Copper	**0.00417**		**0.00200**	**mg/L**	1	12/15/2006 12:10:00 AM
Iron	**0.802**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Lead	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Magnesium	**25.0**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Manganese	**0.0726**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Molybdenum	**0.0925**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Nickel	**0.0103**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Potassium	**18.8**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Selenium	**0.344**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Silver	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Sodium	**1,400**		**40.0**	**mg/L**	200	12/15/2006 4:58:00 PM
Vanadium	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Zinc	**0.159**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **12/13/2006**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2,4,5-Trichlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2,4,6-Trichlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Methylnaphthalene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Methylphenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Nitrophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
3&4-Methylphenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
3-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
4-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
4-Nitrophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Acenaphthene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Acenaphthylene	ND		10	µg/L	1	12/14/2006 5:22:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Anthracene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Benz(a)anthracene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Benzidine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Hexachloroethane	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Indeno(1,2,3-cd)pyrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Isophorone	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodi-n-propylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodimethylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodiphenylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Naphthalene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Nitrobenzene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Pentachlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Phenanthrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Phenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Pyrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Surr: 2,4,6-Tribromophenol	*69.3*		*42-124*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 2-Fluorobiphenyl	*65.2*		*48-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 2-Fluorophenol	*53.3*		*20-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 4-Terphenyl-d14	*66.0*		*51-135*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: Nitrobenzene-d5	*62.9*		*41-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: Phenol-d6	*61.1*		*20-120*	*%REC*	1	12/14/2006 5:22:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
2-Butanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	12/18/2006 7:17:00 PM
2-Hexanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Acetone	**53**		**10**	**µg/L**	1	12/18/2006 7:17:00 PM
Benzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromoform	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromomethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Carbon disulfide	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloroform	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Ethylbenzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
m,p-Xylene	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Methylene chloride	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Styrene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Toluene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Trichloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Vinyl acetate	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Vinyl chloride	ND		2.0	µg/L	1	12/18/2006 7:17:00 PM
Xylenes, Total	ND		15	µg/L	1	12/18/2006 7:17:00 PM
Surr: 1,2-Dichloroethane-d4	*107*		*70-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: 4-Bromofluorobenzene	*116*		*72.4-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: Dibromofluoromethane	*121*		*71.2-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: Toluene-d8	*123*		*75-125*	*%REC*	1	12/18/2006 7:17:00 PM
FLASHPOINT			**SW1010**			Analyst: **MAG**
Ignitability	**>180**		**50.0**	**°F**	1	12/15/2006
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	12/15/2006
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	12/15/2006
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **LMD**
Chloride	**907**		**25.0**	**mg/L**	50	12/13/2006 12:38:00 AM
Sulfate	**1,810**		**50.0**	**mg/L**	50	12/13/2006 12:38:00 AM
Surr: Selenate (surr)	*92.9*		*80-120*	*%REC*	50	12/13/2006 12:38:00 AM
ALKALINITY			**E310.1**			Analyst: **PV**
Alkalinity, Bicarbonate (As CaCO3)	**224**		**5.00**	**mg/L**	1	12/18/2006
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	12/18/2006
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	12/18/2006
Alkalinity, Total (As CaCO3)	**224**		**5.00**	**mg/L**	1	12/18/2006
CONDUCTIVITY			**E120.1**			Analyst: **RPM**
Specific Conductance	**5,800**		**1.00**	**µmhos/cm**	1	12/12/2006

Qualifiers:

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **RPM**
pH	7.32		0.100	pH units	1	12/12/2006
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	4,530		10.0	mg/L	1	12/13/2006

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-02

Client Sample ID: Trip Blank 1338
Collection Date: 12/11/2006
Matrix: TRIP BLANK

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
2-Butanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	12/13/2006 8:56:00 PM
2-Hexanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Acetone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Benzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromoform	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromomethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Carbon disulfide	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chlorobenzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloroform	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Ethylbenzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
m,p-Xylene	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Methylene chloride	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Styrene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Toluene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Trichloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Vinyl acetate	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Vinyl chloride	ND		2.0	µg/L	1	12/13/2006 8:56:00 PM
Xylenes, Total	ND		15	µg/L	1	12/13/2006 8:56:00 PM
Surr: 1,2-Dichloroethane-d4	*104*		*70-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: 4-Bromofluorobenzene	*80.6*		*72.4-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: Dibromofluoromethane	*99.8*		*71.2-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: Toluene-d8	*91.4*		*75-125*	*%REC*	1	12/13/2006 8:56:00 PM

Qualifiers:

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P - Dual Column results percent difference > 40%
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e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

Date: *Dec 29 2006*

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW1-121306** Units: **mg/L** Analysis Date: **12/14/06 14:44**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014550** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	ND	0.0050								

MBLK Sample ID: **MBLKW1-121306** Units: **mg/L** Analysis Date: **12/14/06 18:48**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014885** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	0.02435	0.20								J
Selenium	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	0.00299	0.0050								J

LCS Sample ID: **MLCSW1-121306** Units: **mg/L** Analysis Date: **12/14/06 14:50**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014551** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	0.04857	0.0050	0.05	0	97.1	80-117		0		

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW1-121306** Units: **mg/L** Analysis Date: **12/14/06 18:54**

Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014886** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05627	0.010	0.05	0	113	79-126	0			
Arsenic	0.0495	0.0050	0.05	0	99	80-121	0			
Barium	0.05205	0.0050	0.05	0	104	79.8-119	0			
Beryllium	0.04927	0.0020	0.05	0	98.5	78.9-120	0			
Cadmium	0.05273	0.0020	0.05	0	105	79.1-119	0			
Calcium	5.374	0.50	5	0	107	80-121	0			
Chromium	0.05011	0.0050	0.05	0	100	79.3-121	0			
Cobalt	0.0542	0.0050	0.05	0	108	82-121	0			
Copper	0.04994	0.0050	0.05	0	99.9	81-120	0			
Iron	5.01	0.20	5	0	100	80-120	0			
Lead	0.0496	0.0050	0.05	0	99.2	80-118	0			
Magnesium	4.874	0.20	5	0	97.5	80-120	0			
Manganese	0.05128	0.0050	0.05	0	103	82-119	0			
Molybdenum	0.04974	0.0050	0.05	0	99.5	81-116	0			
Nickel	0.05207	0.0050	0.05	0	104	82-120	0			
Potassium	4.844	0.20	5	0	96.9	80-120	0			
Selenium	0.04976	0.0050	0.05	0	99.5	79.2-118	0			
Sodium	4.873	0.20	5	0	97.5	80.6-119	0			
Vanadium	0.05329	0.0050	0.05	0	107	82.1-119	0			
Zinc	0.05312	0.0050	0.05	0	106	79-118	0			

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/14/06 6:12**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014199** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05019	0.0050	0.05	0.003835	92.7	80-121	0			
Barium	0.2575	0.0050	0.05	0.2123	90.4	79.8-119	0			O
Cadmium	0.04615	0.0020	0.05	-0.0003191	92.9	79.1-119	0			
Calcium	110.8	0.50	5	102.6	164	80-121	0			SO
Chromium	0.05279	0.0050	0.05	0.002521	101	79.3-121	0			
Cobalt	0.05119	0.0050	0.05	-0.0001729	103	82-121	0			
Copper	0.06686	0.0050	0.05	0.02236	89	80-120	0			
Iron	4.641	0.20	5	0.03176	92.2	80-120	0			
Lead	0.04808	0.0050	0.05	-0.00005234	96.3	80-118	0			
Manganese	0.04835	0.0050	0.05	-0.0001617	97	82-119	0			
Molybdenum	0.04822	0.0050	0.05	0.00133	93.8	81-116	0			
Nickel	0.04771	0.0050	0.05	0.0005055	94.4	82-120	0			
Potassium	87.71	0.20	5	79.47	165	80-120	0			SO
Selenium	0.04355	0.0050	0.05	0.001252	84.6	79.2-118	0			
Silver	0.04151	0.0050	0.05	-0.0003545	83.7	80-117	0			
Sodium	1377	0.20	5	1299	1560	80.6-119	0			SEO
Vanadium	0.06184	0.0050	0.05	0.008266	107	82.1-119	0			
Zinc	0.06342	0.0050	0.05	0.01872	89.4	79-118	0			

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/14/06 22:05**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014913** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04543	0.0020	0.05	0.00003426	90.8	78.9-120	0			

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/15/06 15:39**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015920** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.0583	0.010	0.05	0.007915	101	79-126	0			
Magnesium	7.084	0.20	5	2.247	96.7	80-120	0			

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R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/14/06 6:42**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014202** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05268	0.0050	0.05	0.003835	97.7	80-121	0.05019	4.84	15	
Barium	0.2609	0.0050	0.05	0.2123	97.2	79.8-119	0.2575	1.31	15	O
Cadmium	0.04664	0.0020	0.05	-0.0003191	93.9	79.1-119	0.04615	1.06	15	
Calcium	111.3	0.50	5	102.6	174	80-121	110.8	0.45	15	SO
Chromium	0.05392	0.0050	0.05	0.002521	103	79.3-121	0.05279	2.12	15	
Cobalt	0.05257	0.0050	0.05	-0.0001729	105	82-121	0.05119	2.66	15	
Copper	0.06723	0.0050	0.05	0.02236	89.7	81-120	0.06686	0.552	15	
Iron	4.76	0.20	5	0.03176	94.6	80-120	4.641	2.53	15	
Lead	0.04907	0.0050	0.05	-0.00005234	98.2	80-118	0.04808	2.04	15	
Manganese	0.04982	0.0050	0.05	-0.0001617	100	82-119	0.04835	2.99	15	
Molybdenum	0.05058	0.0050	0.05	0.00133	98.5	81-116	0.04822	4.78	15	
Nickel	0.04836	0.0050	0.05	0.0005055	95.7	82-120	0.04771	1.35	15	
Potassium	88.86	0.20	5	79.47	188	80-120	87.71	1.3	15	SO
Selenium	0.04557	0.0050	0.05	0.001252	88.6	79.2-118	0.04355	4.53	15	
Silver	0.04232	0.0050	0.05	-0.0003545	85.3	80-117	0.04151	1.93	15	
Sodium	1368	0.20	5	1299	1380	80.6-119	1377	0.656	15	SEO
Vanadium	0.06322	0.0050	0.05	0.008266	110	82.1-119	0.06184	2.21	15	
Zinc	0.06534	0.0050	0.05	0.01872	93.2	79-118	0.06342	2.98	15	

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/14/06 22:11**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014914** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04628	0.0020	0.05	0.00003426	92.5	78.9-120	0.04543	1.85	15	

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/15/06 15:45**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015921** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05953	0.010	0.05	0.007915	103	79-126	0.0583	2.09	15	
Magnesium	7.342	0.20	5	2.247	102	80-120	7.084	3.58	15	

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 6:00**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014197** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.003896	0.0050	0	0	0	0-0	0.003835	0	25	J
Barium	0.2164	0.0050	0	0	0	0-0	0.2123	1.91	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.0003191	0	25	
Calcium	108.1	0.50	0	0	0	0-0	102.6	5.22	25	
Chromium	0.002547	0.0050	0	0	0	0-0	0.002521	0	25	J
Cobalt	ND	0.0050	0	0	0	0-0	-0.0001729	0	25	
Copper	0.02359	0.0050	0	0	0	0-0	0.02236	5.35	25	
Iron	ND	0.20	0	0	0	0-0	0.03176	0	25	
Lead	ND	0.0050	0	0	0	0-0	-0.00005234	0	25	
Manganese	ND	0.0050	0	0	0	0-0	-0.0001617	0	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.00133	0	25	
Nickel	ND	0.0050	0	0	0	0-0	0.0005055	0	25	
Potassium	84.36	0.20	0	0	0	0-0	79.47	5.97	25	
Selenium	ND	0.0050	0	0	0	0-0	0.001252	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003545	0	25	
Vanadium	0.008473	0.0050	0	0	0	0-0	0.008266	2.47	25	
Zinc	0.01981	0.0050	0	0	0	0-0	0.01872	5.66	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 19:12**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014889** Prep Date: **12/13/2006** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	1115	20	0	0	0	0-0	1159	3.87	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 21:53**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014911** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020	0	0	0	0-0	0.00003426	0	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/15/06 15:09**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015916** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.008813	0.010	0	0	0	0-0	0.007915	0	25	J
Magnesium	2.464	0.20	0	0	0	0-0	2.247	9.21	25	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW2-121406** Units: **mg/L** Analysis Date: **12/15/06 23:07**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016132** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Boron	ND	0.020								
Selenium	ND	0.0050								
Silver	ND	0.0050								

MBLK Sample ID: **MBLKW2-121406** Units: **mg/L** Analysis Date: **12/19/06 7:35**
Client ID: Run ID: **ICPMS02_061218A** SeqNo: **1017633** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.001537	0.0050								J
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Manganese	ND	0.0050								

LCS Sample ID: **MLCSW2-121406** Units: **mg/L** Analysis Date: **12/15/06 23:13**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016133** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04677	0.0050	0.05	0	93.5	80-121	0			
Boron	0.4806	0.020	0.5	0	96.1	80-120	0			
Selenium	0.04586	0.0050	0.05	0	91.7	79.2-118	0			
Silver	0.04708	0.0050	0.05	0	94.2	80-117	0			

LCS Sample ID: **MLCSW2-121406** Units: **mg/L** Analysis Date: **12/19/06 7:41**
Client ID: Run ID: **ICPMS02_061218A** SeqNo: **1017634** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.04922	0.0050	0.05	0	98.4	79.8-119	0			
Cadmium	0.05144	0.0020	0.05	0	103	79.1-119	0			
Chromium	0.04955	0.0050	0.05	0	99.1	79.3-121	0			
Iron	4.899	0.20	5	0	98	80-120	0			
Lead	0.04956	0.0050	0.05	0	99.1	80-118	0			
Manganese	0.04994	0.0050	0.05	0	99.9	82-119	0			

ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0612242-05CMS** Units: **mg/L** Analysis Date: **12/15/06 23:43**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016138** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05464	0.0050	0.05	0.004181	101	80-121	0			
Barium	0.3228	0.0050	0.05	0.2688	108	79.8-119	0			O
Boron	0.65	0.020	0.5	0.1409	102	80-120	0			
Cadmium	0.05025	0.0020	0.05	0.0001167	100	79.1-119	0			
Chromium	0.06074	0.0050	0.05	0.00971	102	79.3-121	0			
Iron	5.036	0.20	5	0.1981	96.8	80-120	0			
Lead	0.05276	0.0050	0.05	0.0009405	104	80-118	0			
Manganese	0.6335	0.0050	0.05	0.554	159	82-119	0			SO
Selenium	0.05114	0.0050	0.05	0.00048	101	79.2-118	0			
Silver	0.04824	0.0050	0.05	-0.0003112	97.1	80-117	0			

MSD Sample ID: **0612242-05CMSD** Units: **mg/L** Analysis Date: **12/15/06 23:49**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016139** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05287	0.0050	0.05	0.004181	97.4	80-121	0.05464	3.29	15	
Barium	0.307	0.0050	0.05	0.2688	76.4	79.8-119	0.3228	5.02	15	SO
Boron	0.6264	0.020	0.5	0.1409	97.1	80-120	0.65	3.7	15	
Cadmium	0.04894	0.0020	0.05	0.0001167	97.6	79.1-119	0.05025	2.64	15	
Chromium	0.05741	0.0050	0.05	0.00971	95.4	79.3-121	0.06074	5.64	15	
Iron	4.782	0.20	5	0.1981	91.7	80-120	5.036	5.17	15	
Lead	0.05067	0.0050	0.05	0.0009405	99.5	80-118	0.05276	4.04	15	
Manganese	0.5899	0.0050	0.05	0.554	71.8	82-119	0.6335	7.13	15	SO
Selenium	0.04877	0.0050	0.05	0.00048	96.6	79.2-118	0.05114	4.74	15	
Silver	0.04559	0.0050	0.05	-0.0003112	91.8	80-117	0.04824	5.65	15	

ND - Not Dctected at the Reporting Limit
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0612242-05CDUP** Units: **mg/L** Analysis Date: **12/15/06 23:31**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016136** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.003997	0.0050	0	0	0	0-0	0.004181	0	25	J
Barium	0.257	0.0050	0	0	0	0-0	0.2688	4.49	25	
Boron	0.1321	0.020	0	0	0	0-0	0.1409	6.45	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.0001167	0	25	
Chromium	0.009143	0.0050	0	0	0	0-0	0.00971	6.01	25	
Iron	0.1797	0.20	0	0	0	0-0	0.1981	0	25	J
Lead	0.0008973	0.0050	0	0	0	0-0	0.0009405	0	25	J
Manganese	0.5385	0.0050	0	0	0	0-0	0.554	2.84	25	
Selenium	ND	0.0050	0	0	0	0-0	0.00048	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003112	0	25	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21263** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:07**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017389** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:09**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017390** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	0	101	85-115	0			

LCSD Sample ID: **GLCSDW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:11**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017391** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00527	0.00020	0.005	0	105	85-115	0.00506	4.07	20	

MS Sample ID: **0612163-01DMS** Units: **mg/L** Analysis Date: **12/18/06 17:17**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017394** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	-0.000011	101	85-115	0			

MSD Sample ID: **0612163-01DMSD** Units: **mg/L** Analysis Date: **12/18/06 17:19**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017395** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00532	0.00020	0.005	-0.000011	107	85-115	0.00506	5.01	20	

DUP Sample ID: **0612163-01DDUP** Units: **mg/L** Analysis Date: **12/18/06 17:15**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017393** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000011	0	20	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
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R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

MBLK Sample ID: **SBLKW2-061213** Units: **µg/L** Analysis Date: **12/14/06 9:34**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015216** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3&4-Methylphenol	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Surr: 2,4,6-Tribromophenol	*91.62*	10	*100*	0	*91.6*	*42-124*		0		
Surr: 2-Fluorobiphenyl	*91.9*	10	*100*	0	*91.9*	*48-120*		0		
Surr: 2-Fluorophenol	*79.87*	10	*100*	0	*79.9*	*20-120*		0		
Surr: 4-Terphenyl-d14	*94.4*	10	*100*	0	*94.4*	*51-135*		0		
Surr: Nitrobenzene-d5	*91.1*	10	*100*	0	*91.1*	*41-120*		0		
Surr: Phenol-d6	*85.53*	10	*100*	0	*85.5*	*20-120*		0		

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

LCS Sample ID: **SLCSW2-061213** Units: **µg/L** Analysis Date: **12/14/06 10:59**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015220** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	49.76	10	50	0	99.5	54-118	0			
2,4,5-Trichlorophenol	100.5	10	100	0	101	52-115	0			
2,4,6-Trichlorophenol	98.68	10	100	0	98.7	56-115	0			
2-Methylnaphthalene	48.02	10	50	0	96	46-117	0			
2-Methylphenol	88.15	10	100	0	88.2	53-115	0			
2-Nitroaniline	50.67	10	50	0	101	53-123	0			
2-Nitrophenol	96.62	10	100	0	96.6	53-115	0			
3&4-Methylphenol	131.3	10	150	0	87.5	48-115	0			
3-Nitroaniline	26.98	10	50	0	54	26-115	0			
4-Nitroaniline	47.99	10	50	0	96	47-115	0			
4-Nitrophenol	100.4	10	100	0	100	26-133	0			
Acenaphthene	50.39	10	50	0	101	57-115	0			
Acenaphthylene	50.97	10	50	0	102	57-118	0			
Aniline	27.7	10	50	0	55.4	36-115	0			
Anthracene	49.9	10	50	0	99.8	65-115	0			
Benz(a)anthracene	50.43	10	50	0	101	53-115	0			
Benzidine	16.61	10	50	0	33.2	10-115	0			
Hexachloroethane	46.18	10	50	0	92.4	54-115	0			
Indeno(1,2,3-cd)pyrene	49.6	10	50	0	99.2	51-115	0			
Isophorone	45.9	10	50	0	91.8	55-115	0			
N-Nitrosodi-n-propylamine	43.38	10	50	0	86.8	55-115	0			
N-Nitrosodimethylamine	37.69	10	50	0	75.4	42-115	0			
N-Nitrosodiphenylamine	50.13	10	50	0	100	52-115	0			
Naphthalene	47.53	10	50	0	95.1	55-115	0			
Nitrobenzene	48.39	10	50	0	96.8	40-124	0			
Pentachlorophenol	85.2	10	100	0	85.2	45-125	0			
Phenanthrene	50.15	10	50	0	100	57-115	0			
Phenol	91.85	10	100	0	91.8	38-115	0			
Pyrene	51.73	10	50	0	103	51-115	0			
Surr: 2,4,6-Tribromophenol	*99.22*	10	*100*	0	*99.2*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*90.57*	10	*100*	0	*90.6*	*48-120*	0			
Surr: 2-Fluorophenol	*87.64*	10	*100*	0	*87.6*	*20-120*	0			
Surr: 4-Terphenyl-d14	*95.5*	10	*100*	0	*95.5*	*51-135*	0			
Surr: Nitrobenzene-d5	*91.29*	10	*100*	0	*91.3*	*41-120*	0			
Surr: Phenol-d6	*90.94*	10	*100*	0	*90.9*	*20-120*	0			

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B - Analyte detected in assoc. Method Blank
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-061213** Units: **µg/L** Analysis Date: **12/14/06 11:24**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015222** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.01	10	50	0	86	54-118	49.76	14.5	20	
2,4,5-Trichlorophenol	89.8	10	100	0	89.8	52-115	100.5	11.3	20	
2,4,6-Trichlorophenol	92.36	10	100	0	92.4	56-115	98.68	6.62	20	
2-Methylnaphthalene	42.9	10	50	0	85.8	46-117	48.02	11.3	20	
2-Methylphenol	82.74	10	100	0	82.7	53-115	88.15	6.34	20	
2-Nitroaniline	46.15	10	50	0	92.3	53-123	50.67	9.35	20	
2-Nitrophenol	87.51	10	100	0	87.5	53-115	96.62	9.9	20	
3&4-Methylphenol	123.9	10	150	0	82.6	48-115	131.3	5.8	20	
3-Nitroaniline	24.38	10	50	0	48.8	26-115	26.98	10.1	20	
4-Nitroaniline	44.16	10	50	0	88.3	47-115	47.99	8.32	20	
4-Nitrophenol	91.73	10	100	0	91.7	26-133	100.4	9.03	20	
Acenaphthene	45.07	10	50	0	90.1	57-115	50.39	11.1	20	
Acenaphthylene	46.98	10	50	0	94	57-118	50.97	8.16	20	
Aniline	29.08	10	50	0	58.2	36-115	27.7	4.86	20	
Anthracene	43.31	10	50	0	86.6	65-115	49.9	14.1	20	
Benz(a)anthracene	44.44	10	50	0	88.9	53-115	50.43	12.6	20	
Benzidine	17.87	10	50	0	35.7	10-115	16.61	7.28	20	
Hexachloroethane	39.9	10	50	0	79.8	54-115	46.18	14.6	20	
Indeno(1,2,3-cd)pyrene	44.07	10	50	0	88.1	51-115	49.6	11.8	20	
Isophorone	39.52	10	50	0	79	55-115	45.9	14.9	20	
N-Nitrosodi-n-propylamine	41.77	10	50	0	83.5	55-115	43.38	3.8	20	
N-Nitrosodimethylamine	35.66	10	50	0	71.3	42-115	37.69	5.52	20	
N-Nitrosodiphenylamine	43.9	10	50	0	87.8	52-115	50.13	13.3	20	
Naphthalene	41.66	10	50	0	83.3	55-115	47.53	13.2	20	
Nitrobenzene	41.58	10	50	0	83.2	40-124	48.39	15.1	20	
Pentachlorophenol	83.42	10	100	0	83.4	45-125	85.2	2.11	20	
Phenanthrene	43.9	10	50	0	87.8	57-115	50.15	13.3	20	
Phenol	83.92	10	100	0	83.9	38-115	91.85	9.02	20	
Pyrene	44.47	10	50	0	88.9	51-115	51.73	15.1	20	
Surr: 2,4,6-Tribromophenol	*84.73*	10	*100*	0	*84.7*	*42-124*	99.22	*15.8*	*20*	
Surr: 2-Fluorobiphenyl	*81.48*	10	*100*	0	*81.5*	*48-120*	90.57	*10.6*	*20*	
Surr: 2-Fluorophenol	*80.36*	10	*100*	0	*80.4*	*20-120*	87.64	*8.67*	*20*	
Surr: 4-Terphenyl-d14	*81.65*	10	*100*	0	*81.6*	*51-135*	95.5	*15.6*	*20*	
Surr: Nitrobenzene-d5	*80.37*	10	*100*	0	*80.4*	*41-120*	91.29	*12.7*	*20*	
Surr: Phenol-d6	*85.36*	10	*100*	0	*85.4*	*20-120*	90.94	*6.33*	*20*	

The following samples were analyzed in this batch: 0612199-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MBLK Sample ID: **VBLKW-061213** Units: **µg/L** Analysis Date: **12/13/06 13:50**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014211** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*53.04*	5.0	*50*	0	*106*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*45.6*	5.0	*50*	0	*91.2*	*72.4-125*	0			
Surr: Dibromofluoromethane	*48.61*	5.0	*50*	0	*97.2*	*71.2-125*	0			
Surr: Toluene-d8	*45.8*	5.0	*50*	0	*91.6*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

LCS Sample ID: **VLCSW-061213** Units: **µg/L** Analysis Date: **12/13/06 12:58**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014210** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.96	5.0	50	0	108	79.6-120		0		
1,1,2,2-Tetrachloroethane	52.48	5.0	50	0	105	78.9-121		0		
1,1,2-Trichloroethane	51.25	5.0	50	0	103	80-120		0		
1,1-Dichloroethane	54.29	5.0	50	0	109	74.2-122		0		
1,1-Dichloroethene	55.19	5.0	50	0	110	75.8-122		0		
1,2-Dichloroethane	51.56	5.0	50	0	103	78.8-120		0		
2-Butanone	107.9	10	100	0	108	69.2-131		0		
2-Chloroethyl vinyl ether	110.7	10	100	0	111	60.6-128		0		
2-Hexanone	119	10	100	0	119	59.1-135		0		
4-Methyl-2-pentanone	115.7	10	100	0	116	71.6-124		0		
Acetone	125.8	10	100	0	126	60.1-141		0		
Benzene	51.03	5.0	50	0	102	80-120		0		
Bromodichloromethane	52.32	5.0	50	0	105	80-120		0		
Bromoform	55.1	5.0	50	0	110	78.1-120		0		
Bromomethane	50.42	5.0	50	0	101	52.8-147		0		
Carbon disulfide	110.6	10	100	0	111	78.8-120		0		
Carbon tetrachloride	46.71	5.0	50	0	93.4	76.8-120		0		
Chlorobenzene	49.19	5.0	50	0	98.4	80-120		0		
Chloroethane	55.82	5.0	50	0	112	74.2-120		0		
Chloroform	51.51	5.0	50	0	103	80-120		0		
Chloromethane	50.21	5.0	50	0	100	63.5-133		0		
cis-1,3-Dichloropropene	51.04	5.0	50	0	102	80-120		0		
Dibromochloromethane	53.73	5.0	50	0	107	80-120		0		
Ethylbenzene	53.35	5.0	50	0	107	80-120		0		
m,p-Xylene	100.4	10	100	0	100	80-120		0		
Methylene chloride	55.38	10	50	0	111	74.7-120		0		
Styrene	50.76	5.0	50	0	102	80-120		0		
Tetrachloroethene	49.54	5.0	50	0	99.1	80-120		0		
Toluene	52.61	5.0	50	0	105	80-120		0		
trans-1,3-Dichloropropene	52	5.0	50	0	104	80-120		0		
Trichloroethene	50.53	5.0	50	0	101	80-120		0		
Vinyl acetate	120	10	100	0	120	61.1-148		0		
Vinyl chloride	54.01	2.0	50	0	108	76.2-121		0		
Xylenes, Total	151.2	15	150	0	101	80-120		0		
Surr: 1,2-Dichloroethane-d4	*47.29*	5.0	*50*	0	*94.6*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*48.35*	5.0	*50*	0	*96.7*	*72.4-125*		0		
Surr: Dibromofluoromethane	*46.28*	5.0	*50*	0	*92.6*	*71.2-125*		0		
Surr: Toluene-d8	*44.74*	5.0	*50*	0	*89.5*	*75-125*		0		

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MS Sample ID: **0612207-06AMS** Units: **µg/L** Analysis Date: **12/13/06 15:31**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014213** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.13	5.0	50	0	94.3	79.6-120	0			
1,1,2,2-Tetrachloroethane	49.71	5.0	50	0	99.4	78.9-121	0			
1,1,2-Trichloroethane	49.93	5.0	50	0	99.9	80-120	0			
1,1-Dichloroethane	49.68	5.0	50	0	99.4	74.2-122	0			
1,1-Dichloroethene	42.37	5.0	50	0	84.7	75.8-122	0			
1,2-Dichloroethane	53.32	5.0	50	0	107	78.8-120	0			
2-Butanone	89.06	10	100	0	89.1	69.2-131	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0			S
2-Hexanone	99.21	10	100	0	99.2	59.1-135	0			
4-Methyl-2-pentanone	100.2	10	100	0	100	71.6-124	0			
Acetone	105.1	10	100	0	105	60.1-141	0			
Benzene	48.83	5.0	50	0	97.7	80-120	0			
Bromodichloromethane	57.77	5.0	50	0	116	80-120	0			
Bromoform	51.22	5.0	50	0	102	78.1-120	0			
Bromomethane	31.91	5.0	50	0	63.8	52.8-147	0			
Carbon disulfide	82.89	10	100	0	82.9	78.8-120	0			
Carbon tetrachloride	40.65	5.0	50	0	81.3	76.8-120	0			
Chlorobenzene	47.12	5.0	50	0	94.2	80-120	0			
Chloroethane	47.21	5.0	50	0	94.4	74.2-120	0			
Chloroform	66.8	5.0	50	15.69	102	80-120	0			
Chloromethane	68.5	5.0	50	0	137	63.5-133	0			S
cis-1,3-Dichloropropene	49.23	5.0	50	0	98.5	80-120	0			
Dibromochloromethane	54.19	5.0	50	0	108	80-120	0			
Ethylbenzene	47.77	5.0	50	0	95.5	80-120	0			
m,p-Xylene	88.72	10	100	0	88.7	80-120	0			
Methylene chloride	51.8	10	50	0	104	74.7-120	0			
Styrene	2.286	5.0	50	0	4.57	80-120	0			JS
Tetrachloroethene	41.24	5.0	50	0	82.5	80-120	0			
Toluene	48.44	5.0	50	0	96.9	80-120	0			
trans-1,3-Dichloropropene	50.31	5.0	50	0	101	80-120	0			
Trichloroethene	47.47	5.0	50	0	94.9	80-120	0			
Vinyl acetate	93.51	10	100	0	93.5	61.1-148	0			
Vinyl chloride	42.79	2.0	50	0	85.6	76.2-121	0			
Xylenes, Total	134.1	15	150	0	89.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	*48.63*	5.0	*50*	0	*97.3*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*45.72*	5.0	*50*	0	*91.4*	*72.4-125*	0			
Surr: Dibromofluoromethane	*48.38*	5.0	*50*	0	*96.8*	*71.2-125*	0			
Surr: Toluene-d8	*44.7*	5.0	*50*	0	*89.4*	*75-125*	*0*			

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MSD Sample ID: **0612207-06AMSD** Units: **µg/L** Analysis Date: **12/13/06 15:56**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014214** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.53	5.0	50	0	89.1	79.6-120	47.13	5.67	20	
1,1,2,2-Tetrachloroethane	47.84	5.0	50	0	95.7	78.9-121	49.71	3.83	20	
1,1,2-Trichloroethane	47.76	5.0	50	0	95.5	80-120	49.93	4.44	20	
1,1-Dichloroethane	48.57	5.0	50	0	97.1	74.2-122	49.68	2.25	20	
1,1-Dichloroethene	42.69	5.0	50	0	85.4	75.8-122	42.37	0.752	20	
1,2-Dichloroethane	50.65	5.0	50	0	101	78.8-120	53.32	5.13	20	
2-Butanone	91.28	10	100	0	91.3	69.2-131	89.06	2.47	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0	0	20	S
2-Hexanone	100.9	10	100	0	101	59.1-135	99.21	1.67	20	
4-Methyl-2-pentanone	98.83	10	100	0	98.8	71.6-124	100.2	1.41	20	
Acetone	109.4	10	100	0	109	60.1-141	105.1	4.06	20	
Benzene	49.12	5.0	50	0	98.2	80-120	48.83	0.601	20	
Bromodichloromethane	55.5	5.0	50	0	111	80-120	57.77	4	20	
Bromoform	49.93	5.0	50	0	99.9	78.1-120	51.22	2.54	20	
Bromomethane	36.1	5.0	50	0	72.2	52.8-147	31.91	12.3	20	
Carbon disulfide	83.36	10	100	0	83.4	78.8-120	82.89	0.565	20	
Carbon tetrachloride	40.16	5.0	50	0	80.3	76.8-120	40.65	1.2	20	
Chlorobenzene	47.19	5.0	50	0	94.4	80-120	47.12	0.141	20	
Chloroethane	47.51	5.0	50	0	95	74.2-120	47.21	0.645	20	
Chloroform	63.04	5.0	50	15.69	94.7	80-120	66.8	5.79	20	
Chloromethane	68.53	5.0	50	0	137	63.5-133	68.5	0.0443	20	S
cis-1,3-Dichloropropene	48.1	5.0	50	0	96.2	80-120	49.23	2.32	20	
Dibromochloromethane	52.7	5.0	50	0	105	80-120	54.19	2.79	20	
Ethylbenzene	49.24	5.0	50	0	98.5	80-120	47.77	3.04	20	
m,p-Xylene	90.84	10	100	0	90.8	80-120	88.72	2.36	20	
Methylene chloride	51.51	10	50	0	103	74.7-120	51.8	0.573	20	
Styrene	2.426	5.0	50	0	4.85	80-120	2.286	0	20	JS
Tetrachloroethene	43.42	5.0	50	0	86.8	80-120	41.24	5.17	20	
Toluene	49.39	5.0	50	0	98.8	80-120	48.44	1.95	20	
trans-1,3-Dichloropropene	49.57	5.0	50	0	99.1	80-120	50.31	1.48	20	
Trichloroethene	47.31	5.0	50	0	94.6	80-120	47.47	0.332	20	
Vinyl acetate	90.54	10	100	0	90.5	61.1-148	93.51	3.24	20	
Vinyl chloride	42.98	2.0	50	0	86	76.2-121	42.79	0.425	20	
Xylenes, Total	137.6	15	150	0	91.7	80-120	134.1	2.57	20	
Surr: 1,2-Dichloroethane-d4	*45.53*	5.0	*50*	0	*91.1*	*70-125*	48.63	*6.6*	*20*	
Surr: 4-Bromofluorobenzene	*45.59*	5.0	*50*	0	*91.2*	*72.4-125*	45.72	*0.305*	*20*	
Surr: Dibromofluoromethane	*46.89*	5.0	*50*	0	*93.8*	*71.2-125*	48.38	*3.13*	*20*	
Surr: Toluene-d8	*43.92*	5.0	*50*	0	*87.8*	*75-125*	44.7	*1.76*	*20*	

The following samples were analyzed in this batch: 0612199-02A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-061218** Units: **µg/L** Analysis Date: **12/18/06 11:35**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017955** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*49.84*	5.0	*50*	0	*99.7*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*48.43*	5.0	*50*	0	*96.9*	*72.4-125*		0		
Surr: Dibromofluoromethane	*55.4*	5.0	*50*	0	*111*	*71.2-125*		0		
Surr: Toluene-d8	*57.8*	5.0	*50*	0	*116*	*75-125*		0		

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-061218** Units: **µg/L** Analysis Date: **12/18/06 10:40**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017953** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.59	5.0	50	0	99.2	79.6-120	0			
1,1,2,2-Tetrachloroethane	46.95	5.0	50	0	93.9	78.9-121	0			
1,1,2-Trichloroethane	51.26	5.0	50	0	103	80-120	0			
1,1-Dichloroethane	50.01	5.0	50	0	100	74.2-122	0			
1,1-Dichloroethene	53.61	5.0	50	0	107	75.8-122	0			
1,2-Dichloroethane	50.67	5.0	50	0	101	78.8-120	0			
2-Butanone	108.4	10	100	0	108	69.2-131	0			
2-Chloroethyl vinyl ether	90.4	10	100	0	90.4	60.6-128	0			
2-Hexanone	96.82	10	100	0	96.8	59.1-135	0			
4-Methyl-2-pentanone	96.74	10	100	0	96.7	71.6-124	0			
Acetone	89.55	10	100	0	89.5	60.1-141	0			
Benzene	51.45	5.0	50	0	103	80-120	0			
Bromodichloromethane	52.4	5.0	50	0	105	80-120	0			
Bromoform	48.04	5.0	50	0	96.1	78.1-120	0			
Bromomethane	51.57	5.0	50	0	103	52.8-147	0			
Carbon disulfide	108.1	10	100	0	108	78.8-120	0			
Carbon tetrachloride	48.27	5.0	50	0	96.5	76.8-120	0			
Chlorobenzene	47.1	5.0	50	0	94.2	80-120	0			
Chloroethane	51.32	5.0	50	0	103	74.2-120	0			
Chloroform	50.1	5.0	50	0	100	80-120	0			
Chloromethane	50.91	5.0	50	0	102	63.5-133	0			
cis-1,3-Dichloropropene	51.02	5.0	50	0	102	80-120	0			
Dibromochloromethane	52.41	5.0	50	0	105	80-120	0			
Ethylbenzene	45.9	5.0	50	0	91.8	80-120	0			
m,p-Xylene	100.4	10	100	0	100	80-120	0			
Methylene chloride	46.84	10	50	0	93.7	74.7-120	0			
Styrene	48.4	5.0	50	0	96.8	80-120	0			
Tetrachloroethene	48.76	5.0	50	0	97.5	80-120	0			
Toluene	49.54	5.0	50	0	99.1	80-120	0			
trans-1,3-Dichloropropene	51.89	5.0	50	0	104	80-120	0			
Trichloroethene	50.07	5.0	50	0	100	80-120	0			
Vinyl acetate	117.2	10	100	0	117	61.1-148	0			
Vinyl chloride	47.07	2.0	50	0	94.1	76.2-121	0			
Xylenes, Total	148.2	15	150	0	98.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	*53.68*	5.0	*50*	0	*107*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.89*	5.0	*50*	0	*110*	*72.4-125*	0			
Surr: Dibromofluoromethane	*56.87*	5.0	*50*	0	*114*	*71.2-125*	0			
Surr: Toluene-d8	*58.04*	5.0	*50*	0	*116*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0612221-63AMS** Units: **µg/L** Analysis Date: **12/18/06 12:56**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.74	5.0	50	0	93.5	79.6-120	0			
1,1,2,2-Tetrachloroethane	51.25	5.0	50	0	103	78.9-121	0			
1,1,2-Trichloroethane	53.81	5.0	50	0	108	80-120	0			
1,1-Dichloroethane	50.99	5.0	50	0	102	74.2-122	0			
1,1-Dichloroethene	46.61	5.0	50	0	93.2	75.8-122	0			
1,2-Dichloroethane	49.45	5.0	50	0	98.9	78.8-120	0			
2-Butanone	118.5	10	100	0	118	69.2-131	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0			S
2-Hexanone	102.1	10	100	0	102	59.1-135	0			
4-Methyl-2-pentanone	113.1	10	100	0	113	71.6-124	0			
Acetone	99.9	10	100	0	99.9	60.1-141	0			
Benzene	50.89	5.0	50	0	102	80-120	0			
Bromodichloromethane	53.44	5.0	50	0	107	80-120	0			
Bromoform	48.91	5.0	50	0	97.8	78.1-120	0			
Bromomethane	47.75	5.0	50	0	95.5	52.8-147	0			
Carbon disulfide	105.7	10	100	0	106	78.8-120	0			
Carbon tetrachloride	76.78	5.0	50	26.11	101	76.8-120	0			
Chlorobenzene	47.77	5.0	50	0	95.5	80-120	0			
Chloroethane	48.53	5.0	50	0	97.1	74.2-120	0			
Chloroform	63.44	5.0	50	7.131	113	80-120	0			
Chloromethane	50.17	5.0	50	0	100	63.5-133	0			
cis-1,3-Dichloropropene	50.82	5.0	50	0	102	80-120	0			
Dibromochloromethane	51.3	5.0	50	0	103	80-120	0			
Ethylbenzene	44.98	5.0	50	0	90	80-120	0			
m,p-Xylene	85.39	10	100	0	85.4	80-120	0			
Methylene chloride	47.78	10	50	0	95.6	74.7-120	0			
Styrene	47.68	5.0	50	0	95.4	80-120	0			
Tetrachloroethene	48.1	5.0	50	2.298	91.6	80-120	0			
Toluene	49.69	5.0	50	0	99.4	80-120	0			
trans-1,3-Dichloropropene	53.57	5.0	50	0	107	80-120	0			
Trichloroethene	113.9	5.0	50	43.84	140	80-120	0			S
Vinyl acetate	124.3	10	100	0	124	61.1-148	0			
Vinyl chloride	48.86	2.0	50	0	97.7	76.2-121	0			
Xylenes, Total	133.6	15	150	0	89.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	*55.76*	5.0	*50*	0	*112*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*53.17*	5.0	*50*	0	*106*	*72.4-125*	0			
Surr: Dibromofluoromethane	*55.85*	5.0	*50*	0	*112*	*71.2-125*	0			
Surr: Toluene-d8	*56.03*	5.0	*50*	0	*112*	*75-125*	0			

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0612221-63AMSD** Units: **µg/L** Analysis Date: **12/18/06 13:24**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017962** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.56	5.0	50	0	91.1	79.6-120	46.74	2.56	20	
1,1,2,2-Tetrachloroethane	55.93	5.0	50	0	112	78.9-121	51.25	8.73	20	
1,1,2-Trichloroethane	51.55	5.0	50	0	103	80-120	53.81	4.3	20	
1,1-Dichloroethane	52.46	5.0	50	0	105	74.2-122	50.99	2.85	20	
1,1-Dichloroethene	45.52	5.0	50	0	91	75.8-122	46.61	2.36	20	
1,2-Dichloroethane	50.89	5.0	50	0	102	78.8-120	49.45	2.87	20	
2-Butanone	122.1	10	100	0	122	69.2-131	118.5	2.99	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0	0	20	S
2-Hexanone	104.3	10	100	0	104	59.1-135	102.1	2.07	20	
4-Methyl-2-pentanone	109.3	10	100	0	109	71.6-124	113.1	3.41	20	
Acetone	100.5	10	100	0	100	60.1-141	99.9	0.578	20	
Benzene	50.54	5.0	50	0	101	80-120	50.89	0.682	20	
Bromodichloromethane	50.75	5.0	50	0	101	80-120	53.44	5.17	20	
Bromoform	49.36	5.0	50	0	98.7	78.1-120	48.91	0.928	20	
Bromomethane	51.95	5.0	50	0	104	52.8-147	47.75	8.42	20	
Carbon disulfide	93.83	10	100	0	93.8	78.8-120	105.7	11.9	20	
Carbon tetrachloride	67.89	5.0	50	26.11	83.6	76.8-120	76.78	12.3	20	
Chlorobenzene	44.62	5.0	50	0	89.2	80-120	47.77	6.81	20	
Chloroethane	45.72	5.0	50	0	91.4	74.2-120	48.53	5.96	20	
Chloroform	59.96	5.0	50	7.131	106	80-120	63.44	5.65	20	
Chloromethane	47.45	5.0	50	0	94.9	63.5-133	50.17	5.58	20	
cis-1,3-Dichloropropene	51.8	5.0	50	0	104	80-120	50.82	1.9	20	
Dibromochloromethane	51.93	5.0	50	0	104	80-120	51.3	1.22	20	
Ethylbenzene	45.1	5.0	50	0	90.2	80-120	44.98	0.265	20	
m,p-Xylene	83.89	10	100	0	83.9	80-120	85.39	1.77	20	
Methylene chloride	50.37	10	50	0	101	74.7-120	47.78	5.29	20	
Styrene	46.6	5.0	50	0	93.2	80-120	47.68	2.29	20	
Tetrachloroethene	46.42	5.0	50	2.298	88.2	80-120	48.1	3.54	20	
Toluene	48.96	5.0	50	0	97.9	80-120	49.69	1.47	20	
trans-1,3-Dichloropropene	50.1	5.0	50	0	100	80-120	53.57	6.7	20	
Trichloroethene	96.42	5.0	50	43.84	105	80-120	113.9	16.7	20	
Vinyl acetate	112.7	10	100	0	113	61.1-148	124.3	9.8	20	
Vinyl chloride	44.32	2.0	50	0	88.6	76.2-121	48.86	9.74	20	
Xylenes, Total	129.1	15	150	0	86.1	80-120	133.6	3.42	20	
Surr: 1,2-Dichloroethane-d4	*56.27*	5.0	*50*	0	*113*	*70-125*	55.76	*0.915*	*20*	
Surr: 4-Bromofluorobenzene	*55.09*	5.0	*50*	0	*110*	*72.4-125*	53.17	*3.54*	*20*	
Surr: Dibromofluoromethane	*57.56*	5.0	*50*	0	*115*	*71.2-125*	55.85	*3.02*	*20*	
Surr: Toluene-d8	*57.05*	5.0	*50*	0	*114*	*75-125*	56.03	*1.8*	*20*	

The following samples were analyzed in this batch: 0612199-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44782** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-121206** Units: **pH units** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212C** SeqNo: **1012683** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	90-110		0		

DUP Sample ID: **0612199-01BDUP** Units: **pH units** Analysis Date: **12/12/06 0:00**
Client ID: **Injection Wells** Run ID: **WETCHEM_061212C** SeqNo: **1012685** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.34	0.10	0	0	0	0-0	7.32	0.273	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44783** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-121206** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012794** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-121206** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012795** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1413	1.0	1413	0	100	80-120	0			

DUP Sample ID: **0612142-01CDUP** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012800** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	767.3	1.0	0	0	0	0-0	765.3	0.261	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44808** Instrument ID **IC201** Method: **E300**

MBLK Sample ID: **WBLKW1-121206** Units: **mg/L** Analysis Date: **12/12/06 20:15**
Client ID: Run ID: **IC201_061212A** SeqNo: **1013297** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Selenate (surr)	*4.903*	0.10	*5*	0	*98.1*	*85-115*		0		

LCS Sample ID: **WLCSW1-364-33-** Units: **mg/L** Analysis Date: **12/12/06 20:37**
Client ID: Run ID: **IC201_061212A** SeqNo: **1013299** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.14	0.50	20	0	101	90-110		0		
Sulfate	20.12	1.0	20	0	101	90-110		0		
Surr: Selenate (surr)	*5.006*	0.10	*5*	0	*100*	*85-115*		0		

MS Sample ID: **0612199-01BMS** Units: **mg/L** Analysis Date: **12/12/06 23:54**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013307** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1005	5.0	100	916.6	88.5	80-120		0		EO
Sulfate	1888	10	100	1812	76.4	80-120		0		SEO
Surr: Selenate (surr)	*47.8*	1.0	*50*	0	*95.6*	*80-120*		0		

MSD Sample ID: **0612199-01BMSD** Units: **mg/L** Analysis Date: **12/13/06 0:16**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013308** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1011	5.0	100	916.6	94.4	80-120	1005	0.594	20	EO
Sulfate	1877	10	100	1812	64.8	80-120	1888	0.613	20	SEO
Surr: Selenate (surr)	*47.92*	1.0	*50*	0	*95.8*	*80-120*	47.8	*0.247*	*20*	

DUP Sample ID: **0612199-01BDUP** Units: **mg/L** Analysis Date: **12/12/06 23:32**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013305** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	924.3	5.0	0	0	0	0-0	916.6	0.835	20	E
Sulfate	1808	10	0	0	0	0-0	1812	0.23	20	E
Surr: Selenate (surr)	*47.29*	1.0	*50*	0	*94.6*	*80-120*	47.18	*0.231*	*20*	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44808** Instrument ID **IC201** Method: **E300**

DUP Sample ID: **0612199-01BDUP** Units: **mg/L** Analysis Date: **12/13/06 1:00**

Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013310** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	933.2	25	0	0	0	0-0	907.3	2.82	20	
Sulfate	1816	50	0	0	0	0-0	1811	0.274	20	
Surr: Selenate (surr)	*233.6*	5.0	*250*	0	*93.5*	*80-120*	232.3	*0.586*	*20*	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44894** Instrument ID **Balance1** Method: **E160.1**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014727** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014728** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	934	10	1000	0	93.4	85-115	0			

DUP Sample ID: **0612223-01DDUP** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014710** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1658	10	0	0	0	0-0	1483	11.1	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45013** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-R45013** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017499** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-R45013** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017500** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1012	5.0	1000	0	101	80-120	0			

DUP Sample ID: **0612285-01DDUP** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017520** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	276.9	5.0	0	0	0	0-0	276.9	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	276.9	5.0	0	0	0	0-0	276.9	0	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical
QUALITY • INTEGRITY • SERVICE

10450 Stancliff Rd. #210
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(Fax) 281.530.5887

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Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Chain of Custody Form

Page 1 of 1

e-Lab Project Manager: | e-Lab Work Order #: 0612199

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Qrtly	A	VOC (8260) Select
Work Order		Project Number		B	Total Metals (6020/7000)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	SVOC (8270) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	Anions (300) Chloride, Sulfate
Address	PO Box 159	Address	PO Box 159	E	Alkalinity
				F	pH
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	Conductivity
Phone	(505) 748-3311	Phone	(505) 748-3311	H	TDS
Fax	(505) 746-5421	Fax	(505) 746-5421	I	RCI Profile
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Wells	12/11/06	1330	L	4		X	X	X	X	X	X	X	X	X		
2	Trip blank			L	4	2	X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Tyson Tyson

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☑ Std 10 WK Days ☐ 5 WK Days ☐ Other ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by: Tyson | Date: 12/11/06 | Time: 1615 | Received by:

Relinquished by: | Date: | Time: | Received by (Laboratory): 12-12-06 1185

Logged by (Laboratory): | Date: | Time: | Checked by (Laboratory):

Notes:

e-Lab Analytical Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

ote: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 12/12/2006 10:35:00 AM

Work Order Number 0612199 Received by: RSZ

Checklist completed by Signature 12/12/06 Date Reviewed by Initials 12/13/06 Date

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.5 C	002	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? Checked by

Login Notes:

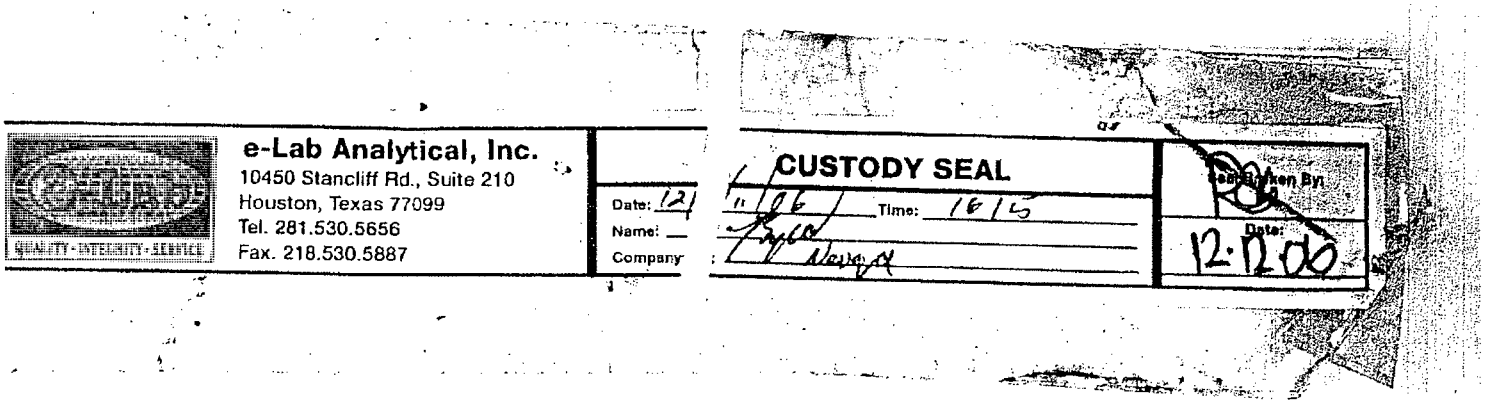
Client contacted: Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action:

062199



e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

Date: 12/
Name: —
Company:

CUSTODY SEAL

Time: 1615

Date: 12.12.00

e-Lab Analytical, Inc

Date: *December 21, 2006*

CLIENT: e-Lab Analytical, Inc
Project: 0612199
Work Order: **0612274**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0612274-01	0612199-01E	Water		12/11/2006 13:30	12/13/2006 11:00	☐

e-Lab Analytical, Inc

Date: *December 21, 2006*

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199
Lab ID: 0612274-01

Client Sample ID: 0612199-01E
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **CES**
Cyanide, Reactive	ND	40.0		mg/Kg	1	12/15/2006
FLASHPOINT, P-M CLOSED-CUP			**ASTM D93**			Analyst: **CES**
Flashpoint, P-M Closed-cup	**>180**			**°F**	1	12/15/2006
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **CES**
Sulfide, Reactive	ND	40.0		mg/Kg	1	12/15/2006

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

Date: *Dec 21 2006*

QC BATCH REPORT

Batch ID: **R44830** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID **WBLKW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704189** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID **WLCSW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704190** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	293.6	40	619	0	47.4	2.8-70		0		

LCSD Sample ID **WLCSDW1-12150** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704196** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	337.7	40	619	0	54.6	2.8-70	293.6	14	35	

MS Sample ID **0612274-01A MS** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: **0612199-01E** Run ID: **WETCHEM_061215D** SeqNo: **704193** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	176.2	40	619	0	28.5	2.8-70		0		

MSD Sample ID **0612274-01A MSD** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: **0612199-01E** Run ID: **WETCHEM_061215D** SeqNo: **704194** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	205.5	40	619	0	33.2	2.8-70	176.2	15.4	35	

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

QC BATCH REPORT

Batch ID: **R44831** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID **WBLKW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**

Client ID: Run ID: **WETCHEM_061215E** SeqNo: **704197** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

QC BATCH REPORT

Batch ID: **R44839** Instrument ID **WETCHEM** Method: **ASTM D93**

LCS Sample ID **WLCSW1-121506** Units: **°F** Analysis Date: **12/15/06 0:00**

Client ID: Run ID: **WETCHEM_061215I** SeqNo: **704314** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	81	0	81	0	100	97-103		0		

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: Dec 12, 2006
COC ID: 4464
Due Date 12/22/2006

0612274

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order	2111061	Project Name	0612199	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C Flashpoint (SW1010)
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd. Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jcroston@elabi.com	eMail CC	oelliston@elabi.com	J

Sample ID	Matrix	Collection Date	Bottle	A	B	C	D	E	F	G	H	I	J
0612199-01E (Inj. Well)	Water	12/11/2006 13:30	(2) 1LPNEAT	X	X	X							

Comments

Please analyze for Reactive Cyanide, Reactive Sulfide, and Ignitability. Results needed by 12/22/06. Please email results to Jeff Croston- jcroston@elabi.com and CC: O. Elliston- oelliston@elabi.com

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
			12/13/06 1100		Std
Relinquished by:	Date/Time	Received by:	Date/Time		

Page 2244 of 5828

e-Lab Analytical, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 12/13/2006 11:00:00 AM

Work Order Number 0612274 Received by: WJC

Checklist completed by Signature 12/13/06 Date Reviewed by Initials 12/13/06 Date

Matrix: Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.6 C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked b _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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16594091
222 of 300

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REFERENCE NUMBER SUB

TELEPHONE 281.530.5656

E-LAB, INC.

10450 STANCLIFF RD STE #210

HOUSTON TX 77099

SETEX SCC

SETEX SCC

MI 495 9-04

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E-LAB, INC.

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HOLLAND MI 49424

Residential

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SHIPMENT ID NUMBER 6981 7478 4DJ

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e-Lab

QUALITY · INTEGRITY · RESULTS

e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

CUSTODY SEAL

Date: 12-12-20 Time: 1600

Name: RICHARD SPRINGER

Company: E-LAB

Seal Broken By:

Date:

Page 2246 of 5828

REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
OCT 25 2004
OIL CONSERVATION DIVISION

October 21, 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2004 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2004 to September 30, 2004. We have disposed a total of 20,939,501 bbls. of fluid into the two wells as of September 30, 2004. This is broken down as follows: 14,224,878 bbls. into WDW-1 and 6,714,623 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

2004 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jul-04	146	238	102	207	263	172	238	286	192	7110	9021	5901	220,420
Aug-04	175	250	51	216	269	124	254	345	143	7411	9221	4259	229,735
Sep-04	139	154	120	190	201	175	184.9	233.2	101.4	6509	6894	6003	201,778
WDW-2													
Jul-04	156	253	110	127	169	95	441	500	320	4362	5801	3244	135,207
Aug-04	185	266	47	131	176	32	469	500	225	4497	6045	1082	139,421
Sep-04	152	170	129	121	134	103.0	440	498	242	4154	4604	3532	128,764

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5887

July 23, 2004

Darrell Moore
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5281
Fax: (505) 746-5421

Re: Injection Wells Work Order : **0407074**

Dear Darrell Moore,

e-Lab Analytical, Inc. received 2 samples on 7/8/2004 8:40:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. The total number of pages in this report is 38.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Patrina A. Dathorne

Jeffrey L Croston

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0407074

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0407074-01	Inj Wells	Water		7/7/2004 09:00	7/8/2004 08:40	☐
0407074-02	Trip Blank	Water		7/7/2004	7/8/2004 08:40	☐

e-Lab Analytical, Inc. **Date:** *July 23, 2004*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0407074

Case Narrative

Semivolatile (sample Inj. Wells) Surrogates were outside of control limits due to a matrix interference. Sample was re-extracted and re-analyzed and surrogates recoveries were confirmed.

Batch 9539 Metals MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL		**SW7470**			Prep Date: **7/17/2004**	Analyst: **JCJ**
Mercury	ND	0.000200		mg/L	1	7/17/2004 6:08:25 PM
ICP METALS, TOTAL		**SW6020**			Prep Date: **7/9/2004**	Analyst: **ALR**
Aluminum	0.556	0.100		mg/L	10	7/9/2004 10:24:00 PM
Arsenic	0.171	0.0500		mg/L	10	7/9/2004 10:24:00 PM
Barium	0.0354	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Beryllium	ND	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Boron	0.240	0.200		mg/L	10	7/9/2004 10:24:00 PM
Cadmium	ND	0.00200		mg/L	2	7/23/2004 2:11:00 PM
Calcium	216	25.0		mg/L	50	7/9/2004 9:39:00 PM
Chromium	0.00818	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Cobalt	ND	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Copper	0.00655	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Iron	4.42	0.400		mg/L	2	7/23/2004 12:23:00 AM
Lead	ND	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Magnesium	34.1	2.00		mg/L	10	7/9/2004 10:24:00 PM
Manganese	0.116	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Molybdenum	ND	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Nickel	0.0195	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Potassium	24.9	0.400		mg/L	2	7/23/2004 12:23:00 AM
Selenium	0.432	0.0500		mg/L	10	7/9/2004 10:24:00 PM
Silver	ND	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Sodium	1,580	10.0		mg/L	50	7/9/2004 9:39:00 PM
Vanadium	ND	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Zinc	0.0677	0.0100		mg/L	2	7/23/2004 12:23:00 AM
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **7/12/2004**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2,4,5-Trichlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2,4,6-Trichlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Methylnaphthalene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Methylphenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Nitrophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
3-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Methylphenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Nitrophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Acenaphthene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Acenaphthylene	ND	12		µg/L	1	7/15/2004 1:53:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Aniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Anthracene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Benz(a)anthracene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Benzidine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Hexachloroethane	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Indeno(1,2,3-cd)pyrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Isophorone	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodi-n-propylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodimethylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodiphenylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Naphthalene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Nitrobenzene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Pentachlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Phenanthrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Phenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Pyrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Surr: 2,4,6-Tribromophenol	28.6	39-153	S	%REC	1	7/15/2004 1:53:00 AM
Surr: 2-Fluorobiphenyl	45.7	40-147		%REC	1	7/15/2004 1:53:00 AM
Surr: 2-Fluorophenol	12.1	21-110	S	%REC	1	7/15/2004 1:53:00 AM
Surr: 4-Terphenyl-d14	40.9	39-141		%REC	1	7/15/2004 1:53:00 AM
Surr: Nitrobenzene-d5	40.8	37-140		%REC	1	7/15/2004 1:53:00 AM
Surr: Phenol-d6	7.92	11-100	S	%REC	1	7/15/2004 1:53:00 AM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
2-Butanone	16	10		µg/L	1	7/19/2004 2:58:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	7/19/2004 2:58:00 PM
2-Hexanone	ND	10		µg/L	1	7/19/2004 2:58:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Acetone	87	10		µg/L	1	7/19/2004 2:58:00 PM
Benzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromoform	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromomethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Carbon disulfide	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloroform	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Ethylbenzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
m,p-Xylene	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Methylene chloride	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Styrene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Toluene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Trichloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Vinyl acetate	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Vinyl chloride	ND	2.0		µg/L	1	7/19/2004 2:58:00 PM
Xylenes, Total	ND	15		µg/L	1	7/19/2004 2:58:00 PM
Surr: 1,2-Dichloroethane-d4	85.9	71-126		%REC	1	7/19/2004 2:58:00 PM
Surr: 4-Bromofluorobenzene	93.8	74-125		%REC	1	7/19/2004 2:58:00 PM
Surr: Dibromofluoromethane	89.3	73-126		%REC	1	7/19/2004 2:58:00 PM
Surr: Toluene-d8	89.9	75-125		%REC	1	7/19/2004 2:58:00 PM
FLASHPOINT		**SW1010**				Analyst: **MAG**
Ignitability	>200	50		°F	1	7/16/2004
CYANIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Cyanide	ND	0.0300		mg/L	1	7/16/2004
SULFIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Sulfide	ND	40.0		mg/L	1	7/16/2004
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **MG**
Chloride	992	50.0		mg/L	100	7/13/2004 3:25:00 AM
Sulfate	2,270	100		mg/L	100	7/13/2004 3:25:00 AM
Surr: Dichloroacetic acid (surr)	107	80-120		%REC	100	7/13/2004 3:25:00 AM
ALKALINITY		**E310.1**				Analyst: **HDO**
Alkalinity, Bicarbonate (As CaCO3)	157	5.00		mg/L	1	7/12/2004
Alkalinity, Carbonate (As CaCO3)	ND	5.00		mg/L	1	7/12/2004
Alkalinity, Hydroxide (As CaCO3)	ND	5.00		mg/L	1	7/12/2004
Alkalinity, Total (As CaCO3)	157	5.00		mg/L	1	7/12/2004
CONDUCTIVITY		**E120.1**				Analyst: **HDO**
Specific Conductance	7,200	1.00		µmhos/cm	1	7/12/2004

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **LMD**
pH	6.92	0.100		pH units	1	7/8/2004
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **LMD**
Total Dissolved Solids (Residue, Filterable)	4,960	10.0		mg/L	1	7/8/2004

Qualifiers:

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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

Date: *Jul 23 2004*

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MBLK Sample ID: **MBLKW3-070904** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/09/04 21:25**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505844** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.003459	0.010								J
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

LCS Sample ID: **MLCSW3-070904** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/09/04 21:29**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505845** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.04844	0.010	0.05	0	96.9	79-126	0			
Arsenic	0.04766	0.0050	0.05	0	95.3	80-121	0			
Barium	0.04274	0.0050	0.05	0	85.5	79.8-119	0			
Beryllium	0.04529	0.0020	0.05	0	90.6	78.9-120	0			
Boron	0.4936	0.020	0.5	0	98.7	80-120	0			
Cadmium	0.04849	0.0020	0.05	0	97	79.1-119	0			
Calcium	4.804	0.50	5	0	96.1	80-121	0			
Chromium	0.04798	0.0050	0.05	0	96	79.3-121	0			
Cobalt	0.04761	0.0050	0.05	0	95.2	82-121	0			
Copper	0.04535	0.0050	0.05	0	90.7	83-121	0			
Iron	4.902	0.20	5	0	98	80-120	0			
Lead	0.04454	0.0050	0.05	0	89.1	80-118	0			
Magnesium	5.139	0.20	5	0	103	80-120	0			
Manganese	0.04778	0.0050	0.05	0	95.6	82-119	0			
Molybdenum	0.04486	0.0050	0.05	0	89.7	84.6-115	0			
Nickel	0.04723	0.0050	0.05	0	94.5	85-120	0			
Potassium	4.953	0.20	5	0	99.1	80-120	0			
Selenium	0.0466	0.0050	0.05	0	93.2	79.2-118	0			
Silver	0.04787	0.0050	0.05	0	95.7	83-117	0			
Sodium	5.081	0.20	5	0	102	82.4-120	0			
Vanadium	0.04735	0.0050	0.05	0	94.7	82.1-119	0			
Zinc	0.04587	0.0050	0.05	0	91.7	83-118	0			

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MS Sample ID: **0407028-83CMS** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:14**

Client ID: Run ID: **ICP4500_040709A** SeqNo: **505874** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05038	0.010	0.05	0.002733	95.3	79-126	0			
Arsenic	0.04968	0.0050	0.05	0.003932	91.5	80-121	0			
Barium	0.07232	0.0050	0.05	0.02595	92.7	79.8-119	0			
Beryllium	0.0509	0.0020	0.05	0.0005094	101	78.9-120	0			
Boron	0.623	0.020	0.5	0.09092	106	80-120	0			
Cadmium	0.04574	0.0020	0.05	0.0003332	90.8	79.1-119	0			
Calcium	90.82	0.50	5	84.69	123	80-121	0			SEO
Chromium	0.04515	0.0050	0.05	0	90.3	79.3-121	0			
Cobalt	0.04827	0.0050	0.05	0.004039	88.5	82-121	0			
Copper	0.04228	0.0050	0.05	0.0009502	82.7	83-121	0			S
Iron	5.002	0.20	5	0.2496	95	80-120	0			
Lead	0.04748	0.0050	0.05	0	95	80-118	0			
Magnesium	28.5	0.20	5	23.83	93.4	80-120	0			O
Manganese	0.1942	0.0050	0.05	0.1499	88.6	82-119	0			
Molybdenum	0.04699	0.0050	0.05	0	94	84.6-115	0			
Nickel	0.05298	0.0050	0.05	0.01094	84.1	85-120	0			S
Potassium	7.353	0.20	5	2.353	100	80-120	0			
Selenium	0.046	0.0050	0.05	0.003609	84.8	79.2-118	0			
Silver	0.04262	0.0050	0.05	0	85.2	83-117	0			
Sodium	164.1	0.20	5	161.8	46	82.4-120	0			SEO
Vanadium	0.0482	0.0050	0.05	0.0006576	95.1	82.1-119	0			
Zinc	0.04617	0.0050	0.05	0.004682	83	83-118	0			S

ND - Not Detected at the Reporting Limit
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P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MSD Sample ID: **0407028-83CMSD** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:19**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505875** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05215	0.010	0.05	0.002733	98.8	79-126	0.05038	3.45	15	
Arsenic	0.04869	0.0050	0.05	0.003932	89.5	80-121	0.04968	2.01	15	
Barium	0.07266	0.0050	0.05	0.02595	93.4	79.8-119	0.07232	0.469	15	
Beryllium	0.05198	0.0020	0.05	0.0005094	103	78.9-120	0.0509	2.1	15	
Boron	0.6325	0.020	0.5	0.09092	108	80-120	0.623	1.51	15	
Cadmium	0.04625	0.0020	0.05	0.0003332	91.8	79.1-119	0.04574	1.11	15	
Calcium	93.55	0.50	5	84.69	177	80-121	90.82	2.96	15	SEO
Chromium	0.04685	0.0050	0.05	0	93.7	79.3-121	0.04515	3.7	15	
Cobalt	0.04998	0.0050	0.05	0.004039	91.9	82-121	0.04827	3.48	15	
Copper	0.04371	0.0050	0.05	0.0009502	85.5	83-121	0.04228	3.33	15	
Iron	5.13	0.20	5	0.2496	97.6	80-120	5.002	2.53	15	
Lead	0.0471	0.0050	0.05	0	94.2	80-118	0.04748	0.804	15	
Magnesium	30.14	0.20	5	23.83	126	80-120	28.5	5.59	15	SO
Manganese	0.2008	0.0050	0.05	0.1499	102	82-119	0.1942	3.34	15	
Molybdenum	0.04735	0.0050	0.05	0	94.7	84.6-115	0.04699	0.763	15	
Nickel	0.05422	0.0050	0.05	0.01094	86.6	85-120	0.05298	2.31	15	
Potassium	7.483	0.20	5	2.353	103	80-120	7.353	1.75	15	
Selenium	0.04327	0.0050	0.05	0.003609	79.3	79.2-118	0.046	6.12	15	
Silver	0.04351	0.0050	0.05	0	87	83-117	0.04262	2.07	15	
Sodium	173.9	0.20	5	161.8	242	82.4-120	164.1	5.8	15	SEO
Vanadium	0.04997	0.0050	0.05	0.0006576	98.6	82.1-119	0.0482	3.61	15	
Zinc	0.04806	0.0050	0.05	0.004682	86.8	83-118	0.04617	4.01	15	

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

DUP Sample ID: **0407028-83CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:09**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505873** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002615	0.010	0	0	0	0-0	0.002733	0	25	J
Arsenic	0.003323	0.0050	0	0	0	0-0	0.003932	0	25	J
Barium	0.026	0.0050	0	0	0	0-0	0.02595	0.192	25	
Beryllium	0.000439	0.0020	0	0	0	0-0	0.0005094	0	25	J
Boron	0.08249	0.020	0	0	0	0-0	0.09092	9.72	25	
Cadmium	0.0002675	0.0020	0	0	0	0-0	0.0003332	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0003544	0	25	
Cobalt	0.003999	0.0050	0	0	0	0-0	0.004039	0	25	J
Copper	0.001006	0.0050	0	0	0	0-0	0.0009502	0	25	J
Iron	0.2425	0.20	0	0	0	0-0	0.2496	2.89	25	
Lead	ND	0.0050	0	0	0	0-0	0.0001737	0	25	
Magnesium	22.32	0.20	0	0	0	0-0	23.83	6.54	25	
Manganese	0.1501	0.0050	0	0	0	0-0	0.1499	0.133	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.0005272	0	25	
Nickel	0.01059	0.0050	0	0	0	0-0	0.01094	3.25	25	
Potassium	2.237	0.20	0	0	0	0-0	2.353	5.05	25	
Selenium	ND	0.0050	0	0	0	0-0	0.003609	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0001129	0	25	
Vanadium	0.0005641	0.0050	0	0	0	0-0	0.0006576	0	25	J
Zinc	0.00462	0.0050	0	0	0	0-0	0.004682	0	25	J

DUP Sample ID: **0407028-83CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/12/04 20:25**
Client ID: Run ID: **ICP4500_040712A** SeqNo: **506283** Prep Date: **7/9/2004** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	85.98	5.0	0	0	0	0-0	85.98	0	25	
Sodium	175.6	2.0	0	0	0	0-0	175.6	0	25	

The following samples were analyzed in this batch: 0407074-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9641** InstrumentID: **Mercury**

MBLK Sample ID: **GBLKW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:39**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509754** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0			

LCS Sample ID: **GLCSW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:41**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509755** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00503	0.00020	0.005	0	101	83-115	0			

LCSD Sample ID: **GLCSDW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:43**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509756** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	0	101	83-115	0.00503	0.595	20	

MS Sample ID: **0407082-18CMS** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:50**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509759** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00482	0.00020	0.005	-0.000006	96.5	83-115	0			

MSD Sample ID: **0407082-18CMSD** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:51**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509760** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00484	0.00020	0.005	-0.000006	96.9	83-115	0.00482	0.414	20	

DUP Sample ID: **0407082-18CDUP** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:48**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509758** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000006	0	20	

The following samples were analyzed in this batch: 0407074-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 15:58**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507356** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	82.25	10	100	0	82.2	39-153	0			
Surr: 2-Fluorobiphenyl	78.39	10	100	0	78.4	40-147	0			
Surr: 2-Fluorophenol	33.79	10	100	0	33.8	21-110	0			
Surr: 4-Terphenyl-d14	84.32	10	100	0	84.3	39-141	0			
Surr: Nitrobenzene-d5	70.65	10	100	0	70.7	37-140	0			
Surr: Phenol-d6	18.81	10	100	0	18.8	11-100	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 16:29**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507357** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	31.26	10	50	0	62.5	50-115	0			
2,4,5-Trichlorophenol	86.7	10	100	0	86.7	68-128	0			
2,4,6-Trichlorophenol	85.39	10	100	0	85.4	66-125	0			
2-Methylnaphthalene	34.79	10	50	0	69.6	47-122	0			
2-Methylphenol	61.44	10	100	0	61.4	51-115	0			
2-Nitroaniline	46.51	10	50	0	93	64-128	0			
2-Nitrophenol	76.92	10	100	0	76.9	60-119	0			
3-Nitroaniline	44.47	10	50	0	88.9	61-118	0			
4-Methylphenol	81.14	10	150	0	54.1	44-115	0			
4-Nitroaniline	44.56	10	50	0	89.1	61-123	0			
4-Nitrophenol	29.12	10	100	0	29.1	17-100	0			
Acenaphthene	40.9	10	50	0	81.8	68-115	0			
Acenaphthylene	40.88	10	50	0	81.8	67-116	0			
Aniline	32.02	10	50	0	64	40-130	0			
Anthracene	43.56	10	50	0	87.1	70-129	0			
Benz(a)anthracene	42.22	10	50	0	84.4	55-131	0			
Benzidine	30.17	10	50	0	60.3	10-115	0			
Hexachloroethane	30.87	10	50	0	61.7	46-115	0			
Indeno(1,2,3-cd)pyrene	48.4	10	50	0	96.8	42-123	0			
Isophorone	39.55	10	50	0	79.1	63-117	0			
N-Nitrosodi-n-propylamine	42.61	10	50	0	85.2	67-115	0			
N-Nitrosodimethylamine	21.15	10	50	0	42.3	28-115	0			
N-Nitrosodiphenylamine	46.31	10	50	0	92.6	72-144	0			
Naphthalene	33.4	10	50	0	66.8	52-115	0			
Nitrobenzene	38.35	10	50	0	76.7	65-115	0			
Pentachlorophenol	70.64	10	100	0	70.6	65-123	0			
Phenanthrene	41.84	10	50	0	83.7	69-119	0			
Phenol	23.79	10	100	0	23.8	16-115	0			
Pyrene	40.12	10	50	0	80.2	51-130	0			
Surr: 2,4,6-Tribromophenol	87.89	10	100	0	87.9	39-153	0			
Surr: 2-Fluorobiphenyl	82.26	10	100	0	82.3	40-147	0			
Surr: 2-Fluorophenol	40.23	10	100	0	40.2	21-110	0			
Surr: 4-Terphenyl-d14	86.41	10	100	0	86.4	39-141	0			
Surr: Nitrobenzene-d5	75.5	10	100	0	75.5	37-140	0			
Surr: Phenol-d6	23.26	10	100	0	23.3	11-100	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

LCSD Sample ID: **SLCSDW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 16:59**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507358** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	31.58	10	50	0	63.2	50-115	31.26	1.01	30	
2,4,5-Trichlorophenol	87.3	10	100	0	87.3	68-128	86.7	0.685	30	
2,4,6-Trichlorophenol	86.39	10	100	0	86.4	66-125	85.39	1.16	30	
2-Methylnaphthalene	33.56	10	50	0	67.1	47-122	34.79	3.61	30	
2-Methylphenol	60.16	10	100	0	60.2	51-115	61.44	2.11	30	
2-Nitroaniline	47.23	10	50	0	94.5	64-128	46.51	1.53	30	
2-Nitrophenol	75.92	10	100	0	75.9	60-119	76.92	1.32	30	
3-Nitroaniline	40.62	10	50	0	81.2	61-118	44.47	9.05	30	
4-Methylphenol	81.3	10	150	0	54.2	44-115	81.14	0.188	30	
4-Nitroaniline	42.15	10	50	0	84.3	61-123	44.56	5.54	30	
4-Nitrophenol	30.34	10	100	0	30.3	17-100	29.12	4.08	30	
Acenaphthene	39.88	10	50	0	79.8	68-115	40.9	2.52	30	
Acenaphthylene	39.7	10	50	0	79.4	67-116	40.88	2.93	30	
Aniline	31.01	10	50	0	62	40-130	32.02	3.2	30	
Anthracene	42.13	10	50	0	84.3	70-129	43.56	3.34	30	
Benz(a)anthracene	41.72	10	50	0	83.4	55-131	42.22	1.2	30	
Benzidine	28.39	10	50	0	56.8	10-115	30.17	6.06	30	
Hexachloroethane	29.4	10	50	0	58.8	46-115	30.87	4.89	30	
Indeno(1,2,3-cd)pyrene	44.19	10	50	0	88.4	42-123	48.4	9.1	30	
Isophorone	38.71	10	50	0	77.4	63-117	39.55	2.15	30	
N-Nitrosodi-n-propylamine	41.17	10	50	0	82.3	67-115	42.61	3.43	30	
N-Nitrosodimethylamine	22.1	10	50	0	44.2	28-115	21.15	4.41	30	
N-Nitrosodiphenylamine	44.6	10	50	0	89.2	72-144	46.31	3.77	30	
Naphthalene	32.74	10	50	0	65.5	52-115	33.4	1.99	30	
Nitrobenzene	38.2	10	50	0	76.4	65-115	38.35	0.387	30	
Pentachlorophenol	72.91	10	100	0	72.9	65-123	70.64	3.15	30	
Phenanthrene	40.12	10	50	0	80.2	69-119	41.84	4.2	30	
Phenol	24.22	10	100	0	24.2	16-115	23.79	1.79	30	
Pyrene	40.25	10	50	0	80.5	51-130	40.12	0.331	30	
Surr: 2,4,6-Tribromophenol	86.61	10	100	0	86.6	39-153	87.89	1.46	30	
Surr: 2-Fluorobiphenyl	81.97	10	100	0	82	40-147	82.26	0.35	30	
Surr: 2-Fluorophenol	39.11	10	100	0	39.1	21-110	40.23	2.82	30	
Surr: 4-Terphenyl-d14	85.17	10	100	0	85.2	39-141	86.41	1.45	30	
Surr: Nitrobenzene-d5	75.33	10	100	0	75.3	37-140	75.5	0.231	30	
Surr: Phenol-d6	23.6	10	100	0	23.6	11-100	23.26	1.46	30	

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MS Sample ID: **0407082-18DMS** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 18:00**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507360** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.77	11	53.19	0	72.9	50-115	0			
2,4,5-Trichlorophenol	91.48	11	106.4	0	86	68-128	0			
2,4,6-Trichlorophenol	92.28	11	106.4	0	86.7	66-125	0			
2-Methylnaphthalene	39.59	11	53.19	0	74.4	47-122	0			
2-Methylphenol	68.77	11	106.4	0	64.6	51-115	0			
2-Nitroaniline	49.37	11	53.19	0	92.8	64-128	0			
2-Nitrophenol	82.66	11	106.4	0	77.7	60-119	0			
3-Nitroaniline	39.84	11	53.19	0	74.9	61-118	0			
4-Methylphenol	95.14	11	159.6	0	59.6	44-115	0			
4-Nitroaniline	41.31	11	53.19	0	77.7	61-123	0			
4-Nitrophenol	36.34	11	106.4	0	34.2	17-100	0			
Acenaphthene	46.9	11	53.19	0	88.2	68-115	0			
Acenaphthylene	42.53	11	53.19	0	80	67-116	0			
Aniline	31.51	11	53.19	0	59.2	40-130	0			
Anthracene	45.14	11	53.19	0	84.9	70-129	0			
Benz(a)anthracene	44.52	11	53.19	0	83.7	55-131	0			
Benzidine	24.16	11	53.19	0	45.4	10-115	0			
Hexachloroethane	42.45	11	53.19	0	79.8	46-115	0			
Indeno(1,2,3-cd)pyrene	49.91	11	53.19	0	93.8	42-123	0			
Isophorone	41.24	11	53.19	0	77.5	63-117	0			
N-Nitrosodi-n-propylamine	46.57	11	53.19	0	87.5	67-115	0			
N-Nitrosodimethylamine	26.9	11	53.19	0	50.6	28-115	0			
N-Nitrosodiphenylamine	47.19	11	53.19	0	88.7	72-144	0			
Naphthalene	37.95	11	53.19	0	71.4	52-115	0			
Nitrobenzene	42.36	11	53.19	0	79.6	65-115	0			
Pentachlorophenol	71.64	11	106.4	0	67.3	65-123	0			
Phenanthrene	43.67	11	53.19	0	82.1	69-119	0			
Phenol	29.8	11	106.4	0	28	16-115	0			
Pyrene	41.73	11	53.19	0	78.4	51-130	0			
Surr: 2,4,6-Tribromophenol	88.29	11	106.4	0	83	39-153	0			
Surr: 2-Fluorobiphenyl	88.06	11	106.4	0	82.8	40-147	0			
Surr: 2-Fluorophenol	46.77	11	106.4	0	44	21-110	0			
Surr: 4-Terphenyl-d14	88.44	11	106.4	0	83.1	39-141	0			
Surr: Nitrobenzene-d5	81.74	11	106.4	0	76.8	37-140	0			
Surr: Phenol-d6	27.76	11	106.4	0	26.1	11-100	0			

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R - RPD outside accepted recovery limits
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MSD Sample ID: **0407082-18DMSD** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 18:30**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507361** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.35	11	53.19	0	72.1	50-115	38.77	1.09	30	
2,4,5-Trichlorophenol	95.8	11	106.4	0	90.1	68-128	91.48	4.61	30	
2,4,6-Trichlorophenol	92.06	11	106.4	0	86.5	66-125	92.28	0.244	30	
2-Methylnaphthalene	39.08	11	53.19	0	73.5	47-122	39.59	1.29	30	
2-Methylphenol	70.25	11	106.4	0	66	51-115	68.77	2.12	30	
2-Nitroaniline	48.77	11	53.19	0	91.7	64-128	49.37	1.21	30	
2-Nitrophenol	83.64	11	106.4	0	78.6	60-119	82.66	1.17	30	
3-Nitroaniline	37.37	11	53.19	0	70.3	61-118	39.84	6.4	30	
4-Methylphenol	94.8	11	159.6	0	59.4	44-115	95.14	0.358	30	
4-Nitroaniline	38.45	11	53.19	0	72.3	61-123	41.31	7.17	30	
4-Nitrophenol	36.01	11	106.4	0	33.8	17-100	36.34	0.923	30	
Acenaphthene	47.64	11	53.19	0	89.6	68-115	46.9	1.56	30	
Acenaphthylene	42.64	11	53.19	0	80.2	67-116	42.53	0.255	30	
Aniline	31.17	11	53.19	0	58.6	40-130	31.51	1.09	30	
Anthracene	45.61	11	53.19	0	85.7	70-129	45.14	1.04	30	
Benz(a)anthracene	45.17	11	53.19	0	84.9	55-131	44.52	1.46	30	
Benzidine	18.51	11	53.19	0	34.8	10-115	24.16	26.5	30	
Hexachloroethane	40.74	11	53.19	0	76.6	46-115	42.45	4.12	30	
Indeno(1,2,3-cd)pyrene	50.25	11	53.19	0	94.5	42-123	49.91	0.68	30	
Isophorone	42.87	11	53.19	0	80.6	63-117	41.24	3.88	30	
N-Nitrosodi-n-propylamine	46.44	11	53.19	0	87.3	67-115	46.57	0.281	30	
N-Nitrosodimethylamine	25.12	11	53.19	0	47.2	28-115	26.9	6.83	30	
N-Nitrosodiphenylamine	47.79	11	53.19	0	89.8	72-144	47.19	1.25	30	
Naphthalene	38.24	11	53.19	0	71.9	52-115	37.95	0.757	30	
Nitrobenzene	42.83	11	53.19	0	80.5	65-115	42.36	1.09	30	
Pentachlorophenol	81.78	11	106.4	0	76.9	65-123	71.64	13.2	30	
Phenanthrene	44.03	11	53.19	0	82.8	69-119	43.67	0.831	30	
Phenol	29.65	11	106.4	0	27.9	16-115	29.8	0.497	30	
Pyrene	42.44	11	53.19	0	79.8	51-130	41.73	1.71	30	
Surr: 2,4,6-Tribromophenol	93.87	11	106.4	0	88.2	39-153	88.29	6.12	30	
Surr: 2-Fluorobiphenyl	87.34	11	106.4	0	82.1	40-147	88.06	0.818	30	
Surr: 2-Fluorophenol	46.17	11	106.4	0	43.4	21-110	46.77	1.28	30	
Surr: 4-Terphenyl-d14	90.02	11	106.4	0	84.6	39-141	88.44	1.78	30	
Surr: Nitrobenzene-d5	80.82	11	106.4	0	76	37-140	81.74	1.14	30	
Surr: Phenol-d6	27.76	11	106.4	0	26.1	11-100	27.76	0.011	30	

The following samples were analyzed in this batch: 0407074-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MBLK Sample ID: **VBLKW-0719** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 11:33**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510670** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	42.27	5.0	50	0	84.5	71-126	0			
Surr: 4-Bromofluorobenzene	43.71	5.0	50	0	87.4	74-125	0			
Surr: Dibromofluoromethane	43.99	5.0	50	0	88	73-126	0			
Surr: Toluene-d8	44.34	5.0	50	0	88.7	75-125	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

LCS Sample ID: **VLCSW-0719** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 10:42**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510669** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.5	5.0	50	0	99	75.2-120	0			
1,1,2,2-Tetrachloroethane	47.64	5.0	50	0	95.3	72.4-121	0			
1,1,2-Trichloroethane	49.05	5.0	50	0	98.1	80-120	0			
1,1-Dichloroethane	40.8	5.0	50	0	81.6	76.9-120	0			
1,1-Dichloroethene	42.24	5.0	50	0	84.5	72.6-123	0			
1,2-Dichloroethane	50.08	5.0	50	0	100	80-120	0			
2-Butanone	98.22	10	100	0	98.2	69-131	0			
2-Chloroethyl vinyl ether	99.78	10	100	0	99.8	60-135	0			
2-Hexanone	109.7	10	100	0	110	55.6-126	0			
4-Methyl-2-pentanone	105.7	10	100	0	106	67.4-121	0			
Acetone	110	10	100	0	110	64.4-140	0			
Benzene	47.36	5.0	50	0	94.7	80-120	0			
Bromodichloromethane	49.67	5.0	50	0	99.3	80-120	0			
Bromoform	52.48	5.0	50	0	105	77.9-121	0			
Bromomethane	46.73	5.0	50	0	93.5	63.3-137	0			
Carbon disulfide	81.78	10	100	0	81.8	74.1-123	0			
Carbon tetrachloride	50.26	5.0	50	0	101	74.7-120	0			
Chlorobenzene	48.77	5.0	50	0	97.5	80-120	0			
Chloroethane	46	5.0	50	0	92	74.7-126	0			
Chloroform	46.23	5.0	50	0	92.5	80-120	0			
Chloromethane	43.9	5.0	50	0	87.8	64.5-132	0			
cis-1,3-Dichloropropene	51.24	5.0	50	0	102	80-120	0			
Dibromochloromethane	50.88	5.0	50	0	102	80-120	0			
Ethylbenzene	49.39	5.0	50	0	98.8	80-120	0			
m,p-Xylene	98.82	10	100	0	98.8	80-120	0			
Methylene chloride	41.13	10	50	0	82.3	76.2-120	0			
Styrene	50.69	5.0	50	0	101	80-120	0			
Tetrachloroethene	51.64	5.0	50	0	103	68.5-130	0			
Toluene	48.46	5.0	50	0	96.9	80-120	0			
trans-1,3-Dichloropropene	52.38	5.0	50	0	105	80-120	0			
Trichloroethene	50.2	5.0	50	0	100	78.9-120	0			
Vinyl acetate	106.1	10	100	0	106	62.4-133	0			
Vinyl chloride	46.69	2.0	50	0	93.4	72.7-128	0			
Xylenes, Total	148.4	15	150	0	98.9	80-120	0			
Surr: 1,2-Dichloroethane-d4	40.65	5.0	50	0	81.3	71-126	0			
Surr: 4-Bromofluorobenzene	46.15	5.0	50	0	92.3	74-125	0			
Surr: Dibromofluoromethane	41.66	5.0	50	0	83.3	73-126	0			
Surr: Toluene-d8	45.05	5.0	50	0	90.1	75-125	0			

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MS Sample ID: **0407154-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 14:05**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510672** Prep Date: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12140	1,200	12500	0	97.1	75.2-120	0			
1,1,2,2-Tetrachloroethane	11150	1,200	12500	0	89.2	72.4-121	0			
1,1,2-Trichloroethane	12470	1,200	12500	0	99.8	80-120	0			
1,1-Dichloroethane	11610	1,200	12500	0	92.9	76.9-120	0			
1,1-Dichloroethene	9668	1,200	12500	0	77.3	72.6-123	0			
1,2-Dichloroethane	12100	1,200	12500	0	96.8	80-120	0			
2-Butanone	24170	2,500	25000	0	96.7	69-131	0			
2-Chloroethyl vinyl ether	23350	2,500	25000	0	93.4	60-135	0			
2-Hexanone	28460	2,500	25000	0	114	55.6-126	0			
4-Methyl-2-pentanone	26920	2,500	25000	0	108	67.4-121	0			
Acetone	28630	2,500	25000	0	115	64.4-140	0			
Benzene	12840	1,200	12500	1617	89.8	80-120	0			
Bromodichloromethane	12110	1,200	12500	0	96.9	80-120	0			
Bromoform	12900	1,200	12500	0	103	77.9-121	0			
Bromomethane	10540	1,200	12500	0	84.3	63.3-137	0			
Carbon disulfide	21710	2,500	25000	0	86.8	74.1-123	0			
Carbon tetrachloride	15530	1,200	12500	3701	94.7	74.7-120	0			
Chlorobenzene	17760	1,200	12500	6761	88	80-120	0			
Chloroethane	11150	1,200	12500	0	89.2	74.7-126	0			
Chloroform	27960	1,200	12500	16690	90.2	80-120	0			
Chloromethane	11340	1,200	12500	0	90.7	64.5-132	0			
cis-1,3-Dichloropropene	12280	1,200	12500	0	98.3	80-120	0			
Dibromochloromethane	12560	1,200	12500	0	101	80-120	0			
Ethylbenzene	12120	1,200	12500	0	97	80-120	0			
m,p-Xylene	24660	2,500	25000	0	98.7	80-120	0			
Methylene chloride	11050	2,500	12500	251	86.4	76.2-120	0			
Styrene	12310	1,200	12500	0	98.5	80-120	0			
Tetrachloroethene	12830	1,200	12500	307.5	100	68.5-130	0			
Toluene	11740	1,200	12500	0	93.9	80-120	0			
trans-1,3-Dichloropropene	12720	1,200	12500	0	102	80-120	0			
Trichloroethene	13050	1,200	12500	382.7	101	78.9-120	0			
Vinyl acetate	16340	2,500	25000	0	65.4	62.4-133	0			
Vinyl chloride	11910	500	12500	0	95.2	72.7-128	0			
Xylenes, Total	36910	3,800	37500	0	98.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	10910	1,200	12500	0	87.3	71-126	0			
Surr: 4-Bromofluorobenzene	12050	1,200	12500	0	96.4	74-125	0			
Surr: Dibromofluoromethane	10810	1,200	12500	0	86.5	73-126	0			
Surr: Toluene-d8	11660	1,200	12500	0	93.3	75-125	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MSD Sample ID: **0407154-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 14:33**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510673** Prep Date: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12300	1,200	12500	0	98.4	75.2-120	12140	1.31	20	
1,1,2,2-Tetrachloroethane	11100	1,200	12500	0	88.8	72.4-121	11150	0.381	20	
1,1,2-Trichloroethane	12660	1,200	12500	0	101	80-120	12470	1.46	20	
1,1-Dichloroethane	10890	1,200	12500	0	87.2	76.9-120	11610	6.37	20	
1,1-Dichloroethene	10340	1,200	12500	0	82.7	72.6-123	9668	6.67	20	
1,2-Dichloroethane	12510	1,200	12500	0	100	80-120	12100	3.41	20	
2-Butanone	25510	2,500	25000	0	102	69-131	24170	5.39	20	
2-Chloroethyl vinyl ether	23900	2,500	25000	0	95.6	60-135	23350	2.29	20	
2-Hexanone	29060	2,500	25000	0	116	55.6-126	28460	2.07	20	
4-Methyl-2-pentanone	27690	2,500	25000	0	111	67.4-121	26920	2.82	20	
Acetone	28630	2,500	25000	0	115	64.4-140	28630	0.0181	20	
Benzene	13310	1,200	12500	1617	93.5	80-120	12840	3.55	20	
Bromodichloromethane	12400	1,200	12500	0	99.2	80-120	12110	2.29	20	
Bromoform	13180	1,200	12500	0	105	77.9-121	12900	2.16	20	
Bromomethane	11380	1,200	12500	0	91	63.3-137	10540	7.65	20	
Carbon disulfide	22610	2,500	25000	0	90.4	74.1-123	21710	4.08	20	
Carbon tetrachloride	16060	1,200	12500	3701	98.9	74.7-120	15530	3.35	20	
Chlorobenzene	18250	1,200	12500	6761	91.9	80-120	17760	2.71	20	
Chloroethane	11550	1,200	12500	0	92.4	74.7-126	11150	3.48	20	
Chloroform	27240	1,200	12500	16690	84.4	80-120	27960	2.59	20	
Chloromethane	11380	1,200	12500	0	91.1	64.5-132	11340	0.38	20	
cis-1,3-Dichloropropene	12670	1,200	12500	0	101	80-120	12280	3.12	20	
Dibromochloromethane	12910	1,200	12500	0	103	80-120	12560	2.71	20	
Ethylbenzene	12480	1,200	12500	0	99.8	80-120	12120	2.91	20	
m,p-Xylene	25180	2,500	25000	0	101	80-120	24660	2.07	20	
Methylene chloride	10390	2,500	12500	251	81.1	76.2-120	11050	6.19	20	
Styrene	12620	1,200	12500	0	101	80-120	12310	2.5	20	
Tetrachloroethene	13110	1,200	12500	307.5	102	68.5-130	12830	2.1	20	
Toluene	12160	1,200	12500	0	97.3	80-120	11740	3.54	20	
trans-1,3-Dichloropropene	12790	1,200	12500	0	102	80-120	12720	0.554	20	
Trichloroethene	13550	1,200	12500	382.7	105	78.9-120	13050	3.73	20	
Vinyl acetate	16770	2,500	25000	0	67.1	62.4-133	16340	2.6	20	
Vinyl chloride	11890	500	12500	0	95.1	72.7-128	11910	0.11	20	
Xylenes, Total	37950	3,800	37500	0	101	80-120	36910	2.78	20	
Surr: 1,2-Dichloroethane-d4	10830	1,200	12500	0	86.7	71-126	10910	0.714	20	
Surr: 4-Bromofluorobenzene	12050	1,200	12500	0	96.4	74-125	12050	0.0324	20	
Surr: Dibromofluoromethane	11040	1,200	12500	0	88.3	73-126	10810	2.07	20	
Surr: Toluene-d8	11800	1,200	12500	0	94.4	75-125	11660	1.17	20	

The following samples were analyzed in this batch: 0407074-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21602** InstrumentID: **WetChem**

LCS Sample ID: **WLCSW1-070804** Test Code: **E150.1** Units: **pH units** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708A** SeqNo: **504779** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.04	0.10	6	0	101	85-115	0			

DUP Sample ID: **0407074-01CDUP** Test Code: **E150.1** Units: **pH units** Analysis Date: **07/08/04 0:00**
Client ID: **Inj Wells** Run ID: **WETCHEM_040708A** SeqNo: **504783** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.91	0.10	0	0	0	0-0	6.92	0.145	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21620** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW1-070804** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505164** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **WLCSW1-070804** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505165** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1058	10	1000	0	106	80-120	0			

DUP Sample ID: **0407068-01EDUP** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505171** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	25900	10	0	0	0	0-0	25620	1.07	20	

The following samples were analyzed in this batch: 0407074-01C

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R - RPD outside accepted recovery limits
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21657** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW-071204** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506101** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-071204** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506102** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	980.7	5.0	0	0.9806	0	0-0	0			
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Total (As CaCO3)	980.7	5.0	1000	0	98.1	80-120	0			

DUP Sample ID: **0407076-01BDUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506130** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	421.7	5.0	0	0	0	0-0	421.7	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	421.7	5.0	0	0	0	0-0	421.7	0	20	

The following samples were analyzed in this batch: 0407074-01C

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J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21661** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW1-071204** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712D** SeqNo: **506172** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-071204** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712D** SeqNo: **506173** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1440	1.0	1409	0	102	80-120	0			

DUP Sample ID: **0407074-01CDUP** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: **Inj Wells** Run ID: **WETCHEM_040712D** SeqNo: **506175** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	7190	1.0	0	0	0	0-0	7200	0.139	20	

The following samples were analyzed in this batch: 0407074-01C

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21698** InstrumentID: **IC201**

MBLK Sample ID: **WBLKW1-071204** Test Code: **E300** Units: **mg/L** Analysis Date: **07/12/04 23:08**
Client ID: Run ID: **IC201_040712B** SeqNo: **506929** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Dichloroacetic acid (surr)	5.26	0.10	5	0	105	80-120		0		

LCS Sample ID: **WLCSW1-071204** Test Code: **E300** Units: **mg/L** Analysis Date: **07/12/04 23:37**
Client ID: Run ID: **IC201_040712B** SeqNo: **506930** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.89	0.50	10	0	98.9	80-120		0		
Sulfate	10.41	1.0	10	0	104	80-120		0		
Surr: Dichloroacetic acid (surr)	5.58	0.10	5	0	112	80-120		0		

LCSD Sample ID: **WLCSW1DUP-071** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 0:05**
Client ID: Run ID: **IC201_040712B** SeqNo: **506931** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.9	0.50	10	0	99	80-120		0		
Sulfate	10.43	1.0	10	0	104	80-120		0		
Surr: Dichloroacetic acid (surr)	5.6	0.10	5	0	112	80-120		0		

MS Sample ID: **0407016-02AMS** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:31**
Client ID: Run ID: **IC201_040712B** SeqNo: **506934** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3695	50	1000	2719	97.6	75-125		0		
Sulfate	1255	100	1000	273	98.2	75-125		0		
Surr: Dichloroacetic acid (surr)	528	10	500	0	106	80-120		0		

MSD Sample ID: **0407016-02AMSD** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:59**
Client ID: Run ID: **IC201_040712B** SeqNo: **506935** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3686	50	1000	2719	96.7	75-125	3695	0.244	20	
Sulfate	1255	100	1000	273	98.2	75-125	1255	0	20	
Surr: Dichloroacetic acid (surr)	534	10	500	0	107	80-120	528	1.13	20	

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B - Analyte detected in assoc. Method Blank
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21698** InstrumentID: **IC201**

DUP Sample ID: **0407016-02ADUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:02**
Client ID: Run ID: **IC201_040712B** SeqNo: **506933** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2515	50	0	0	0	0-0	2719	7.8	20	
Sulfate	259	100	0	0	0	0-0	273	5.26	20	
Surr: Dichloroacetic acid (surr)	538	10	500	0	108	80-120	571	5.95	20	

DUP Sample ID: **0407076-04BDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 11:01**
Client ID: Run ID: **IC201_040712B** SeqNo: **506938** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	844	25	0	0	0	0-0	845.5	0.178	20	
Sulfate	2172	50	0	0	0	0-0	2174	0.115	20	
Surr: Dichloroacetic acid (surr)	279	5.0	250	0	112	80-120	284.5	1.95	20	

DUP Sample ID: **0407076-07BDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 14:49**
Client ID: Run ID: **IC201_040712B** SeqNo: **506944** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3191	0.50	0	0	0	0-0	3183	0.227	20	E
Sulfate	4941	1.0	0	0	0	0-0	4912	0.6	20	E
Surr: Dichloroacetic acid (surr)	4.38	0.10	5	0	87.6	80-120	5.6	24.4	20	R

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page _____ of _____

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 04070

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Wells	A	VOC (8260)
Work Order		Project Number		B	SVOC (8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Tot Metals WQCC + Cations (6020)
Send Report To	Charlie Plymale	Invoice Attn	Charlie Plymale	D	Anions: Cl, SO4 (300)
Address	P.O. Box 159	Address	P.O. Box 159	E	Alkalintiy (310.1)
				F	pH
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	TDS
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	Uranium
e-Mail Address		e-Mail Address		J	RCI

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj Wells	7/7/04	900			11	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Charlie Plymale

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ STD 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☐ Other 10 Day TAT

Results Due Date:

Relinquished by:	Date: 7/7/04	Time: 1615	Received by:	Notes:	
Relinquished by:	Date:	Time:	Received by (Laboratory):	e-lab Cooler ID	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 7/8/2004 8:40:00 AM

Work Order Number 0407074 Received by: FSM

Checklist completed by RICHARD SANCHEZ 7-8-04 (Signature / Date) Reviewed by (Initials) 7/9/04 (Date)

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.0c	002	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes: Trip blank not on COC; logged in without anlaysis.

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab, Inc **Date:** *July 19, 2004*

CLIENT: e-Lab, Inc
Project: 0407074
Work Order: 0407128

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0407128-01	0407074-01E	Water		7/7/2004 09:00	7/9/2004 10:00	☐

e-Lab, Inc

Date: *July 19, 2004*

CLIENT: e-Lab, Inc
Project: 0407074
Work Order: 0407128

Lab ID: 0407128-01A
Client Sample ID: 0407074-01E
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **KAE**
Cyanide, Reactive	ND	0.0300		mg/Kg	1	7/16/2004
FLASHPOINT, P-M CLOSED-CUP			**ASTM D93**			Analyst: **MB**
Flashpoint, P-M Closed-cup	>200			°F	1	7/16/2004
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **KAE**
Sulfide, Reactive	ND	40.0		mg/Kg	1	7/16/2004

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

Date: *Jul 19 2004*

QC BATCH REPORT

Batch ID: **R22476** InstrumentID: **WETCHEM**

LCS Sample ID: **WLCSW1-071504** Test Code: **ASTM D93** Units: **°F** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716G** SeqNo: **329758** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	80	0	81	0	98.8	97.5-102.4	0			

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

QC BATCH REPORT

Batch ID: **R22479** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-071504** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716I** SeqNo: **329826** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	0.030								

LCS Sample ID: **WLCSW1-071504** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716I** SeqNo: **329827** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	4.238	0.75	19.71	0	21.5	5-100		0		

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

QC BATCH REPORT

Batch ID: **R22482** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-071604** Test Code: **EPA 7.3.4.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716L** SeqNo: **329840** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Page 2284 of 5828

Received by OCD: 5/16/2022 2:12:41 PM

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040722

CHAIN-OF-CUSTODY RECORD

Work Order: [illegible]
PO/SO #: [illegible]
Date/Time: 7/20/2022

Client Information | Project Information | Parameters and/or Method Requested for Analysis

Purchase Order		Project Name	C40071	A: Chloride, Sulfate (EPA 300.0)
Work Order		Project Number		B: BTEX (EPA 8021B)
Company Name	[illegible]	Bill to Company	[illegible]	C: TPH (EPA 8015)
Send Report To	[illegible]	Invoice to	Accounts Payable	D:
Address	[illegible]	Address	[illegible]	E:
				F:
City/State/Zip	Hobbs, New [illegible]	City/State/Zip	[illegible]	G:
Phone	[illegible]	Phone	[illegible]	H:
Fax	[illegible]	Fax	[illegible]	I:
Email Address				J:

Sample ID	Matrix	Collection Date	Time	Container	A	B	C	D	E	F	G	H	I	J
[illegible]	Solid	7/20/2022	[illegible]	4 OZ CLEAR	X	X	X							

Comments:

Relinquishing	Received	Relinquished	Received	Verified	Special Terms
[signature]	[signature]	[signature]	[signature]		

e-Lab, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 7/9/2004 10:00:00 AM

Work Order Number 0407128 Received by: TL

Checklist completed by [signature] 7/9/04 Reviewed by [initials] 7/9/04

Matrix: Carrier name FedEx

Shipping container/cooler in good condition?	Yes ✔	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✔	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✔
Chain of custody present?	Yes ✔	No	
Chain of custody signed when relinquished and received?	Yes ✔	No	
Chain of custody agrees with sample labels?	Yes ✔	No	
Samples in proper container/bottle?	Yes ✔	No	
Sample containers intact?	Yes ✔	No	
Sufficient sample volume for indicated test?	Yes ✔	No	
All samples received within holding time?	Yes ✔	No	
Container/Temp Blank temperature in compliance?	Yes ✔	No	
Temperature(s)/Thermometer(s):	1.8 C		
Water - VOA vials have zero headspace?	Yes	No	No VOA vials submitted ✔
Water - pH acceptable upon receipt?	Yes ✔	No	N/A

Adjusted? Checked b

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action

ALIGN OPEN END OF FEDEX AIRBILL POUCH HERE
CUSTODY SEAL
FedEx
PRIORITY OVERNIGHT
FRI
GRR
49424
TR HLMA
Holland MI 49424

REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
MAY 0 3 2004
OIL CONSERVATION DIVISION

April 30 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2004 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2004 to March 31, 2004. We have disposed a total of 18,858,402 bbls. of fluid into the two wells as of March 31, 2004. This is broken down as follows: 12,908,972 bbls. into WDW-1 and 5,949,430 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jan-04	410	483	241	271	322	165	322	450	179	9281	11030	5641	287,699
Feb-04	313	427	160	253	299	149	65	351	0	8680	10243	5095	269,077
Mar-04	312	463	17	235	294	101	0.2	0.3	0.1	8048	10067	3477	249,489
WDW-2													
Jan-04	461	500	53	143	168	94	278	460	144	4919	5753	3212	152,491
Feb-04	236	452	0	140	249	91	369	500	196	4784	8546	3127	148,313
Mar-04	325	477	1	117	170	0.5	407	500	158	4026	5844	16	124,792

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5658 Fax 281-530-5887

January 26, 2004

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj Wells Work Order : **0401037**

Dear Jeff Byrd,

e-Lab, Inc. received 1 sample on 1/7/2004 9:25:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 36.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Patrina A. Dathorne

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Project: Inj Wells
Work Order: **0401037**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0401037-01	Inj. Wells	Water		1/6/2004 11:00	1/7/2004 09:25	☐

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT: Navajo Refining Company
Project: Inj Wells
Work Order: 0401037

Case Narrative

The analysis for Uranium was performed at American Radiation Services in Baton Rouge, LA.

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL		**SW7470**			Prep Date: **1/13/2004**	Analyst: **JCJ**
Mercury	ND	0.000200		mg/L	1	1/14/2004 4:38:03 PM
ICP METALS, TOTAL		**SW6020**			Prep Date: **1/8/2004**	Analyst: **ALR**
Aluminum	0.0929	0.0200		mg/L	2	1/9/2004 3:23:00 PM
Arsenic	0.130	0.0250		mg/L	5	1/9/2004 3:14:00 PM
Barium	0.0405	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Beryllium	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Boron	0.579	0.0400		mg/L	2	1/9/2004 3:23:00 PM
Cadmium	ND	0.00200		mg/L	2	1/9/2004 3:23:00 PM
Calcium	78.5	2.50		mg/L	5	1/9/2004 3:14:00 PM
Chromium	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Cobalt	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Copper	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Iron	0.424	0.400		mg/L	2	1/9/2004 3:23:00 PM
Lead	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Magnesium	21.2	1.00		mg/L	5	1/9/2004 3:14:00 PM
Manganese	0.0279	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Nickel	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Potassium	84.1	1.00		mg/L	5	1/9/2004 3:14:00 PM
Selenium	0.169	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Silver	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Sodium	2,280	40.0		mg/L	200	1/14/2004 1:00:00 PM
Vanadium	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Zinc	0.0357	0.0100		mg/L	2	1/9/2004 3:23:00 PM
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **1/8/2004**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Methylnaphthalene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Methylphenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Nitrophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
3-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Methylphenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Nitrophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Acenaphthene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Acenaphthylene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Aniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Anthracene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Benz(a)anthracene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Benzidine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Hexachloroethane	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Isophorone	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodimethylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Naphthalene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Nitrobenzene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Pentachlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Phenanthrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Phenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Pyrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Surr: 2,4,6-Tribromophenol	84.1	39-153		%REC	1	1/10/2004 1:04:00 AM
Surr: 2-Fluorobiphenyl	69.6	40-147		%REC	1	1/10/2004 1:04:00 AM
Surr: 2-Fluorophenol	29.1	21-100		%REC	1	1/10/2004 1:04:00 AM
Surr: 4-Terphenyl-d14	65.8	39-141		%REC	1	1/10/2004 1:04:00 AM
Surr: Nitrobenzene-d5	76.6	37-140		%REC	1	1/10/2004 1:04:00 AM
Surr: Phenol-d6	17.0	11-100		%REC	1	1/10/2004 1:04:00 AM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
2-Butanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	1/13/2004 7:54:00 PM
2-Hexanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Acetone	17	10		µg/L	1	1/13/2004 7:54:00 PM
Benzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromoform	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromomethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Carbon disulfide	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chlorobenzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Chloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chloroform	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Ethylbenzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
m,p-Xylene	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Methylene chloride	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Styrene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Toluene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Trichloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Vinyl acetate	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Vinyl chloride	ND	2.0		µg/L	1	1/13/2004 7:54:00 PM
Xylenes, Total	ND	15		µg/L	1	1/13/2004 7:54:00 PM
Surr: 1,2-Dichloroethane-d4	93.7	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: Dibromofluoromethane	93.4	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: Toluene-d8	89.3	70-130		%REC	1	1/13/2004 7:54:00 PM
FLASHPOINT		**SW1010**				Analyst: **MAG**
Ignitability	>200	50		°F	1	1/8/2004
CYANIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Cyanide	ND	0.0300		mg/L	1	1/13/2004
SULFIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Sulfide	ND	40.0		mg/L	1	1/12/2004
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **MG**
Chloride	2,440	50.0		mg/L	100	1/13/2004 12:02:00 PM
Sulfate	1,710	100		mg/L	100	1/13/2004 12:02:00 PM
Surr: Dichloroacetic acid (surr)	115	80-120		%REC	100	1/13/2004 12:02:00 PM
ALKALINITY		**E310.1**				Analyst: **LMD**
Alkalinity, Bicarbonate (As CaCO3)	290	5.00		mg/L	1	1/7/2004
Alkalinity, Carbonate (As CaCO3)	ND	5.00		mg/L	1	1/7/2004
Alkalinity, Hydroxide (As CaCO3)	ND	5.00		mg/L	1	1/7/2004
Alkalinity, Total (As CaCO3)	290	5.00		mg/L	1	1/7/2004
CONDUCTIVITY		**E120.1**				Analyst: **LMD**
Specific Conductance	9,120	1.00		µmhos/cm	1	1/13/2004

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT:	Navajo Refining Company	**Client Sample ID:**	Inj. Wells
Work Order:	0401037	**Collection Date:**	1/6/2004 11:00:00 AM
Project:	Inj Wells		
Lab ID:	0401037-01	**Matrix:**	WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **LMD**
pH	8.43	0.100		pH units	1	1/7/2004
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **JBA**
Total Dissolved Solids (Residue, Filterable)	6,070	10.0		mg/L	1	1/9/2004

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	P - Dual Column results percent difference > 40%
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Jan 26 2004*

CLIENT: Navajo Refining Company

Work Order: 0401037

Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MBLK Sample ID: **MBLKW2-010804** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 13:47**

Client ID: Run ID: **ICP4500_040109A** SeqNo: **415496** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0010								
Calcium	ND	0.50								
Chromium	ND	0.0020								
Cobalt	ND	0.0020								
Copper	ND	0.0020								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	0.001716	0.0050								J

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

LCS Sample ID: **MLCSW2-010804** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 13:51**
Client ID: Run ID: **ICP4500_040109A** SeqNo: **415497** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05256	0.010	0.05	0	105	80-120	0			
Arsenic	0.05054	0.0050	0.05	0	101	80-120	0			
Barium	0.04876	0.0050	0.05	0	97.5	80-120	0			
Beryllium	0.0475	0.0020	0.05	0	95	80-120	0			
Boron	0.4771	0.020	0.5	0	95.4	80-120	0			
Cadmium	0.0518	0.0010	0.05	0	104	80-120	0			
Calcium	4.894	0.50	5	0	97.9	80-120	0			
Chromium	0.05086	0.0020	0.05	0	102	80-120	0			
Cobalt	0.05016	0.0020	0.05	0	100	80-120	0			
Copper	0.04837	0.0020	0.05	0	96.7	80-120	0			
Iron	4.695	0.20	5	0	93.9	80-120	0			
Lead	0.04803	0.0050	0.05	0	96.1	80-120	0			
Magnesium	5.03	0.20	5	0	101	80-120	0			
Manganese	0.05203	0.0050	0.05	0	104	80-120	0			
Nickel	0.05031	0.0050	0.05	0	101	80-120	0			
Potassium	5.001	0.20	5	0	100	80-120	0			
Selenium	0.04876	0.0050	0.05	0	97.5	80-120	0			
Silver	0.04905	0.0050	0.05	0	98.1	80-120	0			
Sodium	4.934	0.20	5	0	98.7	80-120	0			
Vanadium	0.05047	0.0050	0.05	0	101	80-120	0			
Zinc	0.04962	0.0050	0.05	0	99.2	80-120	0			

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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MS Sample ID: **0401037-01CMS** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:41**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415583** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1386	0.020	0.05	0.09293	91.3	75-125	0			
Arsenic	0.1628	0.010	0.05	0.1222	81.2	75-125	0			
Barium	0.0922	0.010	0.05	0.04055	103	75-125	0			
Beryllium	0.054	0.0040	0.05	0	108	75-125	0			
Boron	1.149	0.040	0.5	0.5787	114	75-125	0			
Cadmium	0.04433	0.0020	0.05	0	88.7	75-125	0			
Calcium	76.14	1.0	5	73.6	50.8	75-125	0			SO
Chromium	0.05061	0.0040	0.05	0.002633	96	75-125	0			
Cobalt	0.04941	0.0040	0.05	0.002671	93.5	75-125	0			
Copper	0.0442	0.0040	0.05	0.003364	81.7	75-125	0			
Iron	4.765	0.40	5	0.4238	86.8	75-125	0			
Lead	0.05518	0.010	0.05	0	110	75-125	0			
Magnesium	23.02	0.40	5	19.15	77.4	75-125	0			
Manganese	0.07355	0.010	0.05	0.02789	91.3	75-125	0			
Nickel	0.05067	0.010	0.05	0.008268	84.8	75-125	0			
Potassium	85.96	0.40	5	82.03	78.6	75-125	0			O
Selenium	0.1903	0.010	0.05	0.1686	43.4	75-125	0			S
Silver	0.04085	0.010	0.05	0.0006825	80.3	75-125	0			
Sodium	400	0.40	5	400	0	75-125	0			SEO
Vanadium	0.05781	0.010	0.05	0.007067	101	75-125	0			
Zinc	0.07138	0.010	0.05	0.03574	71.3	75-125	0			S

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P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MSD Sample ID: **0401037-01CMSD** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:46**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415584** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1337	0.020	0.05	0.09293	81.5	75-125	0.1386	3.6	25	
Arsenic	0.1586	0.010	0.05	0.1222	72.8	75-125	0.1628	2.61	25	S
Barium	0.08998	0.010	0.05	0.04055	98.9	75-125	0.0922	2.44	25	
Beryllium	0.0523	0.0040	0.05	0	105	75-125	0.054	3.2	25	
Boron	1.11	0.040	0.5	0.5787	106	75-125	1.149	3.45	25	
Cadmium	0.0431	0.0020	0.05	0	86.2	75-125	0.04433	2.81	25	
Calcium	74.74	1.0	5	73.6	22.6	75-125	76.14	1.86	25	SO
Chromium	0.05029	0.0040	0.05	0.002633	95.3	75-125	0.05061	0.634	25	
Cobalt	0.04901	0.0040	0.05	0.002671	92.7	75-125	0.04941	0.813	25	
Copper	0.04405	0.0040	0.05	0.003364	81.4	75-125	0.0442	0.34	25	
Iron	4.732	0.40	5	0.4238	86.2	75-125	4.765	0.695	25	
Lead	0.05415	0.010	0.05	0	108	75-125	0.05518	1.88	25	
Magnesium	22.37	0.40	5	19.15	64.4	75-125	23.02	2.86	25	S
Manganese	0.07227	0.010	0.05	0.02789	68.8	75-125	0.07355	1.76	25	
Nickel	0.05102	0.010	0.05	0.008268	85.5	75-125	0.05067	0.688	25	
Potassium	81.97	0.40	5	82.03	-1.2	75-125	85.96	4.75	25	SO
Selenium	0.179	0.010	0.05	0.1686	20.8	75-125	0.1903	6.12	25	S
Silver	0.03939	0.010	0.05	0.0006825	77.4	75-125	0.04085	3.64	25	
Sodium	400	0.40	5	400	0	75-125	400	0	25	SEO
Vanadium	0.0578	0.010	0.05	0.007067	101	75-125	0.05781	0.0173	25	
Zinc	0.07034	0.010	0.05	0.03574	69.2	75-125	0.07138	1.47	25	S

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:18**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415578** Prep Date: **1/8/2004** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1275	0.025	0	0	0	0-0	0.13	1.94	25	
Calcium	73.74	2.5	0	0	0	0-0	78.49	6.24	25	
Magnesium	19.87	1.0	0	0	0	0-0	21.18	6.38	25	
Potassium	80.79	1.0	0	0	0	0-0	84.06	3.97	25	

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:37**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415582** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09187	0.020	0	0	0	0-0	0.09293	1.15	25	
Barium	0.03947	0.010	0	0	0	0-0	0.04055	2.7	25	
Beryllium	ND	0.0040	0	0	0	0-0	0	0	25	
Boron	0.5767	0.040	0	0	0	0-0	0.5787	0.346	25	
Cadmium	ND	0.0020	0	0	0	0-0	0	0	25	
Chromium	0.002171	0.0040	0	0	0	0-0	0.002633	0	25	J
Cobalt	0.002721	0.0040	0	0	0	0-0	0.002671	0	25	J
Copper	0.003462	0.0040	0	0	0	0-0	0.003364	0	25	J
Iron	0.4287	0.40	0	0	0	0-0	0.4238	1.15	25	
Lead	ND	0.010	0	0	0	0-0	0	0	25	
Manganese	0.02741	0.010	0	0	0	0-0	0.02789	1.74	25	
Nickel	0.008235	0.010	0	0	0	0-0	0.008268	0	25	J
Selenium	0.1445	0.010	0	0	0	0-0	0.1686	15.4	25	
Silver	0.0005242	0.010	0	0	0	0-0	0.0006825	0	25	J
Vanadium	0.006497	0.010	0	0	0	0-0	0.007067	0	25	J
Zinc	0.0343	0.010	0	0	0	0-0	0.03574	4.11	25	

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/14/04 13:04**
Client ID: **Inj. Wells** Run ID: **ICP4500_040114A** SeqNo: **416724** Prep Date: **1/8/2004** DF: **200**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	2229	40	0	0	0	0-0	2285	2.48	25	

The following samples were analyzed in this batch: 0401037-01C

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7710** InstrumentID: **Mercury**

MBLK Sample ID: **GBLKW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:33**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416950** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:34**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416951** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00487	0.00020	0.005	0	97.4	83-115	0			

LCSD Sample ID: **GLCSDW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:36**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416952** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00496	0.00020	0.005	0	99.2	83-115	0.00487	1.83	20	

MS Sample ID: **0401037-01CMS** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:41**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416955** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00507	0.00020	0.005	0.000045	100	70-124	0			

MSD Sample ID: **0401037-01CMSD** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:42**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416956** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00495	0.00020	0.005	0.000045	98.1	70-124	0.00507	2.4	20	

DUP Sample ID: **0401037-01CDUP** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:39**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416954** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0.000045	0	20	

The following samples were analyzed in this batch: 0401037-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

MBLK Sample ID: **SBLKW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 16:47**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416012** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	85.07	0	100	0	85.1	39-153	0			
Surr: 2-Fluorobiphenyl	76.23	0	100	0	76.2	40-147	0			
Surr: 2-Fluorophenol	45.21	0	100	0	45.2	21-100	0			
Surr: 4-Terphenyl-d14	75.82	0	100	0	75.8	39-141	0			
Surr: Nitrobenzene-d5	86.87	0	100	0	86.9	37-140	0			
Surr: Phenol-d6	28.99	0	100	0	29	11-100	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

LCS Sample ID: **SLCSW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 17:13**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416013** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.87	10	50	0	83.7	50-115	0			
2,4,5-Trichlorophenol	82.2	10	100	0	82.2	72-118	0			
2,4,6-Trichlorophenol	83.51	10	100	0	83.5	72-117	0			
2-Methylnaphthalene	42.34	10	50	0	84.7	47-122	0			
2-Methylphenol	71.03	10	100	0	71	51-115	0			
2-Nitroaniline	44.61	10	50	0	89.2	73-119	0			
2-Nitrophenol	87.53	10	100	0	87.5	60-119	0			
3-Nitroaniline	41.16	10	50	0	82.3	61-118	0			
4-Methylphenol	96.92	10	150	0	64.6	44-115	0			
4-Nitroaniline	41.84	10	50	0	83.7	61-123	0			
4-Nitrophenol	38.84	10	100	0	38.8	17-100	0			
Acenaphthene	41.32	10	50	0	82.6	68-115	0			
Acenaphthylene	41.87	10	50	0	83.7	67-116	0			
Anthracene	44.55	10	50	0	89.1	72-124	0			
Benz(a)anthracene	40.18	10	50	0	80.4	55-131	0			
Benzidine	13.03	10	50	0	26.1	10-115	0			
Hexachloroethane	38.29	10	50	0	76.6	46-115	0			
Indeno(1,2,3-cd)pyrene	41.53	10	50	0	83.1	42-123	0			
Isophorone	45.89	10	50	0	91.8	63-117	0			
N-Nitrosodi-n-propylamine	43.72	10	50	0	87.4	67-115	0			
N-Nitrosodimethylamine	25.46	10	50	0	50.9	28-115	0			
N-Nitrosodiphenylamine	50.02	10	50	0	100	72-144	0			
Naphthalene	42.08	10	50	0	84.2	52-115	0			
Nitrobenzene	45.06	10	50	0	90.1	65-115	0			
Pentachlorophenol	84.64	10	100	0	84.6	65-123	0			
Phenanthrene	43.23	10	50	0	86.5	69-119	0			
Phenol	33.5	10	100	0	33.5	16-115	0			
Pyrene	38.95	10	50	0	77.9	51-130	0			
Surr: 2,4,6-Tribromophenol	91.94	0	100	0	91.9	39-153	0			
Surr: 2-Fluorobiphenyl	80.16	0	100	0	80.2	40-147	0			
Surr: 2-Fluorophenol	50.59	0	100	0	50.6	21-100	0			
Surr: 4-Terphenyl-d14	81.09	0	100	0	81.1	39-141	0			
Surr: Nitrobenzene-d5	90.59	0	100	0	90.6	37-140	0			
Surr: Phenol-d6	33.67	0	100	0	33.7	11-100	0			

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O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

LCSD Sample ID: **SLCSDW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 17:39**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416014** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	42.41	10	50	0	84.8	50-115	41.87	1.29	30	
2,4,5-Trichlorophenol	86.29	10	100	0	86.3	72-118	82.2	4.86	30	
2,4,6-Trichlorophenol	83.53	10	100	0	83.5	72-117	83.51	0.0281	30	
2-Methylnaphthalene	42.19	10	50	0	84.4	47-122	42.34	0.363	30	
2-Methylphenol	67.08	10	100	0	67.1	51-115	71.03	5.73	30	
2-Nitroaniline	46.08	10	50	0	92.2	73-119	44.61	3.24	30	
2-Nitrophenol	87.97	10	100	0	88	60-119	87.53	0.504	30	
3-Nitroaniline	41.24	10	50	0	82.5	61-118	41.16	0.186	30	
4-Methylphenol	90.96	10	150	0	60.6	44-115	96.92	6.35	30	
4-Nitroaniline	43.08	10	50	0	86.2	61-123	41.84	2.91	30	
4-Nitrophenol	34.89	10	100	0	34.9	17-100	38.84	10.7	30	
Acenaphthene	41.74	10	50	0	83.5	68-115	41.32	1.02	30	
Acenaphthylene	42.98	10	50	0	86	67-116	41.87	2.62	30	
Anthracene	45.95	10	50	0	91.9	72-124	44.55	3.09	30	
Benz(a)anthracene	40.72	10	50	0	81.4	55-131	40.18	1.34	30	
Benzidine	19.19	10	50	0	38.4	10-115	13.03	38.2	30	R
Hexachloroethane	38.69	10	50	0	77.4	46-115	38.29	1.04	30	
Indeno(1,2,3-cd)pyrene	42.3	10	50	0	84.6	42-123	41.53	1.84	30	
Isophorone	46.42	10	50	0	92.8	63-117	45.89	1.15	30	
N-Nitrosodi-n-propylamine	43.74	10	50	0	87.5	67-115	43.72	0.0428	30	
N-Nitrosodimethylamine	25.93	10	50	0	51.9	28-115	25.46	1.83	30	
N-Nitrosodiphenylamine	47.58	10	50	0	95.2	72-144	50.02	5.01	30	
Naphthalene	41.54	10	50	0	83.1	52-115	42.08	1.29	30	
Nitrobenzene	45.04	10	50	0	90.1	65-115	45.06	0.0543	30	
Pentachlorophenol	82.68	10	100	0	82.7	65-123	84.64	2.34	30	
Phenanthrene	44.72	10	50	0	89.4	69-119	43.23	3.38	30	
Phenol	33.12	10	100	0	33.1	16-115	33.5	1.13	30	
Pyrene	39.61	10	50	0	79.2	51-130	38.95	1.68	30	
Surr: 2,4,6-Tribromophenol	95.4	0	100	0	95.4	39-153	91.94	3.69	30	
Surr: 2-Fluorobiphenyl	81.18	0	100	0	81.2	40-147	80.16	1.26	30	
Surr: 2-Fluorophenol	48.13	0	100	0	48.1	21-100	50.59	4.98	30	
Surr: 4-Terphenyl-d14	80.48	0	100	0	80.5	39-141	81.09	0.752	30	
Surr: Nitrobenzene-d5	91.03	0	100	0	91	37-140	90.59	0.48	30	
Surr: Phenol-d6	30.39	0	100	0	30.4	11-100	33.67	10.3	30	

The following samples were analyzed in this batch: 0401037-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MBLK Sample ID: **VBLKW-0113** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 11:22**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416622** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	46	5.0	50	0	92	70-130		0		
Surr: 4-Bromofluorobenzene	48.08	5.0	50	0	96.2	70-130		0		
Surr: Dibromofluoromethane	47.06	5.0	50	0	94.1	70-130		0		
Surr: Toluene-d8	46.05	5.0	50	0	92.1	70-130		0		

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

LCS Sample ID: **VLCSW-0113** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 10:28**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416621** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.27	5.0	50	0	96.5	75-118	0			
1,1,2,2-Tetrachloroethane	47.46	5.0	50	0	94.9	79-120	0			
1,1,2-Trichloroethane	48.13	5.0	50	0	96.3	81-119	0			
1,1-Dichloroethane	46.83	5.0	50	0	93.7	80-120	0			
1,1-Dichloroethene	46.32	5.0	50	0	92.6	80-120	0			
1,2-Dichloroethane	53.01	5.0	50	0	106	80-120	0			
2-Butanone	98.39	10	100	0	98.4	70-130	0			
2-Chloroethyl vinyl ether	90.24	10	100	0	90.2	72-120	0			
4-Methyl-2-pentanone	93.51	10	100	0	93.5	78-120	0			
Acetone	113.7	10	100	0	114	60-135	0			
Benzene	46.07	5.0	50	0	92.1	82-119	0			
Bromodichloromethane	51.5	5.0	50	0	103	81-119	0			
Bromoform	50.25	5.0	50	0	100	80-120	0			
Bromomethane	44.31	5.0	50	0	88.6	75-130	0			
Carbon disulfide	89.23	10	100	0	89.2	78-120	0			
Carbon tetrachloride	49.21	5.0	50	0	98.4	77-120	0			
Chlorobenzene	47.05	5.0	50	0	94.1	82-118	0			
Chloroethane	46.72	5.0	50	0	93.4	78-122	0			
Chloroform	49.02	5.0	50	0	98	78-120	0			
Chloromethane	58.33	5.0	50	0	117	75-125	0			
cis-1,3-Dichloropropene	50.41	5.0	50	0	101	81-120	0			
Dibromochloromethane	52.1	5.0	50	0	104	81-118	0			
Ethylbenzene	46.77	5.0	50	0	93.5	82-120	0			
m,p-Xylene	90.81	10	100	0	90.8	82-122	0			
Methylene chloride	47.03	10	50	0	94.1	80-122	0			
Styrene	47.64	5.0	50	0	95.3	82-121	0			
Tetrachloroethene	47.51	5.0	50	0	95	79-118	0			
Toluene	45.44	5.0	50	0	90.9	81-119	0			
trans-1,3-Dichloropropene	50.2	5.0	50	0	100	82-121	0			
Trichloroethene	49.17	5.0	50	0	98.3	78-118	0			
Vinyl acetate	98.67	10	100	0	98.7	75-120	0			
Vinyl chloride	45.63	2.0	50	0	91.3	73-127	0			
Xylenes, Total	138.2	15	150	0	92.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	45.82	5.0	50	0	91.6	70-130	0			
Surr: 4-Bromofluorobenzene	48.79	5.0	50	0	97.6	70-130	0			
Surr: Dibromofluoromethane	46.9	5.0	50	0	93.8	70-130	0			
Surr: Toluene-d8	45.11	5.0	50	0	90.2	70-130	0			

ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MS Sample ID: **0401069-08AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 13:36**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416623** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.27	5.0	50	0	88.5	75-125	0			
1,1,2,2-Tetrachloroethane	43.73	5.0	50	0	87.5	75-125	0			
1,1,2-Trichloroethane	45.29	5.0	50	0	90.6	75-125	0			
1,1-Dichloroethane	71.66	5.0	50	31.2	80.9	75-125	0			
1,1-Dichloroethene	104.2	5.0	50	72.85	62.8	65-130	0			S
1,2-Dichloroethane	49.86	5.0	50	0	99.7	70-130	0			
2-Butanone	91.73	10	100	0	91.7	64-128	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	75-125	0			S
4-Methyl-2-pentanone	95.27	10	100	0	95.3	75-125	0			
Acetone	100.1	10	100	0	100	60-130	0			
Benzene	44.02	5.0	50	0	88	76-127	0			
Bromodichloromethane	48.53	5.0	50	0	97.1	75-125	0			
Bromoform	47.61	5.0	50	0	95.2	75-125	0			
Bromomethane	40.26	5.0	50	0	80.5	75-125	0			
Carbon disulfide	81.69	10	100	0	81.7	75-125	0			
Carbon tetrachloride	44.78	5.0	50	0	89.6	70-130	0			
Chlorobenzene	44.91	5.0	50	0	89.8	75-126	0			
Chloroethane	41.03	5.0	50	0	82.1	70-130	0			
Chloroform	47.25	5.0	50	0	94.5	75-125	0			
Chloromethane	53.47	5.0	50	0	107	75-125	0			
cis-1,3-Dichloropropene	47.2	5.0	50	0	94.4	75-125	0			
Dibromochloromethane	49.07	5.0	50	0	98.1	75-125	0			
Ethylbenzene	43.36	5.0	50	0	86.7	75-125	0			
m,p-Xylene	85.04	10	100	0	85	75-125	0			
Methylene chloride	45.19	10	50	0	90.4	75-125	0			
Styrene	40.66	5.0	50	0	81.3	75-125	0			
Tetrachloroethene	43.81	5.0	50	0	87.6	75-125	0			
Toluene	42.83	5.0	50	0	85.7	76-125	0			
trans-1,3-Dichloropropene	48.07	5.0	50	0	96.1	70-130	0			
Trichloroethene	47.03	5.0	50	0	94.1	71-120	0			
Vinyl acetate	88.29	10	100	0	88.3	75-125	0			
Vinyl chloride	39.74	2.0	50	0	79.5	60-135	0			
Xylenes, Total	129	15	150	0	86	75-125	0			
Surr: 1,2-Dichloroethane-d4	46.19	5.0	50	0	92.4	70-130	0			
Surr: 4-Bromofluorobenzene	49.78	5.0	50	0	99.6	70-130	0			
Surr: Dibromofluoromethane	47.52	5.0	50	0	95	70-130	0			
Surr: Toluene-d8	45.36	5.0	50	0	90.7	70-130	0			

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O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MSD Sample ID: **0401069-08AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 14:03**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416624** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.32	5.0	50	0	103	75-125	44.27	14.8	20	
1,1,2,2-Tetrachloroethane	47.81	5.0	50	0	95.6	75-125	43.73	8.9	20	
1,1,2-Trichloroethane	49.39	5.0	50	0	98.8	75-125	45.29	8.66	20	
1,1-Dichloroethane	77.65	5.0	50	31.2	92.9	75-125	71.66	8.03	20	
1,1-Dichloroethene	115.3	5.0	50	72.85	84.9	65-130	104.2	10.1	20	
1,2-Dichloroethane	53.62	5.0	50	0	107	70-130	49.86	7.27	20	
2-Butanone	103.2	10	100	0	103	64-128	91.73	11.8	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	75-125	0	0	20	S
4-Methyl-2-pentanone	100.9	10	100	0	101	75-125	95.27	5.77	20	
Acetone	107.4	10	100	0	107	60-130	100.1	7.09	20	
Benzene	49.06	5.0	50	0	98.1	76-127	44.02	10.8	20	
Bromodichloromethane	53.21	5.0	50	0	106	75-125	48.53	9.21	20	
Bromoform	51.56	5.0	50	0	103	75-125	47.61	7.95	20	
Bromomethane	49.35	5.0	50	0	98.7	75-125	40.26	20.3	20	R
Carbon disulfide	96.66	10	100	0	96.7	75-125	81.69	16.8	20	
Carbon tetrachloride	52.5	5.0	50	0	105	70-130	44.78	15.9	20	
Chlorobenzene	49.89	5.0	50	0	99.8	75-126	44.91	10.5	20	
Chloroethane	49.74	5.0	50	0	99.5	70-130	41.03	19.2	20	
Chloroform	51.66	5.0	50	0	103	75-125	47.25	8.93	20	
Chloromethane	59.73	5.0	50	0	119	75-125	53.47	11.1	20	
cis-1,3-Dichloropropene	52.48	5.0	50	0	105	75-125	47.2	10.6	20	
Dibromochloromethane	52.99	5.0	50	0	106	75-125	49.07	7.7	20	
Ethylbenzene	49.24	5.0	50	0	98.5	75-125	43.36	12.7	20	
m,p-Xylene	97.66	10	100	0	97.7	75-125	85.04	13.8	20	
Methylene chloride	49.52	10	50	0	99	75-125	45.19	9.15	20	
Styrene	44.29	5.0	50	0	88.6	75-125	40.66	8.54	20	
Tetrachloroethene	51.19	5.0	50	0	102	75-125	43.81	15.5	20	
Toluene	47.76	5.0	50	0	95.5	76-125	42.83	10.9	20	
trans-1,3-Dichloropropene	52.51	5.0	50	0	105	70-130	48.07	8.81	20	
Trichloroethene	52.68	5.0	50	0	105	71-120	47.03	11.3	20	
Vinyl acetate	92.99	10	100	0	93	75-125	88.29	5.19	20	
Vinyl chloride	47.65	2.0	50	0	95.3	60-135	39.74	18.1	20	
Xylenes, Total	146.6	15	150	0	97.8	75-125	129	12.8	20	
Surr: 1,2-Dichloroethane-d4	46.39	5.0	50	0	92.8	70-130	46.19	0.429	20	
Surr: 4-Bromofluorobenzene	49.42	5.0	50	0	98.8	70-130	49.78	0.719	20	
Surr: Dibromofluoromethane	47.17	5.0	50	0	94.3	70-130	47.52	0.757	20	
Surr: Toluene-d8	45.25	5.0	50	0	90.5	70-130	45.36	0.243	20	

The following samples were analyzed in this batch: 0401037-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18133** InstrumentID: **Wet Chemistry**

LCS Sample ID: **WLCSW1-010704** Test Code: **E150.1** Units: **pH units** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414646** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	85-115	0			

DUP Sample ID: **0401037-01D DUP** Test Code: **E150.1** Units: **pH units** Analysis Date: **01/07/04 0:00**
Client ID: **Inj. Wells** Run ID: **WET CHEMISTRY_0401** SeqNo: **414648** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.45	0.10	0	0	0	0-0	8.43	0.237	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18137** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WMBW1-010704** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414715** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-010704** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414716** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1000	5.0	1000	0	100	80-120	0			

DUP Sample ID: **0312297-03D DUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414723** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	675.2	5.0	0	0	0	0-0	680.2	0.738	20	
Alkalinity, Carbonate (As CaCO3)	40.01	5.0	0	0	0	0-0	40.01	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	715.2	5.0	0	0	0	0-0	720.2	0.698	20	

DUP Sample ID: **0401024-03D DUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414727** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	600.2	5.0	0	0	0	0-0	605.2	0.83	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	600.2	5.0	0	0	0	0-0	605.2	0.83	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18194** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WBLKW1-010904** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415951** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **WLCSW1-010904** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415952** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1010	10	1000	0	101	80-120	0			

DUP Sample ID: **0401020-01EDUP** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	*849*	*10*	*0*	*0*	*0*	*0-0*	*841*	*0.947*	*20*	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18217** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WMBW1-011304** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416394** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-011304** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416395** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1410	1.0	1409	0	100	80-120	0			

DUP Sample ID: **0401087-03B DUP** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416400** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	978	1.0	0	0	0	0-0	975	0.307	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18226** InstrumentID: **IC201**

MBLK Sample ID: **WBLKW1-011204** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 15:27**
Client ID: Run ID: **IC201_040112A** SeqNo: **416579** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Dichloroacetic acid (surr)	5.31	0.10	5	0	106	80-120	0			

LCS Sample ID: **WLCSW1-011204** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 15:59**
Client ID: Run ID: **IC201_040112A** SeqNo: **416580** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.86	0.50	10	0	98.6	80-120	0			
Sulfate	9.43	1.0	10	0	94.3	80-120	0			
Surr: Dichloroacetic acid (surr)	5.43	0.10	5	0	109	80-120	0			

LCSD Sample ID: **WLCSDW1-01120** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 16:32**
Client ID: Run ID: **IC201_040112A** SeqNo: **416581** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	10	0.50	10	0	100	80-120	9.86	1.41	20	
Sulfate	9.46	1.0	10	0	94.6	80-120	9.43	0.318	20	
Surr: Dichloroacetic acid (surr)	5.45	0.10	5	0	109	80-120	5.43	0.368	20	

MS Sample ID: **0401071-02EMS** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 19:47**
Client ID: Run ID: **IC201_040112A** SeqNo: **416587** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	50.26	0.50	10	39.6	107	75-125	0			E
Sulfate	43.9	1.0	10	33.82	101	75-125	0			
Surr: Dichloroacetic acid (surr)	5.29	0.10	5	0	106	80-120	0			

MSD Sample ID: **0401071-02EMSD** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 20:19**
Client ID: Run ID: **IC201_040112A** SeqNo: **416588** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	50.1	0.50	10	39.6	105	75-125	50.26	0.319	20	E
Sulfate	43.91	1.0	10	33.82	101	75-125	43.9	0.0228	20	
Surr: Dichloroacetic acid (surr)	5.28	0.10	5	0	106	80-120	5.29	0.189	20	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18226** InstrumentID: **IC201**

DUP Sample ID: **0401071-02EDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 19:14**
Client ID: Run ID: **IC201_040112A** SeqNo: **416586** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	39.6	0.50	0	0	0	0-0	39.6	0	20	
Sulfate	33.89	1.0	0	0	0	0-0	33.82	0.207	20	
Surr: Dichloroacetic acid (surr)	5.31	0.10	5	0	106	80-120	5.34	0.563	20	

DUP Sample ID: **0401071-03EDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 23:34**
Client ID: Run ID: **IC201_040112A** SeqNo: **416593** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	57.2	1.0	0	0	0	0-0	57.1	0.175	20	
Sulfate	12.82	2.0	0	0	0	0-0	12.9	0.622	20	
Surr: Dichloroacetic acid (surr)	10.68	0.20	10	0	107	80-120	10.56	1.13	20	

DUP Sample ID: **0401037-01D DUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/13/04 12:35**
Client ID: **Inj. Wells** Run ID: **IC201_040112A** SeqNo: **416601** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2451	50	0	0	0	0-0	2442	0.368	20	
Sulfate	1719	100	0	0	0	0-0	1708	0.642	20	
Surr: Dichloroacetic acid (surr)	567	10	500	0	113	80-120	573	1.05	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab
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☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page ____ of ____

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 0401037

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	INJ WELLS	A	Volatiles Select (8260)
Work Order		Project Number		B	Semivolatiles select (8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Tot. Metals WQCC+ Cations(6020/7000)
Send Report To	Jeff Byrd / Charlie Plymale	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions: Cl, SO4
				F	Alkalinity
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Solids: TDS
Fax	(505) 746-5421	Fax	(505) 746-5421	I	Conductivity
e-Mail Address		e-Mail Address		J	Uranium

No.	Sample Description	Date	Time	Matrix	Preserv.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. wells	1/6/04	1100			10	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Charlie Plymale

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☐ STD 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ Other ☐ 24 Hour

Results Due Date:

Relinquished by:	Date: 1/6/04	Time: 1615	Received by:	Notes:	
Relinquished by:	Date:	Time:	Received by (Laboratory): PICHARD SAHO 1-7-04 0825	e-Lab Cooler ID	Cooler Temp
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☐ Level I Std QC ☐ TRRP CheckList
☐ Level II Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 1/7/2004 9:25:00 AM

Work Order Number 0401037 Received by: RSZ

Checklist completed by _____ 1/7/04 Reviewed by _____ 1/8/04

Signature Date Initials Date

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.9 C	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab, Inc **Date:** *January 13, 2004*

CLIENT: e-Lab, Inc
Project: 0401037
Work Order: 0401065

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0401065-01	0401037-01F	Water		1/8/2004	1/8/2004	☐

e-Lab, Inc

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

Date: *Jan 13 2004*

QC BATCH REPORT

Batch ID: R18598 **InstrumentID:** WETCHEM

LCS **Sample ID:** WLCSW1-123003 **Test Code:** ASTM D93 **Units:** °F **Analysis Date** 01/08/04 0:00
Client ID: **Run ID:** WETCHEM_040108E **SeqNo:** 270178 **Prep Date:** **DF:** 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	80.6	0	61	0	99.5	97.8-102.7	0			

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

QC BATCH REPORT

Batch ID: R18853 InstrumentID: WETCHEM

MBLK Sample ID: WBLKW1-011204 Test Code: EPA 7.3.4.2 Units: mg/Kg Analysis Date 01/12/04 0:00
Client ID: Run ID: WETCHEM_040112C SeqNo: 270845 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

QC BATCH REPORT

Batch ID: R18667 InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKR1-011204** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **01/13/04 0:00**
Client ID: Run ID: **WETCHEM_040113F** SeqNo: **271121** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	0.030								

LCS Sample ID: **WLCSR1-011204** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **01/13/04 0:00**
Client ID: Run ID: **WETCHEM_040113F** SeqNo: **271122** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	4.22	0.75	16.95	0	24.9	5-100		0		

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Page 2321 of 5828

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0401037

e-Lab, Inc.

[illegible]

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Laboratories

e-Lab Inc
5352 122nd Ave.

TEL: (616) 399-6070
FAX: (616) 399-6771

Holland, MI 49423-5363

Acct #:

Jan 01, 2004

Sample ID	Matrix	Collection Date	Requested Tests SW-846	SW-8010				
0401037-01F (by Wells)	Water	1/1/2004 11:33						

Comments: Please analyze for Benzene, Toluene, Ethylbenzene, and Total Xylenes by method SW-8021B. Results due by 1/10/04.

		Date/Time		Date/Time
Relinquished by:			Received by:	
Relinquished by:			Received by:	

e-Lab, Inc

Sample Receipt Checklist

Client Name: ELAB-HOU

Work Order Number: 2402065

Matrix: Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ✔	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✔	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✔
Chain of custody present?	Yes ✔	No	
Chain of custody signed when relinquished and received?	Yes ✔	No	
Chain of custody agrees with sample labels?	Yes ✔	No	
Samples in proper container/bottle?	Yes ✔	No	
Sample containers intact?	Yes ✔	No	
Sufficient sample volume for indicated test?	Yes ✔	No	
All samples received within holding time?	Yes ✔	No	
Container/Temp Blank temperature in compliance?	Yes ✔	No	
Temperature(s)/Thermometer(s):	0.2°C		
Water - VOA vials have zero headspace?	Yes	No	No VOA vials submitted ✔
Water - pH acceptable upon receipt?	Yes ✔	No	N/A

Adjusted? Checked by:

Login Notes

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted: Date contacted: Person contacted:

Contacted by: Regarding:

Comments:

Corrective Action:

e-Lab, Inc.

CUSTODY SEAL

Page 2324 of 5828

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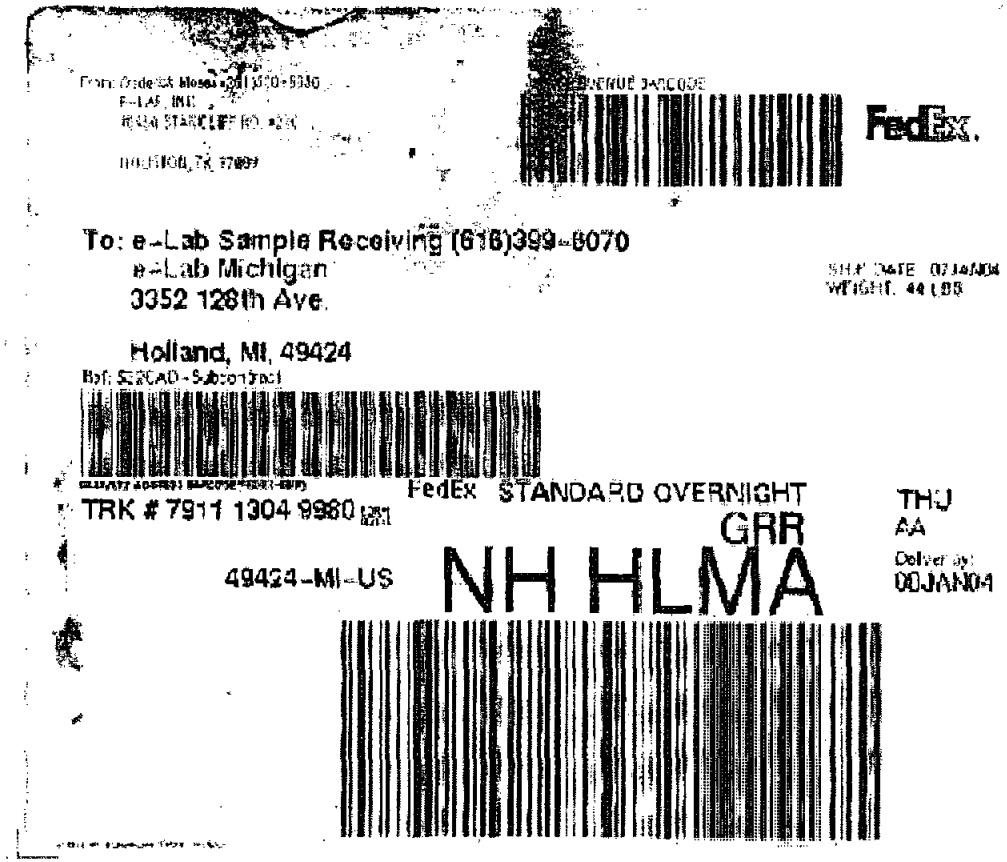

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ARS AMERICAN RADIATION SERVICES, INC.

2609 N. River Rd. Port Allen, Louisiana 70767

1(800) 401 - 4277 Fax: (225) 381-2996

ARS Tracking Number:	ARS040096	**P.O. Number:**	NA
Client I.D.:	0401037-01E (Inj. Wells)	**ARS Sample I.D.:**	ARS040096-218
Date Sampled:	1/6/04	**Date Received:**	1/08/04
Time Sample:	11:00	**Time Received:**	1200
Type of Sample:	Liquid	**Date of Report:**	1/23/04
NELAP Certification #:	E87558	**L. A. Agency Interest #:**	30658

Analysis Description	Analysis Result	Analysis Error ±2σ	Detection Limit	Analysis Unit	Analysis Test Method	Analysis Date & Time	Analysis Technician
Total Uranium	0.000	0.000	0.0003	mg/L	ASTM D 5174-97	1/23/04 1535	SM

Quality Assurance Review

Notes: American Radiation Services, Inc assumes no liability for the use or interpretation of any analytical results provided other than the cost of the performed analysis itself. Reproduction of this report in less than full requires the written consent of the client

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ARS
AMERICAN RADIATION SERVICES, INC.

2609 North River Road Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2998

Notes:

Comments:

1.0) Soil and Sludge analysis are reported on a wet basis or an as received basis unless otherwise indicated.
2.0) The data in this report are within the limits of uncertainty specified in the reference method unless specified.
3.0) Modified analysis procedures are procedures that are modified to meet the certain specifications. An example may be the use of a water method to analyze a solid matrix due to the lack of an officially recognized procedure for the analysis of the solid matrix.
4.0) Derived Air Concentrations and Effluent Release Concentrations are obtained from 10 CFR 20 Appendix B.
5.0) Total activity is actually total gamma activity and is determined utilizing the prominent gamma emitters from the naturally occurring radioactive decay chains and other prominent radioactive nuclides. Total activity may be lower than the actual total activity due to the extent of secular equilibrium achieved in the various decay chains at the time of analysis. The total activity is not representative of nuclides that emit solely alpha or beta particles.
6.0) Ra-226 is determined via secular equilibrium with its daughter, Actinium 228. (Gamma Spectroscopy only).
7.0) U-238 is determined via secular equilibrium with its daughter, Thorium 234. (Gamma Spectroscopy only).
8.0) All gamma spectroscopy was performed utilizing high purity germanium detectors (HPGe).

Method References:

1.0) EPA 600/4-80-032, Prescribed Procedures for the Measurements of Radioactivity in Drinking Water, August 1980.
2.0) Standard Methods for Examination of Water and Waste Water, 18th, 1992.
3.0) EPA SW-846, Test Methods for Evaluating Solid Waste, Third Edition, (9/86). (Updated through 1995).
4.0) EPA 600/4/79-020, Methods for Chemical Analysis of Water and Waste, March 1983.
5.0) HASL 300

Definitions:

1.0)	BDL	Analyte not detected because the value was below the detection limit.
2.0)	ND	Not detected above the detection limit.
3.0)	Detection Limit	The minimum amount of the analyte that ARS can detect utilizing the specific analysis.
4.0)	B	Method Blank
5.0)	D	Method Duplicate
6.0)	MS	Matrix Spike
7.0)	S	Spike
8.0)	RS	Reference Spike
9.0)	*SC	Subcontracted out to another qualified laboratory
10.0)	NR	Not Referenced
11.0)	N/A	Not Applicable

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

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REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
MAY 0 3 2004
OIL CONSERVATION DIVISION

April 30, 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2003 to December 31, 2003. We have disposed a total of 17,626,541 bbls. of fluid into the two wells as of December 31, 2003. This is broken down as follows: 12,102,707 bbls. into WDW-1 and 5,523,834 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Oct-03	196	414	75	198	311	138	260	389	156	6802	10663	4727	210,858
Nov-03	202	472	109	184	310	86	234	386	88	6317	10624	2935	195,817
Dec-03	260	458	30	184	280	93	76	258	15	6315	9610	3182	195,770
WDW-2													
Oct-03	231	431	120	157	210	123	152	159	146	5374	7190	4201	166,606
Nov-03	209	500	0	138	225	14	144	171	35	4733	7722	490	146,717
Dec-03	289	500	64	125	175	84	162	178	143	4294	6009	2864	133,110

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5

October 25, 2003

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj. Wells Work Order : **0310201**

Dear Jeff Byrd,

e-Lab, Inc. received 1 sample on 10/17/2003 8:45:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 16.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Lora Terrill

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: **0310201**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0310201-01	Inj. Wells	Wate1		10/15/2003 10:2(	10/17/2003 08:4:	☐

e-Lab, Inc. **Date:** *October 24, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: 0310201

Case Narrative

Semivolatile Batch 6980 MS/MSD was an unrelated sample.

Semivolatile sample Inj. Wells had surrogate diluted out.

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells
Lab ID: 0310201-01

Client Sample ID: Inj. Wells
Collection Date: 10/15/2003 10:20:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **10/21/2003**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Methylnaphthalene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Methylphenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Nitrophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
3-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Methylphenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Nitrophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Acenaphthene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Acenaphthylene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Aniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Anthracene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Benz(a)anthracene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Benzidine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Hexachloroethane	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Isophorone	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Naphthalene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Nitrobenzene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Pentachlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Phenanthrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Phenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Pyrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Surr: 2,4,6-Tribromophenol	74.6	39-153		%REC	1	10/22/2003 8:15:00 PM
Surr: 2-Fluorobiphenyl	78.4	40-147		%REC	1	10/22/2003 8:15:00 PM
Surr: 2-Fluorophenol	46.2	21-100		%REC	1	10/22/2003 8:15:00 PM
Surr: 4-Terphenyl-d14	89.6	39-141		%REC	1	10/22/2003 8:15:00 PM
Surr: Nitrobenzene-d5	79.1	37-140		%REC	1	10/22/2003 8:15:00 PM
Surr: Phenol-d6	11.7	11-100		%REC	1	10/22/2003 8:15:00 PM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells
Lab ID: 0310201-01

Client Sample ID: Inj. Wells
Collection Date: 10/15/2003 10:20:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
2-Butanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	10/20/2003 8:45:00 PM
2-Hexanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Acetone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Benzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromoform	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromomethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Carbon disulfide	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chlorobenzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloroform	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Ethylbenzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
m,p-Xylene	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Methylene chloride	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Styrene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Toluene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Trichloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Vinyl acetate	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Vinyl chloride	ND	2.0		µg/L	1	10/20/2003 8:45:00 PM
Xylenes, Total	ND	15		µg/L	1	10/20/2003 8:45:00 PM
Surr: 1,2-Dichloroethane-d4	93.2	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: 4-Bromofluorobenzene	97.8	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: Dibromofluoromethane	92.4	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: Toluene-d8	98.7	70-130		%REC	1	10/20/2003 8:45:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Oct 24 2003*

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-031021** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 15:18**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383368** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	91.19	0	100	0	91.2	39-153	0			
Surr: 2-Fluorobiphenyl	86.44	0	100	0	86.4	40-147	0			
Surr: 2-Fluorophenol	57.73	0	100	0	57.7	21-100	0			
Surr:4-Terphenyl-d14	99.11	0	100	0	99.1	39-141	0			
Surr: Nitrobenzene-d5	84.06	0	100	0	84.1	37-140	0			
Surr: Phenol-d6	37.66	0	100	0	37.7	11-100	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-031021** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 15:44**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383369** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.01	10	50	0	82	50-115	0			
2,4,5-Trichlorophenol	92.43	10	100	0	92.4	72-118	0			
2,4,6-Trichlorophenol	89.2	10	100	0	89.2	72-117	0			
2-Methylnaphthalene	41.91	10	50	0	83.8	47-122	0			
2-Methylphenol	81.69	10	100	0	81.7	51-115	0			
2-Nitroaniline	45.36	10	50	0	90.7	73-119	0			
2-Nitrophenol	87.88	10	100	0	87.9	60-119	0			
3-Nitroaniline	45.23	10	50	0	90.5	61-118	0			
4-Methylphenol	115.5	10	150	0	77	44-115	0			
4-Nitroaniline	45.56	10	50	0	91.1	61-123	0			
4-Nitrophenol	50.68	10	100	0	50.7	17-100	0			
Acenaphthene	42.5	10	50	0	85	68-115	0			
Acenaphthylene	42.55	10	50	0	85.1	67-116	0			
Anthracene	46.52	10	50	0	93	72-124	0			
Benz(a)anthracene	46.45	10	50	0	92.9	55-131	0			
Benzidine	51.57	10	50	0	103	10-115	0			
Hexachloroethane	41.88	10	50	0	83.8	46-115	0			
Indeno(1,2,3-cd)pyrene	40.36	10	50	0	80.7	42-123	0			
Isophorone	42.5	10	50	0	85	63-117	0			
N-Nitrosodi-n-propylamine	45.15	10	50	0	90.3	67-115	0			
N-Nitrosodimethylamine	33.23	10	50	0	66.5	28-115	0			
N-Nitrosodiphenylamine	49.76	10	50	0	99.5	72-144	0			
Naphthalene	40.62	10	50	0	81.2	52-115	0			
Nitrobenzene	41.76	10	50	0	83.5	65-115	0			
Pentachlorophenol	91.23	10	100	0	91.2	65-123	0			
Phenanthrene	44.56	10	50	0	89.1	69-119	0			
Phenol	45.92	10	100	0	45.9	16-115	0			
Pyrene	44.48	10	50	0	89	51-130	0			
Surr: 2,4,6-Tribromophenol	93.38	0	100	0	93.4	39-153	0			
Surr: 2-Fluorobiphenyl	85.03	0	100	0	85	40-147	0			
Surr: 2-Fluorophenol	65.69	0	100	0	65.7	21-100	0			
Surr:4-Terphenyl-d14	98.75	0	100	0	98.8	39-141	0			
Surr:Nitrobenzene-d5	83.84	0	100	0	83.8	37-140	0			
Surr: Phenol-d6	44.85	0	100	0	44.9	11-100	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MS Sample ID: **0310174-12HMS** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 19:55**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383378** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	18.97	10	50	0	37.9	45-115	0			S
2,4,5-Trichlorophenol	90.44	10	100	0	90.4	47-129	0			
2,4,6-Trichlorophenol	88.68	10	100	0	88.7	45-127	0			
2-Methylnaphthalene	33.15	10	50	11.91	42.5	30-144	0			
2-Methylphenol	2711	10	100	2579	131	42-115	0			SEO
2-Nitroaniline	48.01	10	50	0	96	48-129	0			
2-Nitrophenol	40.54	10	100	0	40.5	32-144	0			
3-Nitroaniline	26.7	10	50	0	53.4	23-122	0			
4-Methylphenol	2974	10	150	2835	92.2	35-115	0			EO
4-Nitroaniline	32.79	10	50	0	65.6	12-138	0			
4-Nitrophenol	35.6	10	100	0	35.6	10-80	0			
Acenaphthene	44.82	10	50	0	89.6	55-117	0			
Acenaphthylene	42.11	10	50	0	84.2	39-128	0			
Anthracene	49.1	10	50	0	98.2	58-129	0			
Benz(a)anthracene	48.52	10	50	0	97	42-135	0			
Benzidine	ND	10	50	0	0	10-127	0			S
Hexachloroethane	42.95	10	50	0	85.9	45-115	0			
Indeno(1,2,3-cd)pyrene	44.37	10	50	0	88.7	32-132	0			
Isophorone	17.44	10	50	0	34.9	51-122	0			S
N-Nitrosodi-n-propylamine	43.76	10	50	0	87.5	55-115	0			
N-Nitrosodimethylamine	31.94	10	50	0	63.9	30-115	0			
N-Nitrosodiphenylamine	61.5	10	50	0	123	47-146	0			
Naphthalene	36.21	10	50	16.34	39.7	46-116	0			S
Nitrobenzene	20.72	10	50	0	41.4	48-126	0			S
Pentachlorophenol	102.6	10	100	8.707	93.9	53-134	0			
Phenanthrene	45.2	10	50	0	90.4	57-123	0			
Phenol	1008	10	100	955.5	52.6	10-115	0			EO
Pyrene	45.06	10	50	0	90.1	40-130	0			
Surr: 2,4,6-Tribromophenol	95.33	0	100	0	95.3	39-153	0			
Surr: 2-Fluorobiphenyl	86.28	0	100	0	86.3	40-147	0			
Surr: 2-Fluorophenol	45.38	0	100	0	45.4	21-100	0			
Surr:4-Terphenyl-d14	97.58	0	100	0	97.6	39-141	0			
Surr: Nitrobenzene-d5	43.03	0	100	0	43	37-140	0			
Surr: Phenol-d6	31.82	0	100	0	31.8	11-100	0			

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MSD Sample ID: **0310174-12HMSD** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 20:21**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383379** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	18.64	10	50	0	37.3	45-115	18.97	1.78	30	S
2,4,5-Trichlorophenol	86.96	10	100	0	87	47-129	90.44	3.92	30	
2,4,6-Trichlorophenol	87.88	10	100	0	87.9	45-127	88.68	0.898	30	
2-Methylnaphthalene	32.04	10	50	11.91	40.3	30-144	33.15	3.4	30	
2-Methylphenol	2801	10	100	2579	222	42-115	2711	3.27	30	SEO
2-Nitroaniline	44.91	10	50	0	89.8	48-129	48.01	6.67	30	
2-Nitrophenol	40.18	10	100	0	40.2	32-144	40.54	0.888	30	
3-Nitroaniline	24.78	10	50	0	49.6	23-122	26.7	7.47	30	
4-Methylphenol	3082	10	150	2835	164	35-115	2974	3.57	30	SEO
4-Nitroaniline	28.65	10	50	0	57.3	12-138	32.79	13.5	30	
4-Nitrophenol	32.5	10	100	0	32.5	10-80	35.6	9.11	30	
Acenaphthene	46.5	10	50	0	93	55-117	44.82	3.68	30	
Acenaphthylene	41.12	10	50	0	82.2	39-128	42.11	2.38	30	
Anthracene	48.02	10	50	0	96	58-129	49.1	2.21	30	
Benz(a)anthracene	48.14	10	50	0	96.3	42-135	48.52	0.8	30	
Benzidine	ND	10	50	0	0	10-127	0	0	30	S
Hexachloroethane	41.52	10	50	0	83	45-115	42.95	3.38	30	
Indeno(1,2,3-cd)pyrene	46.05	10	50	0	92.1	32-132	44.37	3.73	30	
Isophorone	17.42	10	50	0	34.8	51-122	17.44	0.135	30	S
N-Nitrosodi-n-propylamine	49.82	10	50	0	99.6	55-115	43.76	12.9	30	
N-Nitrosodimethylamine	30.36	10	50	0	60.7	30-115	31.94	5.08	30	
N-Nitrosodiphenylamine	58.53	10	50	0	117	47-146	61.5	4.95	30	
Naphthalene	35.8	10	50	16.34	38.9	46-116	36.21	1.13	30	S
Nitrobenzene	20.54	10	50	0	41.1	48-126	20.72	0.86	30	S
Pentachlorophenol	103.1	10	100	8.707	94.4	53-134	102.6	0.478	30	
Phenanthrene	44.85	10	50	0	89.7	57-123	45.2	0.777	30	
Phenol	1038	10	100	955.5	82.2	10-115	1008	2.89	30	EO
Pyrene	42.82	10	50	0	85.6	40-130	45.06	5.09	30	
Surr: 2,4,6-Tribromophenol	95.87	0	100	0	95.9	39-153	95.33	0.564	30	
Surr: 2-Fluorobiphenyl	85.2	0	100	0	85.2	40-147	86.28	1.26	30	
Surr: 2-Fluorophenol	46.55	0	100	0	46.6	21-100	45.38	2.55	30	
Surr:4-Terphenyl-d14	96.93	0	100	0	96.9	39-141	97.58	0.662	30	
Surr: Nitrobenzene-d5	42.33	0	100	0	42.3	37-140	43.03	1.65	30	
Surr: Phenol-d6	32.6	0	100	0	32.6	11-100	31.82	2.41	30	

Thefollowingsampleswereanalyzedinthisbatch: 0310201-01B

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MBLK Sample ID: **VBLKW-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 11:43**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382009** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10							-	-
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	49.28	5.0	50	0	98.6	70-130		0		
Surr: 4-Bromofluorobenzene	47.48	5.0	50	0	95	70-130		0		
Surr: Dibromofluoromethane	48.16	5.0	50	0	96.3	70-130		0		
Surr: Toluene-d8	48.14	5.0	50	0	96.3	70-130		0		

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

LCS Sample ID: **VLCSW-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 10:50**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382007** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.84	5.0	50	0	104	75-118	0			
1,1,2,2-Tetrachloroethane	42.06	5.0	50	0	84.1	79-120	0			
1,1,2-Trichloroethane	46.47	5.0	50	0	92.9	81-119	0			
1,1-Dichloroethane	51.25	5.0	50	0	103	80-120	0			
1,1-Dichloroethene	52.57	5.0	50	0	105	80-120	0			
1,2-Dichloroethane	51.23	5.0	50	0	102	80-120	0			
2-Butanone	77.82	10	100	0	77.8	70-130	0			
2-Chloroethyl vinyl ether	81.24	10	100	0	81.2	72-120	0			
2-Hexanone	74.07	10	100	0	74.1	70-130	0			
4-Methyl-2-pentanone	80.5	10	80.5	0	100	78-120	0			
Acetone	93.56	10	100	0	93.6	60-135	0			
Benzene	45.85	5.0	50	0	91.7	82-119	0			
Bromodichloromethane	50.42	5.0	50	0	101	81-119	0			
Bromoform	45.67	5.0	50	0	91.3	80-120	0			
Bromomethane	54.57	5.0	50	0	109	75-130	0			
Carbon disulfide	102.2	10	100	0	102	78-120	0			
Carbontetrachloride	51.9	5.0	50	0	104	77-120	0			
Chlorobenzene	47.42	5.0	50	0	94.8	82-118	0			
Chloroethane	52.45	5.0	50	0	105	78-122	0			
Chloroform	51.96	5.0	50	0	104	78-120	0			
Chloromethane	47.7	5.0	50	0	95.4	75-125	0			
cis-1,3-Dichloropropene	51.78	5.0	50	0	104	81-120	0			
Dibromochloromethane	49.32	5.0	50	0	98.6	81-118	0			
Ethylbenzene	48.97	5.0	50	0	97.9	82-120	0			
m,p-Xylene	96.43	10	100	0	96.4	82-122	0			
Methylene chloride	46.51	10	50	0	93	80-122	0			
Styrene	51	5.0	50	0	102	82-121	0			
Tetrachloroethene	47.65	5.0	50	0	95.3	79-118	0			
Toluene	49.89	5.0	50	0	99.8	81-119	0			
trans-1,3-Dichloropropene	55.18	5.0	50	0	110	82-121	0			
Trichloroethene	47.62	5.0	50	0	95.2	78-118	0			
Vinyl acetate	96.94	10	100	0	96.9	75-120	0			
Vinyl chloride	49.42	2.0	50	0	98.8	73-127	0			
Xylenes, Total	145.1	15	150	0	96.7	80-120	0			
Surr:1,2-Dichloroethane-d4	47.63	5.0	50	0	95.3	70-130	0			
Surr:4-Bromofluorobenzene	49.73	5.0	50	0	99.5	70-130	0			
Surr: Dibromofluoromethane	46.8	5.0	50	0	93.6	70-130	0			
Surr: Toluene-d8	48.32	5.0	50	0	96.6	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

LCSD Sample ID: **VLCSWD-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 11:17**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382008** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.43	5.0	50	0	103	75-118	51.84	0.799	20	
1,1,2,2-Tetrachloroethane	43.84	5.0	50	0	87.7	79-120	42.06	4.15	20	
1,1,2-Trichloroethane	46.47	5.0	50	0	92.9	81-119	46.47	0.0198	20	
1,1-Dichloroethane	51.55	5.0	50	0	103	80-120	51.25	0.578	20	
1,1-Dichloroethene	51.22	5.0	50	0	102	80-120	52.57	2.6	20	
1,2-Dichloroethane	51.49	5.0	50	0	103	80-120	51.23	0.509	20	
2-Butanone	81.55	10	100	0	81.5	70-130	77.82	4.68	20	
2-Chloroethyl vinyl ether	82.95	10	100	0	83	72-120	81.24	2.09	20	
2-Hexanone	74.74	10	100	0	74.7	70-130	74.07	0.894	20	
4-Methyl-2-pentanone	80.05	10	80.5	0	99.4	78-120	80.5	0.554	20	
Acetone	102.9	10	100	0	103	60-135	93.56	9.47	20	
Benzene	45.39	5.0	50	0	90.8	82-119	45.85	1	20	
Bromodichloromethane	50.57	5.0	50	0	101	81-119	50.42	0.301	20	
Bromoform	47	5.0	50	0	94	80-120	45.67	2.86	20	
Bromomethane	55.24	5.0	50	0	110	75-130	54.57	1.23	20	
Carbon disulfide	100.7	10	100	0	101	78-120	102.2	1.5	20	
Carbon tetrachloride	50.98	5.0	50	0	102	77-120	51.9	1.79	20	
Chlorobenzene	47.31	5.0	50	0	94.6	82-118	47.42	0.231	20	
Chloroethane	52.14	5.0	50	0	104	78-122	52.45	0.594	20	
Chloroform	51.97	5.0	50	0	104	78-120	51.96	0.0219	20	
Chloromethane	48.58	5.0	50	0	97.2	75-125	47.7	1.83	20	
cis-1,3-Dichloropropene	51.82	5.0	50	0	104	81-120	51.78	0.0892	20	
Dibromochloromethane	49.37	5.0	50	0	98.7	81-118	49.32	0.0895	20	
Ethylbenzene	47.29	5.0	50	0	94.6	82-120	48.97	3.47	20	
m,p-Xylene	95.49	10	100	0	95.5	82-122	96.43	0.978	20	
Methylene chloride	46.3	10	50	0	92.6	80-122	46.51	0.464	20	
Styrene	49.99	5.0	50	0	100	82-121	51	1.99	20	
Tetrachloroethene	46.33	5.0	50	0	92.7	79-118	47.65	2.8	20	
Toluene	47.25	5.0	50	0	94.5	81-119	49.89	5.43	20	
trans-1,3-Dichloropropene	54.77	5.0	50	0	110	82-121	55.18	0.75	20	
Trichloroethene	47.13	5.0	50	0	94.3	78-118	47.62	1.02	20	
Vinyl acetate	96.85	10	100	0	96.9	75-120	96.94	0.0844	20	
Vinyl chloride	49.39	2.0	50	0	98.8	73-127	49.42	0.0583	20	
Xylenes, Total	143.2	15	150	0	95.4	80-120	145.1	1.32	20	
Surr: 1,2-Dichloroethane-d4	47.7	5.0	50	0	95.4	70-130	47.63	0.151	20	
Surr: 4-Bromofluorobenzene	48.96	5.0	50	0	97.9	70-130	49.73	1.55	20	
Surr: Dibromofluoromethane	47.21	5.0	50	0	94.4	70-130	46.8	0.871	20	
Surr: Toluene-d8	47.64	5.0	50	0	95.3	70-130	48.32	1.42	20	

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P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MS Sample ID: **0310129-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 14:54**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382249** Prep Date: DF: **10000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	514900	50,000	500000	0	103	75-125	0			
1,1,2,2-Tetrachloroethane	470600	50,000	500000	0	94.1	75-125	0			
1,1,2-Trichloroethane	495800	50,000	500000	0	99.2	75-125	0			
1,1-Dichloroethane	543300	50,000	500000	0	109	75-125	0			
1,1-Dichloroethene	505000	50,000	500000	0	101	65-130	0			
1,2-Dichloroethane	519900	50,000	500000	0	104	70-130	0			
2-Butanone	864200	100,000	1000000	0	86.4	64-128	0			
2-Chloroethyl vinyl ether	810300	100,000	1000000	0	81	75-125	0			
2-Hexanone	732000	100,000	1000000	0	73.2	72-124	0			
4-Methyl-2-pentanone	884400	100,000	805000	0	110	75-125	0			
Acetone	835700	100,000	1000000	0	83.6	60-130	0			
Benzene	479300	50,000	500000	0	95.9	76-127	0			
Bromodichloromethane	495000	50,000	500000	0	99	75-125	0			
Bromoform	481900	50,000	500000	0	96.4	75-125	0			
Bromomethane	524400	50,000	500000	0	105	75-125	0			
Carbon disulfide	1008000	100,000	1000000	0	101	75-125	0			
Carbon tetrachloride	504600	50,000	500000	0	101	70-130	0			
Chlorobenzene	487300	50,000	500000	0	97.5	75-126	0			
Chloroethane	503700	50,000	500000	0	101	70-130	0			
Chloroform	524400	50,000	500000	0	105	75-125	0			
Chloromethane	482100	50,000	500000	0	96.4	75-125	0			
cis-1,3-Dichloropropene	526400	50,000	500000	0	105	75-125	0			
Dibromochloromethane	498000	50,000	500000	0	99.6	75-125	0			
Ethylbenzene	505800	50,000	500000	0	101	75-125	0			
m,p-Xylene	1006000	100,000	1000000	0	101	75-125	0			
Methylene chloride	475700	100,000	500000	0	95.1	75-125	0			
Styrene	524400	50,000	500000	0	105	75-125	0			
Tetrachloroethene	481200	50,000	500000	0	96.2	75-125	0			
Toluene	500000	50,000	500000	0	100	76-125	0			
trans-1,3-Dichloropropene	550400	50,000	500000	0	110	70-130	0			
Trichloroethene	470200	50,000	500000	0	94	71-120	0			
Vinyl acetate	1084000	100,000	1000000	0	108	75-125	0			
Vinyl chloride	470400	20,000	500000	0	94.1	60-135	0			
Xylenes, Total	1510000	150,000	1500000	0	101	75-125	0			
Surr:1,2-Dichloroethane-d4	470000	50,000	500000	0	94	70-130	0			
Surr:4-Bromofluorobenzene	500000	50,000	500000	0	100	70-130	0			
Surr:Dibromofluoromethane	466000	50,000	500000	0	93.2	70-130	0			
Surr:Toluene-d8	495300	50,000	500000	0	99.1	70-130	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MSD Sample ID: **0310129-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 15:21**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382250** Prep Date: DF: **10000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	503400	50,000	500000	0	101	75-125	514900	2.25	20	
1,1,2,2-Tetrachloroethane	457100	50,000	500000	0	91.4	75-125	470600	2.9	20	
1,1,2-Trichloroethane	485300	50,000	500000	0	97.1	75-125	495800	2.13	20	
1,1-Dichloroethane	535400	50,000	500000	0	107	75-125	543300	1.47	20	
1,1-Dichloroethene	496900	50,000	500000	0	99.4	65-130	505000	1.63	20	
1,2-Dichloroethane	504100	50,000	500000	0	101	70-130	519900	3.08	20	
2-Butanone	833400	100,000	1000000	0	83.3	64-128	864200	3.63	20	
2-Chloroethyl vinyl ether	839400	100,000	1000000	0	83.9	75-125	810300	3.52	20	
2-Hexanone	721800	100,000	1000000	0	72.2	72-124	732000	1.4	20	
4-Methyl-2-pentanone	851400	100,000	805000	0	106	75-125	884400	3.81	20	
Acetone	804100	100,000	1000000	0	80.4	60-130	835700	3.85	20	
Benzene	478800	50,000	500000	0	95.8	76-127	479300	0.12	20	
Bromodichloromethane	494200	50,000	500000	0	98.8	75-125	495000	0.148	20	
Bromoform	466100	50,000	500000	0	93.2	75-125	481900	3.34	20	
Bromomethane	503900	50,000	500000	0	101	75-125	524400	3.99	20	
Carbon disulfide	994300	100,000	1000000	0	99.4	75-125	1008000	1.39	20	
Carbon tetrachloride	494300	50,000	500000	0	98.9	70-130	504600	2.07	20	
Chlorobenzene	478200	50,000	500000	0	95.6	75-126	487300	1.89	20	
Chloroethane	494300	50,000	500000	0	98.9	70-130	503700	1.88	20	
Chloroform	517000	50,000	500000	0	103	75-125	524400	1.42	20	
Chloromethane	476900	50,000	500000	0	95.4	75-125	482100	1.08	20	
cis-1,3-Dichloropropene	524200	50,000	500000	0	105	75-125	526400	0.431	20	
Dibromochloromethane	484000	50,000	500000	0	96.8	75-125	498000	2.85	20	
Ethylbenzene	496400	50,000	500000	0	99.3	75-125	505800	1.87	20	
m,p-Xylene	980500	100,000	1000000	0	98	75-125	1006000	2.61	20	
Methylene chloride	463800	100,000	500000	0	92.8	75-125	475700	2.53	20	
Styrene	514600	50,000	500000	0	103	75-125	524400	1.89	20	
Tetrachloroethene	470400	50,000	500000	0	94.1	75-125	481200	2.27	20	
Toluene	492200	50,000	500000	0	98.4	76-125	500000	1.57	20	
trans-1,3-Dichloropropene	534100	50,000	500000	0	107	70-130	550400	3.01	20	
Trichloroethene	460100	50,000	500000	0	92	71-120	470200	2.17	20	
Vinyl acetate	1059000	100,000	1000000	0	106	75-125	1084000	2.32	20	
Vinyl chloride	458000	20,000	500000	0	91.6	60-135	470400	2.66	20	
Xylenes, Total	1471000	150,000	1500000	0	98.1	75-125	1510000	2.6	20	
Surr: 1,2-Dichloroethane-d4	464700	50,000	500000	0	92.9	70-130	470000	1.14	20	
Surr: 4-Bromofluorobenzene	501900	50,000	500000	0	100	70-130	500000	0.37	20	
Surr: Dibromofluoromethane	462700	50,000	500000	0	92.5	70-130	466000	0.712	20	
Surr: Toluene-d8	491000	50,000	500000	0	98.2	70-130	495300	0.873	20	

Thefollowingsampleswereanalyzedinthisbatch: 0310201-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
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Received by OCD: 5/16/2022 2:12:41 PM

e-Lab
QUALITY • INTEGRITY • SERVICE

☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager:		e-Lab Work Order #:	193020

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Wells	A	See List
Work Order		Project Number		B	
Company Name	Navajo	Bill To Company		C	
Send Report To	Charlie Plymale / Darrell Moore	Invoice Attn.	Charlie Plymale	D	
Address	501 E. Main	Address		E	
				F	
City/State/Zip	Artesia NM 88210	City/State/Zip		G	
Phone	505 748 3311	Phone		H	
Fax	505 746 5421	Fax		I	
e-Mail Address				J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Wells	10/15/03	1020			5	X										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign: Charlie Plymale

Shipment Method: FedEx

Required Turnaround Time: ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
	10/16/03	1615		
Relinquished by:	Date:	Time:	Received by (Laboratory): 10/16 10/17/03 08:45	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

QC Package: (Check Box Below)
Level II: Standard QC
Level III: Standard QC + Raw Data
Level IV: SW846 Methods/CLP
Other: _____

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 10/17/2003 8:45:00 AM

Work Order Number 0310201 Received by: RNG

Checklist completed by [signature] 10/17/03 (Signature / Date) Reviewed by LT 10/17/03 (Initials / Date)

Matrix: W Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.5c	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

October 9, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2003 to September 30, 2003. We have disposed a total of 16,577,663 bbls. of fluid into the two wells as of September 30, 2003. This is broken down as follows: 11,500,262 bbls. into WDW-1 and 5,077,401 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jul-03	191	274	94	181	215	143	477	500	417	6204	7387	4901	192,336
Aug-03	155	251	52	186	245	102	378	497	203	6361	8386	3486	197,176
Sep-03	190	353	113	198	284	110	364	500	249	6802	9737	3775	210,853
WDW-2													
Jul-03	195	285	59	142	164	83	138	144	132	4868	5630	2847	150,906
Aug-03	175	261	72	137	172	80	151	193	142	4707	5909	2759	145,913
Sep-03	216	389	57	152	203	43	152	161	148	5220	6958	1486	161,810

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5887

September 08, 2003

Darrell Moore
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5281
Fax: (505) 746-5421

Re: Inj. Wells Work Order : **0308325**

Dear Darrell Moore,

e-Lab, Inc. received 1 sample on 8/29/2003 9:30:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 14. If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Georgia Jones

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: **0308325**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0308325-01	Injection Wells	Wate1		8/28/2003 10:0C	8/29/2003 09:3C	☐

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells
Lab ID: 0308325-01

Client Sample ID: Injection Wells
Collection Date: 8/28/2003 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **8/29/2003**		Analyst: **HV**
1,2,4-Trichlorobenzene	U	0.83	10		µg/L	1	9/3/2003
2,4,5-Trichlorophenol	U	2.4	10		µg/L	1	9/3/2003
2,4,6-Trichlorophenol	U	2.7	10		µg/L	1	9/3/2003
2-Methylnaphthalene	U	0.86	10		µg/L	1	9/3/2003
2-Methylphenol	U	2.8	10		µg/L	1	9/3/2003
2-Nitroaniline	U	1.1	10		µg/L	1	9/3/2003
2-Nitrophenol	U	2.6	10		µg/L	1	9/3/2003
3-Nitroaniline	U	1.2	10		µg/L	1	9/3/2003
4-Methylphenol	U	4.6	10		µg/L	1	9/3/2003
4-Nitroaniline	U	0.95	10		µg/L	1	9/3/2003
4-Nitrophenol	U	2.7	10		µg/L	1	9/3/2003
Acenaphthene	U	1.1	10		µg/L	1	9/3/2003
Acenaphthylene	U	1.0	10		µg/L	1	9/3/2003
Aniline	U	10	10		µg/L	1	9/3/2003
Anthracene	U	0.36	10		µg/L	1	9/3/2003
Benz(a)anthracene	U	0.77	10		µg/L	1	9/3/2003
Benzidine	U	0.34	10		µg/L	1	9/3/2003
Hexachloroethane	U	0.64	10		µg/L	1	9/3/2003
Indeno(1,2,3-cd)pyrene	U	0.77	10		µg/L	1	9/3/2003
Isophorone	U	1.2	10		µg/L	1	9/3/2003
N-Nitrosodi-n-propylamine	U	1.5	10		µg/L	1	9/3/2003
N-Nitrosodimethylamine	U	1.1	10		µg/L	1	9/3/2003
N-Nitrosodiphenylamine	U	1.3	10		µg/L	1	9/3/2003
Naphthalene	U	1.0	10		µg/L	1	9/3/2003
Nitrobenzene	U	1.7	10		µg/L	1	9/3/2003
Pentachlorophenol	U	1.5	10		µg/L	1	9/3/2003
Phenanthrene	U	1.2	10		µg/L	1	9/3/2003
Phenol	U	3.5	10		µg/L	1	9/3/2003
Pyrene	U	0.92	10		µg/L	1	9/3/2003
Surr: 2,4,6-Tribromophenol	103	0	10-123		%REC	1	9/3/2003
Surr: 2-Fluorobiphenyl	92.9	0	43-116		%REC	1	9/3/2003
Surr: 2-Fluorophenol	37.2	0	21-100		%REC	1	9/3/2003
Surr: 4-Terphenyl-d14	99.3	0	33-141		%REC	1	9/3/2003
Surr: Nitrobenzene-d5	88.4	0	35-114		%REC	1	9/3/2003
Surr: Phenol-d6	23.9	0	10-94		%REC	1	9/3/2003
VOLATILES BY GC/MS		**SW8260**			Prep Date:		Analyst: **HLBW**
1,1,1-Trichloroethane	U	0.62	5.0		µg/L	1	9/4/2003
1,1,2,2-Tetrachloroethane	U	0.58	5.0		µg/L	1	9/4/2003
1,1,2-Trichloroethane	U	0.41	5.0		µg/L	1	9/4/2003

Qualifiers

U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells
Lab ID: 0308325-01

Client Sample ID: Injection Wells
Collection Date: 8/28/2003 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	U	0.43	5.0		µg/L	1	9/4/2003
1,1-Dichloroethene	U	0.53	5.0		µg/L	1	9/4/2003
1,2-Dichloroethane	U	0.38	5.0		µg/L	1	9/4/2003
2-Butanone	3.5	0.70	10	J	µg/L	1	9/4/2003
2-Chloroethyl vinyl ether	U	0.63	10		µg/L	1	9/4/2003
2-Hexanone	U	1.1	10		µg/L	1	9/4/2003
4-Methyl-2-pentanone	U	0.64	10		µg/L	1	9/4/2003
Acetone	41	1.2	10		µg/L	1	9/4/2003
Benzene	U	0.66	5.0		µg/L	1	9/4/2003
Bromodichloromethane	U	0.45	5.0		µg/L	1	9/4/2003
Bromoform	U	0.40	5.0		µg/L	1	9/4/2003
Bromomethane	U	0.70	5.0		µg/L	1	9/4/2003
Carbon disulfide	U	0.76	10		µg/L	1	9/4/2003
Carbon tetrachloride	U	0.65	5.0		µg/L	1	9/4/2003
Chlorobenzene	U	0.43	5.0		µg/L	1	9/4/2003
Chloroethane	U	0.56	5.0		µg/L	1	9/4/2003
Chloroform	U	0.52	5.0		µg/L	1	9/4/2003
Chloromethane	U	1.1	5.0		µg/L	1	9/4/2003
cis-1,3-Dichloropropene	U	0.47	5.0		µg/L	1	9/4/2003
Dibromochloromethane	U	0.53	5.0		µg/L	1	9/4/2003
Ethylbenzene	1.8	0.77	5.0	J	µg/L	1	9/4/2003
m,p-Xylene	3.0	1.3	10	J	µg/L	1	9/4/2003
Methyl tert-butyl ether	1.9	0.30	5.0	J	µg/L	1	9/4/2003
Methylene chloride	U	0.60	10		µg/L	1	9/4/2003
Styrene	U	0.56	5.0		µg/L	1	9/4/2003
Tetrachloroethene	U	0.43	5.0		µg/L	1	9/4/2003
Toluene	U	0.69	5.0		µg/L	1	9/4/2003
trans-1,3-Dichloropropene	U	0.44	5.0		µg/L	1	9/4/2003
Trichloroethene	U	0.70	5.0		µg/L	1	9/4/2003
Vinyl acetate	U	0.92	10		µg/L	1	9/4/2003
Vinyl chloride	U	0.79	2.0		µg/L	1	9/4/2003
Xylenes, Total	3.0	1.8	15	J	µg/L	1	9/4/2003
Surr: 1,2-Dichloroethane-d4	84.2	0	70-130		%REC	1	9/4/2003
Surr: 4-Bromofluorobenzene	92.1	0	70-130		%REC	1	9/4/2003
Surr: Dibromofluoromethane	93.3	0	70-130		%REC	1	9/4/2003
Surr: Toluene-d8	97.8	0	70-130		%REC	1	9/4/2003

Qualifiers

U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Sep 05 2003*

CLIENT: Navajo Refining Company

QC BATCH REPORT

Work Order: 0308325

Project: Inj. Wells

Batch ID: **6544** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 20:27**

Client ID: Run ID: **SV-2_030902A** SeqNo: **363914** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	U	10								
2,4,5-Trichlorophenol	U	10								
2,4,6-Trichlorophenol	U	10								
2-Methylnaphthalene	U	10								
2-Methylphenol	U	10								
2-Nitroaniline	U	10								
2-Nitrophenol	U	10								
3-Nitroaniline	U	10								
4-Methylphenol	U	10								
4-Nitroaniline	U	10								
4-Nitrophenol	U	10								
Acenaphthene	U	10								
Acenaphthylene	U	10								
Aniline	U	10								
Anthracene	U	10								
Benz(a)anthracene	U	10								
Benzidine	U	10								
Hexachloroethane	U	10								
Indeno(1,2,3-cd)pyrene	U	10								
Isophorone	U	10								
N-Nitrosodi-n-propylamine	U	10								
N-Nitrosodimethylamine	U	10								
N-Nitrosodiphenylamine	U	10								
Naphthalene	U	10								
Nitrobenzene	U	10								
Pentachlorophenol	U	10								
Phenanthrene	U	10								
Phenol	U	10								
Pyrene	U	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	94.95	0	100	0	94.9	10-123	0			
Surr: 2-Fluorobiphenyl	83.93	0	100	0	83.9	43-116	0			
Surr: 2-Fluorophenol	47.33	0	100	0	47.3	21-100	0			
Surr:4-Terphenyl-d14	96.76	0	100	0	96.8	33-141	0			
Surr: Nitrobenzene-d5	83.45	0	100	0	83.5	35-114	0			
Surr: Phenol-d6	29.37	0	100	0	29.4	10-94	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6544** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 20:52**
Client ID: Run ID: **SV-2_030902A** SeqNo: **363915** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	36.24	10	50	0	72.5	51-110	0			
2,4,5-Trichlorophenol	99.21	10	100	0	99.2	55-130	0			
2,4,6-Trichlorophenol	96.5	10	100	0	96.5	55-130	0			
2-Methylnaphthalene	37.11	10	50	0	74.2	50-125	0			
2-Methylphenol	75.67	10	100	0	75.7	45-120	0			
2-Nitroaniline	48.86	10	50	0	97.7	55-130	0			
2-Nitrophenol	92.95	10	100	0	92.9	55-125	0			
3-Nitroaniline	50.32	10	50	0	101	55-120	0			
4-Methylphenol	102.9	10	150	0	68.6	40-120	0			
4-Nitroaniline	49.51	10	50	0	99	60-130	0			
4-Nitrophenol	56.88	10	100	0	56.9	25-100	0			
Acenaphthene	44.06	10	50	0	88.1	50-120	0			
Acenaphthylene	44.04	10	50	0	88.1	55-130	0			
Anthracene	49.51	10	50	0	99	60-130	0			
Benz(a)anthracene	47.1	10	50	0	94.2	60-130	0			
Benzidine	18.48	10	50	0	37	10-85	0			
Hexachloroethane	33.99	10	50	0	68	40-120	0			
Indeno(1,2,3-cd)pyrene	48.89	10	50	0	97.8	60-130	0			
Isophorone	47.07	10	50	0	94.1	60-130	0			
N-Nitrosodi-n-propylamine	46.01	10	50	0	92	55-120	0			
N-Nitrosodimethylamine	25.79	10	50	0	51.6	35-110	0			
N-Nitrosodiphenylamine	53.89	10	50	0	108	60-130	0			
Naphthalene	38.88	10	50	0	77.8	55-130	0			
Nitrobenzene	45.5	10	50	0	91	60-130	0			
Pentachlorophenol	92.37	10	100	0	92.4	45-125	0			
Phenanthrene	47.78	10	50	0	95.6	60-130	0			
Phenol	35.14	10	100	0	35.1	20-100	0			
Pyrene	45.89	10	50	0	91.8	45-120	0			
Surr: 2,4,6-Tribromophenol	104.1	0	100	0	104	10-123	0			
Surr: 2-Fluorobiphenyl	90.54	0	100	0	90.5	43-116	0			
Surr: 2-Fluorophenol	54.46	0	100	0	54.5	21-100	0			
Surr:4-Terphenyl-d14	99.22	0	100	0	99.2	33-141	0			
Surr: Nitrobenzene-d5	90.28	0	100	0	90.3	35-114	0			
Surr: Phenol-d6	34.99	0	100	0	35	10-94	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6544** InstrumentID: **SV-2**

LCSD Sample ID: **SLCSDW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 21:18**
Client ID: Run ID: **SV-2_030902A** SeqNo: **363917** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	36.57	10	50	0	73.1	51-110	36.24	0.907	30	
2,4,5-Trichlorophenol	100.9	10	100	0	101	55-130	99.21	1.73	30	
2,4,6-Trichlorophenol	96.17	10	100	0	96.2	55-130	96.5	0.35	30	
2-Methylnaphthalene	37.8	10	50	0	75.6	50-125	37.11	1.85	30	
2-Methylphenol	76.54	10	100	0	76.5	45-120	75.67	1.14	30	
2-Nitroaniline	50.36	10	50	0	101	55-130	48.86	3.03	30	
2-Nitrophenol	93.07	10	100	0	93.1	55-125	92.95	0.131	30	
3-Nitroaniline	52.17	10	50	0	104	55-120	50.32	3.61	30	
4-Methylphenol	105.4	10	150	0	70.2	40-120	102.9	2.41	30	
4-Nitroaniline	51.7	10	50	0	103	60-130	49.51	4.33	30	
4-Nitrophenol	58.66	10	100	0	58.7	25-100	56.88	3.09	30	
Acenaphthene	43.86	10	50	0	87.7	50-120	44.06	0.443	30	
Acenaphthylene	44.01	10	50	0	88	55-130	44.04	0.0744	30	
Anthracene	49.66	10	50	0	99.3	60-130	49.51	0.298	30	
Benz(a)anthracene	46.45	10	50	0	92.9	60-130	47.1	1.39	30	
Benzidine	30.71	10	50	0	61.4	10-85	18.48	49.7	30	R
Hexachloroethane	34.69	10	50	0	69.4	40-120	33.99	2.05	30	
Indeno(1,2,3-cd)pyrene	45.54	10	50	0	91.1	60-130	48.89	7.11	30	
Isophorone	47.79	10	50	0	95.6	60-130	47.07	1.52	30	
N-Nitrosodi-n-propylamine	46.64	10	50	0	93.3	55-120	46.01	1.35	30	
N-Nitrosodimethylamine	26.37	10	50	0	52.7	35-110	25.79	2.2	30	
N-Nitrosodiphenylamine	53.46	10	50	0	107	60-130	53.89	0.802	30	
Naphthalene	39.15	10	50	0	78.3	55-130	38.88	0.703	30	
Nitrobenzene	45.91	10	50	0	91.8	60-130	45.5	0.893	30	
Pentachlorophenol	87.99	10	100	0	88	45-125	92.37	4.86	30	
Phenanthrene	47.34	10	50	0	94.7	60-130	47.78	0.921	30	
Phenol	36.53	10	100	0	36.5	20-100	35.14	3.9	30	
Pyrene	46.24	10	50	0	92.5	45-120	45.89	0.777	30	
Surr: 2,4,6-Tribromophenol	101.1	0	100	0	101	10-123	104.1	2.89	30	
Surr: 2-Fluorobiphenyl	90.67	0	100	0	90.7	43-116	90.54	0.141	30	
Surr: 2-Fluorophenol	54.74	0	100	0	54.7	21-100	54.46	0.517	30	
Surr:4-Terphenyl-d14	100.8	0	100	0	101	33-141	99.22	1.55	30	
Surr: Nitrobenzene-d5	91.28	0	100	0	91.3	35-114	90.28	1.1	30	
Surr: Phenol-d6	35.67	0	100	0	35.7	10-94	34.99	1.94	30	

Thefollowingsampleswereanalyzedinthisbatch: 0308325-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MBLK Sample ID: **VBLKW-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 11:19**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364169** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2-Dichloroethane	U	5.0								
2-Butanone	U	10								
2-Chloroethyl vinyl ether	U	10								
2-Hexanone	U	10								
4-Methyl-2-pentanone	U	10								
Acetone	U	10								
Benzene	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	5.0								
Carbon disulfide	U	10								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Dibromochloromethane	U	5.0								
Ethylbenzene	U	5.0								
m,p-Xylene	U	10								
Methyl tert-butyl ether	U	5.0								
Methylene chloride	U	10								
Styrene	U	5.0								
Tetrachloroethene	U	5.0								
Toluene	U	5.0								
trans-1,3-Dichloropropene	U	5.0								
Trichloroethene	U	5.0								
Vinyl acetate	U	10								
Vinyl chloride	U	2.0								
Xylenes, Total	U	15								
Surr: 1,2-Dichloroethane-d4	44.69	5.0	50	0	89.4	70-130	0			
Surr: 4-Bromofluorobenzene	46.1	5.0	50	0	92.2	70-130	0			
Surr: Dibromofluoromethane	48.14	5.0	50	0	96.3	70-130	0			
Surr: Toluene-d8	47.88	5.0	50	0	95.8	70-130	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

LCS Sample ID: **VLCSW-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 9:51**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364167** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	50.1	5.0	50	0	100	75-118	0			
1,1,2,2-Tetrachloroethane	51.87	5.0	50	0	104	79-120	0			
1,1,2-Trichloroethane	52.32	5.0	50	0	105	81-119	0			
1,1-Dichloroethane	52.71	5.0	50	0	105	80-120	0			
1,1-Dichloroethene	55.71	5.0	50	0	111	80-120	0			
1,2-Dichloroethane	52.78	5.0	50	0	106	80-120	0			
2-Butanone	98.7	10	100	0	98.7	70-130	0			
2-Chloroethyl vinyl ether	93.51	10	100	0	93.5	72-120	0			
2-Hexanone	101.5	10	100	0	102	70-130	0			
4-Methyl-2-pentanone	99.44	10	100	0	99.4	78-120	0			
Acetone	92.2	10	100	0	92.2	60-135	0			
Benzene	53.97	5.0	50	0	108	82-119	0			
Bromodichloromethane	52.6	5.0	50	0	105	81-119	0			
Bromoform	52.48	5.0	50	0	105	80-120	0			
Bromomethane	44.47	5.0	50	0	88.9	75-130	0			
Carbon disulfide	103.7	10	100	0	104	78-120	0			
Carbon tetrachloride	52.38	5.0	50	0	105	77-120	0			
Chlorobenzene	51.44	5.0	50	0	103	82-118	0			
Chloroethane	49.51	5.0	50	0	99	78-122	0			
Chloroform	51.9	5.0	50	0	104	78-120	0			
Chloromethane	45.43	5.0	50	0	90.9	75-125	0			
cis-1,3-Dichloropropene	53.12	5.0	50	0	106	81-120	0			
Dibromochloromethane	52.07	5.0	50	0	104	81-118	0			
Ethylbenzene	51.27	5.0	50	0	103	82-120	0			
m,p-Xylene	103.4	10	100	0	103	82-122	0			
Methyl tert-butyl ether	51.57	5.0	50	0	103	79-120	0			
Methylene chloride	51.14	10	50	0	102	80-122	0			
Styrene	52.77	5.0	50	0	106	82-121	0			
Tetrachloroethene	40.92	5.0	50	0	81.8	79-118	0			
Toluene	52.09	5.0	50	0	104	81-119	0			
trans-1,3-Dichloropropene	53.38	5.0	50	0	107	82-121	0			
Trichloroethene	53.57	5.0	50	0	107	78-118	0			
Vinyl acetate	108.7	10	100	0	109	75-120	0			
Vinyl chloride	49.29	2.0	50	0	98.6	73-127	0			
Xylenes, Total	155	15	150	0	103	80-120	0			
Surr:1,2-Dichloroethane-d4	43.49	5.0	50	0	87	70-130	0			
Surr:4-Bromofluorobenzene	47.03	5.0	50	0	94.1	70-130	0			
Surr:Dibromofluoromethane	46.93	5.0	50	0	93.9	70-130	0			
Surr: Toluene-d8	47.28	5.0	50	0	94.6	70-130	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

LCSD Sample ID: **VLCSWD-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 10:20**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364168** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.77	5.0	50	0	104	75-118	50.1	3.29	20	
1,1,2,2-Tetrachloroethane	54.18	5.0	50	0	108	79-120	51.87	4.35	20	
1,1,2-Trichloroethane	53.26	5.0	50	0	107	81-119	52.32	1.79	20	
1,1-Dichloroethane	53.86	5.0	50	0	108	80-120	52.71	2.14	20	
1,1-Dichloroethene	57.86	5.0	50	0	116	80-120	55.71	3.78	20	
1,2-Dichloroethane	53.38	5.0	50	0	107	80-120	52.78	1.14	20	
2-Butanone	99.95	10	100	0	100	70-130	98.7	1.26	20	
2-Chloroethyl vinyl ether	93.68	10	100	0	93.7	72-120	93.51	0.182	20	
2-Hexanone	104.3	10	100	0	104	70-130	101.5	2.63	20	
4-Methyl-2-pentanone	103	10	100	0	103	78-120	99.44	3.49	20	
Acetone	104.1	10	100	0	104	60-135	92.2	12.1	20	
Benzene	55.75	5.0	50	0	112	82-119	53.97	3.25	20	
Bromodichloromethane	53.22	5.0	50	0	106	81-119	52.6	1.17	20	
Bromoform	53.44	5.0	50	0	107	80-120	52.48	1.81	20	
Bromomethane	45.67	5.0	50	0	91.3	75-130	44.47	2.65	20	
Carbon disulfide	108.4	10	100	0	108	78-120	103.7	4.43	20	
Carbon tetrachloride	55.55	5.0	50	0	111	77-120	52.38	5.87	20	
Chlorobenzene	52.68	5.0	50	0	105	82-118	51.44	2.38	20	
Chloroethane	50.08	5.0	50	0	100	78-122	49.51	1.14	20	
Chloroform	52.38	5.0	50	0	105	78-120	51.9	0.912	20	
Chloromethane	45.93	5.0	50	0	91.9	75-125	45.43	1.09	20	
cis-1,3-Dichloropropene	53.98	5.0	50	0	108	81-120	53.12	1.6	20	
Dibromochloromethane	52.74	5.0	50	0	105	81-118	52.07	1.28	20	
Ethylbenzene	53.86	5.0	50	0	108	82-120	51.27	4.92	20	
m,p-Xylene	106.1	10	100	0	106	82-122	103.4	2.63	20	
Methyl tert-butyl ether	53.01	5.0	50	0	106	79-120	51.57	2.74	20	
Methylene chloride	54.25	10	50	0	108	80-122	51.14	5.89	20	
Styrene	53.8	5.0	50	0	108	82-121	52.77	1.93	20	
Tetrachloroethene	49.07	5.0	50	0	98.1	79-118	40.92	18.1	20	
Toluene	53.44	5.0	50	0	107	81-119	52.09	2.57	20	
trans-1,3-Dichloropropene	53.15	5.0	50	0	106	82-121	53.38	0.431	20	
Trichloroethene	54.67	5.0	50	0	109	78-118	53.57	2.02	20	
Vinyl acetate	106.9	10	100	0	107	75-120	108.7	1.69	20	
Vinyl chloride	48.41	2.0	50	0	96.8	73-127	49.29	1.8	20	
Xylenes, Total	159.1	15	150	0	106	80-120	155	2.57	20	
Surr: 1,2-Dichloroethane-d4	45.22	5.0	50	0	90.4	70-130	43.49	3.89	20	
Surr: 4-Bromofluorobenzene	46.99	5.0	50	0	94	70-130	47.03	0.0948	20	
Surr: Dibromofluoromethane	47.99	5.0	50	0	96	70-130	46.93	2.23	20	
Surr: Toluene-d8	47.65	5.0	50	0	95.3	70-130	47.28	0.774	20	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MS Sample ID: **0309018-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 15:47**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364394** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	515	50	500	0	103	75-125	0			
1,1,2,2-Tetrachloroethane	543.4	50	500	0	109	75-125	0			
1,1,2-Trichloroethane	532.2	50	500	0	106	75-125	0			
1,1-Dichloroethane	567.7	50	500	11.67	111	75-125	0			
1,1-Dichloroethene	603.4	50	500	0	121	65-130	0			
1,2-Dichloroethane	482.3	50	500	0	96.5	70-130	0			
2-Butanone	1033	100	1000	0	103	64-128	0			
2-Chloroethyl vinyl ether	81.14	100	1000	0	8.11	75-125	0			JS
2-Hexanone	1050	100	1000	0	105	72-124	0			
4-Methyl-2-pentanone	1042	100	1000	0	104	75-125	0			
Acetone	772.7	100	1000	53.14	72	60-130	0			
Benzene	558.9	50	500	0	112	76-127	0			
Bromodichloromethane	501.3	50	500	0	100	75-125	0			
Bromoform	517.9	50	500	0	104	75-125	0			
Bromomethane	472.4	50	500	0	94.5	75-125	0			
Carbon disulfide	1120	100	1000	0	112	75-125	0			
Carbontetrachloride	2713	50	500	1890	165	70-130	0			SE
Chlorobenzene	510	50	500	0	102	75-126	0			
Chloroethane	486.6	50	500	0	97.3	70-130	0			
Chloroform	854.1	50	500	288.6	113	75-125	0			
Chloromethane	471	50	500	0	94.2	75-125	0			
cis-1,3-Dichloropropene	526.1	50	500	0	105	75-125	0			
Dibromochloromethane	499.6	50	500	0	99.9	75-125	0			
Ethylbenzene	522.2	50	500	0	104	75-125	0			
m,p-Xylene	1040	100	1000	0	104	75-125	0			
Methyl tert-butyl ether	529	50	500	0	106	75-125	0			
Methylene chloride	620.2	100	500	50.99	114	75-125	0			
Styrene	525.3	50	500	0	105	75-125	0			
Tetrachloroethene	406.4	50	500	20.72	77.1	75-125	0			
Toluene	533.9	50	500	0	107	76-125	0			
trans-1,3-Dichloropropene	506.8	50	500	0	101	70-130	0			
Trichloroethene	1042	50	500	447.3	119	71-120	0			
Vinyl acetate	1178	100	1000	0	118	75-125	0			
Vinyl chloride	502.1	20	500	0	100	60-135	0			
Xylenes, Total	1560	150	1500	0	104	75-125	0			
Surr:1,2-Dichloroethane-d4	428.6	50	500	0	85.7	70-130	0			
Surr:4-Bromofluorobenzene	444.2	50	500	0	88.8	70-130	0			
Surr: Dibromofluoromethane	477.1	50	500	0	95.4	70-130	0			
Surr: Toluene-d8	487.1	50	500	0	97.4	70-130	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MSD Sample ID: **0309018-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 16:17**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364553** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	536.2	50	500	0	107	75-125	515	4.05	20	
1,1,2,2-Tetrachloroethane	572.7	50	500	0	115	75-125	543.4	5.25	20	
1,1,2-Trichloroethane	562.9	50	500	0	113	75-125	532.2	5.61	20	
1,1-Dichloroethane	589.5	50	500	11.67	116	75-125	567.7	3.77	20	
1,1-Dichloroethene	627.1	50	500	0	125	65-130	603.4	3.86	20	
1,2-Dichloroethane	498	50	500	0	99.6	70-130	482.3	3.19	20	
2-Butanone	1103	100	1000	0	110	64-128	1033	6.56	20	
2-Chloroethyl vinyl ether	16.9	100	1000	0	1.69	75-125	81.14	0	20	JS
2-Hexanone	1106	100	1000	0	111	72-124	1050	5.16	20	
4-Methyl-2-pentanone	1115	100	1000	0	112	75-125	1042	6.8	20	
Acetone	861.8	100	1000	53.14	80.9	60-130	772.7	10.9	20	
Benzene	608.7	50	500	0	122	76-127	558.9	8.54	20	
Bromodichloromethane	530.8	50	500	0	106	75-125	501.3	5.71	20	
Bromoform	548.7	50	500	0	110	75-125	517.9	5.77	20	
Bromomethane	471.8	50	500	0	94.4	75-125	472.4	0.119	20	
Carbon disulfide	1171	100	1000	0	117	75-125	1120	4.44	20	
Carbontetrachloride	2764	50	500	1890	175	70-130	2713	1.85	20	SE
Chlorobenzene	545.2	50	500	0	109	75-126	510	6.67	20	
Chloroethane	551.8	50	500	0	110	70-130	486.6	12.6	20	
Chloroform	882.7	50	500	288.6	119	75-125	854.1	3.29	20	
Chloromethane	514	50	500	0	103	75-125	471	8.73	20	
cis-1,3-Dichloropropene	554.8	50	500	0	111	75-125	526.1	5.3	20	
Dibromochloromethane	528.8	50	500	0	106	75-125	499.6	5.68	20	
Ethylbenzene	556.5	50	500	0	111	75-125	522.2	6.35	20	
m,p-Xylene	1106	100	1000	0	111	75-125	1040	6.09	20	
Methyl tert-butyl ether	549.4	50	500	0	110	75-125	529	3.78	20	
Methylene chloride	621.1	100	500	50.99	114	75-125	620.2	0.148	20	
Styrene	558.2	50	500	0	112	75-125	525.3	6.09	20	
Tetrachloroethene	426.8	50	500	20.72	81.2	75-125	406.4	4.9	20	
Toluene	568.6	50	500	0	114	76-125	533.9	6.29	20	
trans-1,3-Dichloropropene	525.6	50	500	0	105	70-130	506.8	3.65	20	
Trichloroethene	1083	50	500	447.3	127	71-120	1042	3.87	20	S
Vinyl acetate	1204	100	1000	0	120	75-125	1178	2.22	20	
Vinyl chloride	543.7	20	500	0	109	60-135	502.1	7.96	20	
Xylenes, Total	1665	150	1500	0	111	75-125	1560	6.53	20	
Surr:1,2-Dichloroethane-d4	426	50	500	0	85.2	70-130	428.6	0.621	20	
Surr:4-Bromofluorobenzene	459.3	50	500	0	91.9	70-130	444.2	3.34	20	
Surr:Dibromofluoromethane	465.5	50	500	0	93.1	70-130	477.1	2.45	20	
Surr:Toluene-d8	490.6	50	500	0	98.1	70-130	487.1	0.705	20	

Thefollowingsampleswereanalyzedinthisbatch: 0308325-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2022 11:49:15 AM

Received by OCD: 5/16/2022 2:12:41 PM

e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager:

e-Lab Work Order #: 0308325

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Wells	A	TCLP VOCs (1311/8260)
Work Order		Project Number		B	TCLP SVOCs (1311/8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	TCLP Metals (1311/6020/7470)
Send Report To	Darrell Moore/Charlie Plymale	Invoice Attn	Charlie Plymale	D	Semi volatiles
Address	P.O. Box 159	Address	P.O. Box 159	E	Volatiles
				F	
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	
Phone	(505) 748-3311	Phone	(505) 748-3311	H	
Fax	(505) 746-5421	Fax	(505) 746-5421	I	
e-Mail Address				J	

No	Sample Description	Date	Time	Matrix	Pres	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. wells	8/28/03	1000			5				X	X						
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign: Charles Plymale

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
	8/28/03	1615		
Relinquished by:	Date:	Time:	Received by (Laboratory): RICHARD SANDOVAL	8/29/03 0930
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

e-Lab Cooler ID	Cooler Temp.

QC Package: (Check Box Below)

Level II: Standard QC	X
Level III: Standard QC + Raw Data	
Level IV: SW846 Methods/CLP	
Other:	

Preservative Key: 1- HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING COMPAN Date/Time Received: 8/29/2003 9:30:00 AM

Work Order Number 0308325 Received by: RSZ

Checklist completed by RICHARD JANCH 8.29.03 (Signature / Date) Reviewed by LT 9/2/03 (Initials / Date)

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.2c	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
JUL 14 2003
OIL CONSERVATION DIVISION

July 11, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2003 to March 31, 2003. We have disposed a total of 13,448,129 bbls. of fluid into the two wells as of March 31 2003. This is broken down as follows: 9,732,076 bbls. into WDW-1 and 3,715,473 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 2 of 15
N/A | Injection Wells | N/A

Analytical Report

Sample: 215473 - Inj Wells

Analysis: Alkalinity | Analytical Method: E 310.1 | QC Batch: QC25706 | Date Analyzed: 12/17/02
Analyst: MS | Preparation Method: N/A | Prep Batch: PB23811 | Date Prepared: 12/17/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		146	mg/L as CaCo3	1	4
Total Alkalinity		146	mg/L as CaCo3	1	4

Sample: 215473 - Inj Wells

Analysis: Conductivity | Analytical Method: SM 2510B | QC Batch: QC25592 | Date Analyzed: 12/16/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB23722 | Date Prepared: 12/16/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5070	µMHOS/cm	1	

Sample: 215473 - Inj Wells

Analysis: Corrosivity | Analytical Method: S 1110 | QC Batch: QC25828 | Date Analyzed: 12/26/02
Analyst: JH | Preparation Method: N/A | Prep Batch: PB23933 | Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non-corrosive	mm/yr	1	
pH		8.2	s.u.	1	

Sample: 215473 - Inj Wells

Analysis: Hg, Total | Analytical Method: S 7470A | QC Batch: QC25555 | Date Analyzed: 12/12/02
Analyst: BC | Preparation Method: N/A | Prep Batch: PB23652 | Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		0.00022	mg/L	1	0.0002

Sample: 215473 - Inj Wells

Analysis: Ignitability | Analytical Method: SW-846 Ch. 7.1 | QC Batch: QC25826 | Date Analyzed: 12/26/02
Analyst: JH | Preparation Method: N/A | Prep Batch: PB23931 | Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 215473 - Inj Wells

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC25539 | Date Analyzed: 12/11/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB23675 | Date Prepared: 12/11/02

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 15
N/A Injection Wells N/A

Param	Flag	Result	Units	Dilution	RDL
Chloride		1000	mg/L	100	1
Fluoride		66.05	mg/L	5	0.20
Nitrate-N		<1.0	mg/L	5	0.20
Sulfate		663	mg/L	100	1

Sample: 215473 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC25829 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23934 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 215473 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC25566 Date Analyzed: 12/12/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB23664 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		158	mg/L	1	0.50
Dissolved Magnesium		31.5	mg/L	1	0.50
Dissolved Potassium		17.2	mg/L	1	0.50
Dissolved Sodium		698	mg/L	1	0.50

Sample: 215473 - Inj Wells

Analysis: TDS Analytical Method: E 160.1 QC Batch: QC25540 Date Analyzed: 12/12/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23674 Date Prepared: 12/10/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		3005	mg/L	5	10

Sample: 215473 - Inj Wells

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC25543 Date Analyzed: 12/12/02
Analyst: RR Preparation Method: N/A Prep Batch: PB23651 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.411	mg/L	1	0.05
Total Arsenic		0.135	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.158	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		0.950	mg/L	1	0.05

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 4 of 15
N/A Injection Wells N/A

... *Continued* Sample: 215473 Analysis: Total Metals

Param	Flag	Result	Units	Dilution	RDL
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.0672	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.122	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.0586	mg/L	1	0.02

Sample: 215473 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC25623	Date Analyzed:	12/14/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB23747	Date Prepared:	12/14/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Page 2360 of 5828

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 5 of 15
N/A | Injection Wells | N/A

... *Continued* Sample: 215473 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.6	µg/L	5	50	99	70 - 130
Toluene-d8		50.1	µg/L	5	50	100	70 - 130
4-Bromofluorobenzene		45.6	µg/L	5	50	91	70 - 130

Sample: 215473 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC25527	Date Analyzed:	12/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB23667	Date Prepared:	12/10/02

Param	Flag	Result	Units	Dilution	RDL
pH	[2]	7.5	s.u.	1	1

[1] elevated reporting limit due to matrix difficulty.
[2] The sample was received out of holding time

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 6 of 15
N/A | Injection Wells | N/A

Quality Control Report
Method Blank

Method Blank QCBatch: QC25539

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC25540

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC25543

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.05
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		0.0166	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC25555

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 7 of 15
N/A | Injection Wells | N/A

Method Blank QCBatch: QC25566

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank QCBatch: QC25592

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		9.25	µMHOS/cm	

Method Blank QCBatch: QC25623

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene	[3]	<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1

Continued ...

[3] estimated concentration=0.16 µg/L. Reported between MDL (.054 µg/L) and reporting limit.

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 8 of 15
N/A Injection Wells N/A

... *Continued*

Param	Flag	Results	Units	Reporting Limit
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene	4	<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene	5	<1.00	µg/L	1
m,p-Xylene	6	<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene	7	<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	70 - 130
Toluene-d8		52.8	µg/L	1	50	106	70 - 130
4-Bromofluorobenzene		47.7	µg/L	1	50	95	70 - 130

[4]estimated concentration=0.19 µg/L. Reported between MDL (.042 µg/L) and reporting limit.
[5]estimated concentration=0.04 µg/L. Reported between MDL (.018 µg/L) and reporting limit.
[6]estimated concentration=0.09 µg/L. Reported between MDL (.051 µg/L) and reporting limit.
[7]estimated concentration=0.05 µg/L. Reported between MDL (.028 µg/L) and reporting limit.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 9 of 15
N/A | Injection Wells | N/A

Method Blank QCBatch: QC25706

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	4
Total Alkalinity		<4.0	mg/L as CaCo3	4

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC25527

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.8	8.8	s.u.	1	0	0

Duplicate QCBatch: QC25540

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1270	1234	mg/L	1	2	9.7

Duplicate QCBatch: QC25592

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4130	4040	µMHOS/cm	1	2	20

Duplicate QCBatch: QC25706

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		690	684	mg/L as CaCo3	1	0	9.2
Total Alkalinity		690	684	mg/L as CaCo3	1	0	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC25539

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 10 of 15
N/A Injection Wells N/A

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.63	13.13	mg/L	1	12.50	<1.0	93	12	90 - 110	20
Fluoride	2.36	2.38	mg/L	1	2.50	<0.2	94	0	90 - 110	20
Nitrate-N	2.45	2.45	mg/L	1	2.50	<0.2	98	0	90 - 110	20
Sulfate	12.12	12.26	mg/L	1	12.50	<1.0	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25543

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Calcium	99.4	98.8	mg/L	1	100	<0.5	99	0	75 - 125	20
Total Iron	0.512	0.515	mg/L	1	0.50	<0.050	102	0	75 - 125	20
Total Magnesium	103	99.8	mg/L	1	100	<0.5	103	3	75 - 125	20
Total Potassium	105	105	mg/L	1	100	<0.5	105	0	75 - 125	20
Total Sodium	106	104	mg/L	1	100	<0.5	106	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25555

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00113	0.00116	mg/L	1	0.001	<0.0002	113	2	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25623

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	91.7	91.7	µg/L	1	100	<1.00	92	0	70 - 130	20
Benzene	98.7	100	µg/L	1	100	<1.00	99	1	70 - 130	20
Trichloroethene (TCE)	89.8	89.8	µg/L	1	100	<1.00	90	0	70 - 130	20
Toluene	98.8	99.6	µg/L	1	100	<1.00	99	1	70 - 130	20
Chlorobenzene	96.5	96.6	µg/L	1	100	<1.00	96	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	47.7	47.6	µg/L	1	50	95	95	70 - 130
Toluene-d8	50.5	50.0	µg/L	1	50	101	100	70 - 130
4-Bromofluorobenzene	47.2	45.4	µg/L	1	50	94	91	70 - 130

Quality Control Report
Matrix Spikes and Duplicate Spikes

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Matrix Spikes

QCBatch: QC25539

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	1300	1270	mg/L	1	1250	225	86	2	48 - 127	20
Fluoride	235	236	mg/L	1	250	4.10	92	0	82 - 101	20
Nitrate-N	260	258	mg/L	1	250	2.34	103	0	87 - 100	20
Sulfate	3030	3040	mg/L	1	1250	1840	95	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25543

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	0.971	0.965	mg/L	1	1		97	0	75 - 125	20
Total Arsenic	0.495	0.490	mg/L	1	0.50		99	1	75 - 125	20
Total Barium	1.06	1.05	mg/L	1	1		106	0	75 - 125	20
Total Beryllium	0.0233	0.023	mg/L	1	0.02		93	1	75 - 125	20
Total Boron	0.127	0.128	mg/L	1	0.05		95	2	75 - 125	20
Total Cadmium	0.218	0.216	mg/L	1	0.25		87	0	75 - 125	20
Total Chromium	0.0878	0.087	mg/L	1	0.10		87	0	75 - 125	20
Total Iron	0.855	0.843	mg/L	1	0.50	0.0801	98	2	75 - 125	20
Total Lead	0.453	0.455	mg/L	1	0.50		90	0	75 - 125	20
Total Molybdenum	0.537	0.533	mg/L	1	0.50		107	0	75 - 125	20
Total Selenium	0.458	0.455	mg/L	1	0.50		91	0	75 - 125	20
Total Silver	0.126	0.125	mg/L	1	0.12		100	0	75 - 125	20
Total Uranium	0.991	0.981	mg/L	1	1		99	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25555

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00110	0.00116	mg/L	1	0.001	<0.0002	110	5	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

ICV (1) QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

CCV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.83	94	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.38	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.46	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.32	98	90 - 110	12/11/02

ICV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	12.01	96	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.39	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.47	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.59	100	90 - 110	12/11/02

CCV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1013	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	995	99	90 - 110	12/12/02

CCV (1) QCBatch: QC25543

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 13 of 15
N/A | Injection Wells | N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	23.6	94	90 - 110	12/12/02
Total Iron		mg/L	1	1.028	103	90 - 110	12/12/02
Total Magnesium		mg/L	25	23.8	95	90 - 110	12/12/02
Total Potassium		mg/L	25	26.1	104	90 - 110	12/12/02
Total Sodium		mg/L	25	26.4	105	90 - 110	12/12/02

ICV (1) QCBatch: QC25543

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	25.1	100	90 - 110	12/12/02
Total Iron		mg/L	1	1.04	104	90 - 110	12/12/02
Total Magnesium		mg/L	25	24.4	97	90 - 110	12/12/02
Total Potassium		mg/L	25	25	100	90 - 110	12/12/02
Total Sodium		mg/L	25	24.3	97	90 - 110	12/12/02

CCV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00098	98	80 - 120	12/12/02

ICV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	12/12/02

CCV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	24.6	98	90 - 110	12/12/02
Dissolved Magnesium		mg/L	25	24.8	99	90 - 110	12/12/02
Dissolved Potassium		mg/L	25	25.6	102	90 - 110	12/12/02
Dissolved Sodium		mg/L	25	25.3	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25566

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 14 of 15
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.1	100	95 - 105	12/12/02
Dissolved Magnesium		mg/L	25	24.4	97	95 - 105	12/12/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	12/12/02
Dissolved Sodium		mg/L	25	24.3	97	95 - 105	12/12/02

CCV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1414	100	90 - 110	12/16/02

ICV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1437	101	90 - 110	12/16/02

CCV (1) QCBatch: QC25623

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	49.0	98	80 - 120	12/14/02
1,1-Dichloroethene		µg/L	50	49.0	98	80 - 120	12/14/02
Chloroform		µg/L	50	54.0	108	80 - 120	12/14/02
1,2-Dichloropropane		µg/L	50	53.0	106	80 - 120	12/14/02
Toluene		µg/L	50	55.0	110	80 - 120	12/14/02
Chlorobenzene		µg/L	50	53.0	106	80 - 120	12/14/02
Ethylbenzene		µg/L	50	55.0	110	80 - 120	12/14/02
Dibromofluoromethane		µg/L	50	50.2	100	80 - 120	12/14/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	12/14/02
4-Bromofluorobenzene		µg/L	50	50.2	100	80 - 120	12/14/02

CCV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	16	0	-	12/17/02

Continued ...

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Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 15 of 15
N/A | Injection Wells | N/A

... Continued

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

ICV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	20	0	-	12/17/02
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215473 - Inj Wells

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		146	mg/L as CaCo3
Total Alkalinity		146	mg/L as CaCo3
Specific Conductance		5070	µMHOS/cm
Corrosivity		Non-corrosive	mm/yr
pH		8.2	s.u.
Total Mercury		0.00022	mg/L
Ignitability		non-ignitable	
Chloride		1000	mg/L
Fluoride		66.05	mg/L
Nitrate-N		<1.0	mg/L
Sulfate		663	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		158	mg/L
Dissolved Magnesium		31.5	mg/L
Dissolved Potassium		17.2	mg/L
Dissolved Sodium		698	mg/L
Total Dissolved Solids		3005	mg/L
Total Aluminum		0.411	mg/L
Total Arsenic		0.135	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.158	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

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Report Date: December 31, 2002 Order Number: A02121013 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215479 continued ...

Param	Flag	Result	Units
Total Copper		<0.0125	mg/L
Total Iron		0.950	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.0672	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.122	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.0586	mg/L
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<25.0	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone		<50.0	µg/L
Iodomethane (methyl iodide)		<25.0	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

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Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215479 continued ...

Param	Flag	Result	Units
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroethene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene (meta)		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortho)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Test Comments	1	note:	µg/L
pH	2	7.5	s.u.

[1]elevated reporting limit due to matrix difficulty.
[2]The sample was received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

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Page ____ of ____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 402121013

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 746 5421
Contact Person: Darrell Moore
Invoice to: (if different from above)
Project #:
Project Name: Inj. wells
Project Location: Artesia
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
15473	Inj. wells	4	40ml	X				X				X		12/9/02	940
	" "	1	500ml	X					X			X		12/9/02	940
	" "	2	1L	X								X	X	12/9/02	940

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | X 8240, 8260 | X anions, cations, TDS, cond, pH | X Al, As, Ba, B, Cd, Ca, Co, Cr, Mn, Pb | X Hg, Ni, Se, Ag, V, Zn, U, Mo | Turn Around Time if different from standard | Hold

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	12/9/02	1615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Crowley	Date: 12-10-02	Time: 1000

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact (Y) / N
Headspace Y (N)
Temp -1° C
Log-in Review MH

REMARKS:
8270 will be re-sampled per Charlie 12/10
12/31 CP
☐ Check if Special Reporting Limits Are Needed

Carrier # FedEx 7906-4982-1809

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TRACEANALYSIS
Page 80 of 5828

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 2, 2003

Order ID Number: A02121224

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215707	Inj Well	Water	12/11/02	14:30	12/12/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.
Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 8 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 2 of 8
N/A Injection Wells N/A

Analytical Report

Sample: 215707 - Inj Well

Analysis: Semivolatiles Analytical Method: S 8270C QC Batch: QC25941 Date Analyzed: 12/16/02
Analyst: RC Preparation Method: E 3510C Prep Batch: PB23757 Date Prepared: 12/12/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 3 of 8
N/A Injection Wells N/A

... *Continued* Sample: 215707 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		14.66	mg/L	1	80	18	0 - 66
Phenol-d5		11.44	mg/L	1	80	14	0 - 70

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 4 of 8
N/A Injection Wells N/A

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		33.80	mg/L	1	80	42	23 - 99
2-Fluorobiphenyl		39.19	mg/L	1	80	48	27 - 95
2,4,6-Tribromophenol		22.97	mg/L	1	80	28	0 - 199
Terphenyl-d14		25.21	mg/L	1	80	31	20 - 96

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 5 of 8
N/A Injection Wells N/A

Quality Control Report
Method Blank

Method Blank QCBatch: QC25941

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005

Continued ...

Report Date: January 2, 2003 | Order Number: A02121224 | Page Number: 6 of 8
N/A | Injection Wells | N/A

... *Continued*

Param	Flag	Results	Units	Reporting Limit
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		44.87	mg/L	1	80	56	0 - 66

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 7 of 8
N/A Injection Wells N/A

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Phenol-d5		43.42	mg/L	1	80	54	0 - 70
Nitrobenzene-d5		78.46	mg/L	1	80	98	23 - 99
2-Fluorobiphenyl		71.61	mg/L	1	80	89	27 - 95
2,4,6-Tribromophenol		53.86	mg/L	1	80	67	0 - 199
Terphenyl-d14		79.78	mg/L	1	80	99	20 - 96

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC25941

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	26.07	26.38	mg/L	1	80	<0.005	32	1	0 - 81	20
2-Chlorophenol	54.17	54.37	mg/L	1	80	<0.005	67	0	12 - 83	20
1,4-Dichlorobenzene	55.34	55.94	mg/L	1	80	<0.005	69	1	13 - 88	20
n-Nitrosodi-n-propylamine	64.45	63.76	mg/L	1	80	<0.005	80	1	9 - 101	20
1,2,4-Trichlorobenzene	57.51	57.66	mg/L	1	80	<0.005	71	0	21 - 87	20
4-Chloro-3-methylphenol	61.52	57.96	mg/L	1	80	<0.005	76	5	14 - 92	20
Acenaphthene	59.32	60.39	mg/L	1	80	<0.005	74	0	26 - 86	20
4-Nitrophenol	27.77	29.00	mg/L	1	80	<0.005	34	4	0 - 104	20
2,4-Dinitrotoluene	75.52	76.08	mg/L	1	80	<0.005	94	0	29 - 94	20
Pentachlorophenol	46.25	47.91	mg/L	1	80	<0.005	57	3	1 - 97	20
Pyrene	62.21	61.37	mg/L	1	80	<0.005	77	1	25 - 90	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	44.68	44.6	mg/L	1	80	55	55	0 - 66
Phenol-d5	33.33	37.22	mg/L	1	80	41	46	0 - 70
Nitrobenzene-d5	66.47	66.99	mg/L	1	80	83	83	23 - 99
2-Fluorobiphenyl	60.84	65.5	mg/L	1	80	76	81	27 - 95
2,4,6-Tribromophenol	67.69	68.69	mg/L	1	80	84	85	0 - 199
Terphenyl-d14	70.81	68.74	mg/L	1	80	88	85	20 - 96

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25941

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	63.89	106	80 - 120	12/16/02
1,4-Dichlorobenzene		mg/L	60	62.2	103	80 - 120	12/16/02
2-Nitrophenol		mg/L	60	66.21	110	80 - 120	12/16/02
2,4-Dichlorophenol		mg/L	60	67.75	112	80 - 120	12/16/02
Hexachlorobutadiene		mg/L	60	54.23	90	80 - 120	12/16/02

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 8 of 8
N/A Injection Wells N/A

... *Continued*

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
4-Chloro-3-methylphenol		mg/L	60	69.15	115	80 - 120	12/16/02
2,4,6-Trichlorophenol		mg/L	60	58.89	98	80 - 120	12/16/02
Acenaphthene		mg/L	60	60.52	100	80 - 120	12/16/02
Diphenylamine		mg/L	60	58.92	98	80 - 120	12/16/02
Pentachlorophenol		mg/L	60	58.79	97	80 - 120	12/16/02
Fluoranthene		mg/L	60	55.22	92	80 - 120	12/16/02
Di-n-octylphthalate		mg/L	60	59.71	99	80 - 120	12/16/02
Benzo(a)pyrene		mg/L	60	64.45	107	80 - 120	12/16/02
2-Fluorophenol		mg/L	60	63.66	106	80 - 120	12/16/02
Phenol-d5		mg/L	60	71.01	118	80 - 120	12/16/02
Nitrobenzene-d5		mg/L	60	60.76	101	80 - 120	12/16/02
2-Fluorobiphenyl		mg/L	60	57.7	96	80 - 120	12/16/02
2,4,6-Tribromophenol		mg/L	60	52.2	87	80 - 120	12/16/02
Terphenyl-d14		mg/L	60	49.65	82	80 - 120	12/16/02

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 2, 2003

Order ID Number: A02121224

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215707	Inj Well	Water	12/11/02	14:30	12/12/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215707 - Inj Well

Param	Flag	Result	Units
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene (meta)		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

Received by OCD: 5/16/2022 2:12:41 PM

Page 2390 of 5828

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215707 continued ...

Param	Flag	Result	Units
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene*		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215707 continued ...

Param	Flag	Result	Units
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L

This is only a summary. Please, refer to the complete report package for quality control data.

15707

Page ____ of ____

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 1021212224

Company Name: Navajo
Phone #: 505748-3311
Address: (Street, City, Zip) 501 E. Main
Fax #: 505746-5421
Contact Person: Darrell Moore
Invoice to: (if different from above)
Project #:
Project Name: Inj. wells
Project Location: Artesia
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
15707	Inj. Wells	1	1L	X								X	X	12/1/02	1430

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Turn Around Time if different from standard	Hold

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

January 15, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2002 to December 31, 2003. We have disposed a total of 12,330,037 bbls. of fluid into the two wells as of December 31 2002. This is broken down as follows: 9,100,909 bbls. into WDW-1 and 3,229,128 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215473 - Inj Wells

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		146	mg/L as CaCo3
Total Alkalinity		146	mg/L as CaCo3
Specific Conductance		5070	μMHOS/cm
Corrosivity		Non-corrosive	mm/yr
pH		8.2	s.u.
Total Mercury		0.00022	mg/L
Ignitability		non-ignitable	
Chloride		1000	mg/L
Fluoride		66.05	mg/L
Nitrate-N		<1.0	mg/L
Sulfate		663	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		158	mg/L
Dissolved Magnesium		31.5	mg/L
Dissolved Potassium		17.2	mg/L
Dissolved Sodium		698	mg/L
Total Dissolved Solids		3005	mg/L
Total Aluminum		0.411	mg/L
Total Arsenic		0.135	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.158	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215473 continued ...

Param	Flag	Result	Units
Total Copper		<0.0125	mg/L
Total Iron		0.950	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.0672	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.122	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.0586	mg/L
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<25.0	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone		<50.0	µg/L
Iodomethane (methyl iodide)		<25.0	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215473 continued ...

Param	Flag	Result	Units
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroetbene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene (meta)		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortbo)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Test Comments	[1]	note:	µg/L
pH	[2]	7.5	s.u.

[1]elevated reporting limit due to matrix difficulty.
[2]The sample was received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report

Sample: 215473 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC25706	Date Analyzed:	12/17/02
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB23811	Date Prepared:	12/17/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		146	mg/L as CaCo3	1	4
Total Alkalinity		146	mg/L as CaCo3	1	4

Sample: 215473 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC25592	Date Analyzed:	12/16/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB23722	Date Prepared:	12/16/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5070	μMHOS/cm	1	

Sample: 215473 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC25828	Date Analyzed:	12/26/02
Analyst:	JH	Preparation Method:	N/A	Prep Batch:	PB23933	Date Prepared:	12/26/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non-corrosive	mm/yr	1	
pH		8.2	s.u.	1	

Sample: 215473 - Inj Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC25555	Date Analyzed:	12/12/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB23652	Date Prepared:	12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		0.00022	mg/L	1	0.0002

Sample: 215473 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC25826	Date Analyzed:	12/26/02
Analyst:	JH	Preparation Method:	N/A	Prep Batch:	PB23931	Date Prepared:	12/26/02

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 215473 - Inj Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC25539	Date Analyzed:	12/11/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB23675	Date Prepared:	12/11/02

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Param	Flag	Result	Units	Dilution	RDL
Chloride		1000	mg/L	100	1
Fluoride		66.05	mg/L	5	0.20
Nitrate-N		<1.0	mg/L	5	0.20
Sulfate		663	mg/L	100	1

Sample: 215473 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC25829 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23934 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 215473 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC25566 Date Analyzed: 12/12/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB23664 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		158	mg/L	1	0.50
Dissolved Magnesium		31.5	mg/L	1	0.50
Dissolved Potassium		17.2	mg/L	1	0.50
Dissolved Sodium		698	mg/L	1	0.50

Sample: 215473 - Inj Wells

Analysis: TDS Analytical Method: E 160.1 QC Batch: QC25540 Date Analyzed: 12/12/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23674 Date Prepared: 12/10/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		3005	mg/L	5	10

Sample: 215473 - Inj Wells

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC25543 Date Analyzed: 12/12/02
Analyst: RR Preparation Method: N/A Prep Batch: PB23651 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.411	mg/L	1	0.05
Total Arsenic		0.135	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.158	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		0.950	mg/L	1	0.05

Continued ...

... *Continued* Sample: 215473 Analysis: Total Metals

Param	Flag	Result	Units	Dilution	RDL
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.0672	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.122	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.0586	mg/L	1	0.02

Sample: 215473 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC25623	Date Analyzed:	12/14/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB23747	Date Prepared:	12/14/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1

Continued ...

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... *Continued* Sample: 215473 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.6	µg/L	5	50	99	70 - 130
Toluene-d8		50.1	µg/L	5	50	100	70 - 130
4-Bromofluorobenzene		45.6	µg/L	5	50	91	70 - 130

Sample: 215473 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC25527	Date Analyzed:	12/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB23667	Date Prepared:	12/10/02

Param	Flag	Result	Units	Dilution	RDL
pH	[2]	7.5	s.u.	1	1

[1] elevated reporting limit due to matrix difficulty.
[2] The sample was received out of holding time

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Quality Control Report
Method Blank

Method Blank QCBatch: QC25539

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC25540

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC25543

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.05
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		0.0166	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC25555

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank

QCBatch: QC25566

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank

QCBatch: QC25592

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		9.25	μMHOS/cm	

Method Blank

QCBatch: QC25623

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene	[3]	<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1

Continued ...

[3]estimated concentration=0.16 μg/L. Reported between MDL (.054 μg/L) and reporting limit.

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... *Continued*

Param	Flag	Results	Units	Reporting Limit
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene	[4]	<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene	[5]	<1.00	µg/L	1
m,p-Xylene	[6]	<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene	[7]	<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	70 - 130
Toluene-d8		52.8	µg/L	1	50	106	70 - 130
4-Bromofluorobenzene		47.7	µg/L	1	50	95	70 - 130

[4]estimated concentration=0.19 µg/L. Reported between MDL (.042 µg/L) and reporting limit.
[5]estimated concentration=0.04 µg/L. Reported between MDL (.018 µg/L) and reporting limit.
[6]estimated concentration=0.09 µg/L. Reported between MDL (.051 µg/L) and reporting limit.
[7]estimated concentration=0.05 µg/L. Reported between MDL (.028 µg/L) and reporting limit.

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Method Blank QCBatch: QC25706

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	4
Total Alkalinity		<4.0	mg/L as CaCo3	4

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC25527

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.8	8.8	s.u.	1	0	0

Duplicate QCBatch: QC25540

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1270	1234	mg/L	1	2	9.7

Duplicate QCBatch: QC25592

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4130	4040	µMHOS/cm	1	2	20

Duplicate QCBatch: QC25706

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		690	684	mg/L as CaCo3	1	0	9.2
Total Alkalinity		690	684	mg/L as CaCo3	1	0	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC25539

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.63	13.13	mg/L	1	12.50	<1.0	93	12	90 - 110	20
Fluoride	2.36	2.38	mg/L	1	2.50	<0.2	94	0	90 - 110	20
Nitrate-N	2.45	2.45	mg/L	1	2.50	<0.2	98	0	90 - 110	20
Sulfate	12.12	12.26	mg/L	1	12.50	<1.0	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25543

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Calcium	99.4	98.8	mg/L	1	100	<0.5	99	0	75 - 125	20
Total Iron	0.512	0.515	mg/L	1	0.50	<0.050	102	0	75 - 125	20
Total Magnesium	103	99.8	mg/L	1	100	<0.5	103	3	75 - 125	20
Total Potassium	105	105	mg/L	1	100	<0.5	105	0	75 - 125	20
Total Sodium	106	104	mg/L	1	100	<0.5	106	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25555

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00113	0.00116	mg/L	1	0.001	<0.0002	113	2	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25623

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	91.7	91.7	µg/L	1	100	<1.00	92	0	70 - 130	20
Benzene	98.7	100	µg/L	1	100	<1.00	99	1	70 - 130	20
Trichloroethene (TCE)	89.8	89.8	µg/L	1	100	<1.00	90	0	70 - 130	20
Toluene	98.8	99.6	µg/L	1	100	<1.00	99	1	70 - 130	20
Chlorobenzene	96.5	96.6	µg/L	1	100	<1.00	96	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	47.7	47.6	µg/L	1	50	95	95	70 - 130
Toluene-d8	50.5	50.0	µg/L	1	50	101	100	70 - 130
4-Bromofluorobenzene	47.2	45.4	µg/L	1	50	94	91	70 - 130

Quality Control Report
Matrix Spikes and Duplicate Spikes

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Matrix Spikes

QCBatch: QC25539

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	1300	1270	mg/L	1	1250	225	86	2	48 - 127	20
Fluoride	235	236	mg/L	1	250	4.10	92	0	82 - 101	20
Nitrate-N	260	258	mg/L	1	250	2.34	103	0	87 - 100	20
Sulfate	3030	3040	mg/L	1	1250	1840	95	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25543

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	0.971	0.965	mg/L	1	1		97	0	75 - 125	20
Total Arsenic	0.495	0.490	mg/L	1	0.50		99	1	75 - 125	20
Total Barium	1.06	1.05	mg/L	1	1		106	0	75 - 125	20
Total Beryllium	0.0233	0.023	mg/L	1	0.02		93	1	75 - 125	20
Total Boron	0.127	0.128	mg/L	1	0.05		95	2	75 - 125	20
Total Cadmium	0.218	0.216	mg/L	1	0.25		87	0	75 - 125	20
Total Chromium	0.0878	0.087	mg/L	1	0.10		87	0	75 - 125	20
Total Iron	0.855	0.843	mg/L	1	0.50	0.0801	98	2	75 - 125	20
Total Lead	0.453	0.455	mg/L	1	0.50		90	0	75 - 125	20
Total Molybdenum	0.537	0.533	mg/L	1	0.50		107	0	75 - 125	20
Total Selenium	0.458	0.455	mg/L	1	0.50		91	0	75 - 125	20
Total Silver	0.126	0.125	mg/L	1	0.12		100	0	75 - 125	20
Total Uranium	0.991	0.981	mg/L	1	1		99	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25555

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00110	0.00116	mg/L	1	0.001	<0.0002	110	5	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

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ICV (1) QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

CCV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.83	94	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.38	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.46	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.32	98	90 - 110	12/11/02

ICV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	12.01	96	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.39	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.47	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.59	100	90 - 110	12/11/02

CCV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1013	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	995	99	90 - 110	12/12/02

CCV (1) QCBatch: QC25543

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 13 of 15
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	23.6	94	90 - 110	12/12/02
Total Iron		mg/L	1	1.028	103	90 - 110	12/12/02
Total Magnesium		mg/L	25	23.8	95	90 - 110	12/12/02
Total Potassium		mg/L	25	26.1	104	90 - 110	12/12/02
Total Sodium		mg/L	25	26.4	105	90 - 110	12/12/02

ICV (1) QCBatch: QC25543

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	25.1	100	90 - 110	12/12/02
Total Iron		mg/L	1	1.04	104	90 - 110	12/12/02
Total Magnesium		mg/L	25	24.4	97	90 - 110	12/12/02
Total Potassium		mg/L	25	25	100	90 - 110	12/12/02
Total Sodium		mg/L	25	24.3	97	90 - 110	12/12/02

CCV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00098	98	80 - 120	12/12/02

ICV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	12/12/02

CCV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	24.6	98	90 - 110	12/12/02
Dissolved Magnesium		mg/L	25	24.8	99	90 - 110	12/12/02
Dissolved Potassium		mg/L	25	25.6	102	90 - 110	12/12/02
Dissolved Sodium		mg/L	25	25.3	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.1	100	95 - 105	12/12/02
Dissolved Magnesium		mg/L	25	24.4	97	95 - 105	12/12/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	12/12/02
Dissolved Sodium		mg/L	25	24.3	97	95 - 105	12/12/02

CCV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1414	100	90 - 110	12/16/02

ICV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1437	101	90 - 110	12/16/02

CCV (1) QCBatch: QC25623

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	49.0	98	80 - 120	12/14/02
1,1-Dichloroethene		µg/L	50	49.0	98	80 - 120	12/14/02
Chloroform		µg/L	50	54.0	108	80 - 120	12/14/02
1,2-Dichloropropane		µg/L	50	53.0	106	80 - 120	12/14/02
Toluene		µg/L	50	55.0	110	80 - 120	12/14/02
Chlorobenzene		µg/L	50	53.0	106	80 - 120	12/14/02
Ethylbenzene		µg/L	50	55.0	110	80 - 120	12/14/02
Dibromofluoromethane		µg/L	50	50.2	100	80 - 120	12/14/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	12/14/02
4-Bromofluorobenzene		µg/L	50	50.2	100	80 - 120	12/14/02

CCV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	16	0	-	12/17/02

Continued ...

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... *Continued*

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

ICV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	20	0	-	12/17/02
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

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Page ____ of ____

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon,Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 402121013

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 746 5421
Contact Person: Darrell Moore
Invoice to: (if different from above)
Project #:
Project Name: Inj. wells
Project Location: Artesia
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
215473	Inj. wells	4 2	40ml	X				X				X		12/9/02	940
	" "	1	500ml	X					X			X		12/9/02	940
	" "	2	1L	X								X	X	12/9/02	940

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	8240, 8260	anions, cations, TDS, cond, pH	Al, As, Be, B, Cd, Ca, Co, Cr, Mn, Pb	Hg, Ni, Se, Ag, V, Sb, Li, Mo	Turn Around Time if different from standard	Hold
				See List											X	X	X	X		

Relinquished by: Date: 12/9/02 Time: 1615
Received by: Date: Time:
Relinquished by: Date: Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received at Laboratory by: Vicki Crowley Date: 12-10-02 Time: 10:00

LAB USE ONLY
Intact (Y) / N
Headspace Y (N)
Temp -1° C
Log-in Review MS

REMARKS:
8270 will be re-sampled per Charlie 12/10
12/31 FIP
☐ Check If Special Reporting Limits Are Needed

Carrier # FedEx 7906-4982-1807

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Oct-02	217	386	115	184	240	113	196	495	140	6325	8240	3882	196,066
Nov-02	158	279	70	197	266	141	128	210	1	6747	9118	4840	209,162
Dec-02	145	197	1	177	218	78	143	342	0	6084	7472	2667	188,597
WDW-2													
Oct-02	218	420	21	121	178	10	189	344	116	4161	6100	357	128,994
Nov-02	92	197	0	79	150	0	375	500	22	2699	5141	4	83,655
Dec-02	189	233	129	136	151	117	129	145	34	4676	5185	4011	144,963

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

October 15, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2002 to September 30, 2002. We have disposed a total of 11,378,600 bbls. of fluid into the two wells as of September 30 2002. This is broken down as follows: 8,507,084 bbls. into WDW-1 and 2,871,516 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: September 20, 2002 Order Number: A02091009 Page Number: 1 of 2
N/A ABT Inlet/RO Reject Artesia

Summary Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: September 20, 2002

Order ID Number: A02091009

Project Number: N/A
Project Name: ABT Inlet/RO Reject
Project Location: Artesia

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
207619	ABT Inlet Tk 836	Water	9/9/02	14:45	9/10/02
207620	RO Reject	Water	9/9/02	15:30	9/10/02

0 This report consists of a total of 2 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 207619 - ABT Inlet Tk 836

Param	Flag	Result	Units
Biological Oxygen Demand		1440	mg/L
Chemical Oxygen Demand		2820	mg/L
Phenolics		114	mg/L
Total Kjeldahl Nitrogen - N		166	mg/L

Sample: 207620 - RO Reject

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		618	mg/L as CaCo3
Total Alkalinity		618	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
Chloride		166	mg/L
Fluoride	[1]	3.46	mg/L
Nitrate-N	[2]	2.21	mg/L
Sulfate		1760	mg/L
Dissolved Calcium		609	mg/L
Dissolved Magnesium		205	mg/L
Dissolved Potassium		7.21	mg/L
Dissolved Sodium		114	mg/L
Total Aluminum		<0.100	mg/L
Total Arsenic		<0.050	mg/L

Continued on next page ...

[1]Reran on IC091602-2: LCS = 90 RPD = 4; ICV = 90 and CCV = 94.
[2]Reran on IC091602-2: LCS = 92 RPD = 0; ICV = 92 and CCV = 92.

This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: September 20, 2002 Order Number: A02091009 Page Number: 2 of 2
N/A ABT Inlet/RO Reject Artesia

Sample 207620 continued ...

Param	Flag	Result	Units
Total Barium		0.110	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.0713	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		<0.0125	mg/L
Total Iron		<0.050	mg/L
Total Lead		<0.010	mg/L
Total Manganese		<0.025	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		<0.050	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		<0.025	mg/L

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
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Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: September 20, 2002

Order ID Number: A02091009

Project Number: N/A
Project Name: ABT Inlet/RO Reject
Project Location: Artesia

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
207619	ABT Inlet Tk 836	Water	9/9/02	14:45	9/10/02
207620	RO Reject	Water	9/9/02	15:30	9/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 13 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report

Sample: 207619 - ABT Inlet Tk 836

Analysis:	BOD5	Analytical Method:	SM 5210B	QC Batch:	QC23572	Date Analyzed:	9/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22068	Date Prepared:	9/11/02

Param	Flag	Result	Units	Dilution	RDL
Biological Oxygen Demand		1440	mg/L	1	1

Sample: 207619 - ABT Inlet Tk 836

Analysis:	COD	Analytical Method:	E 410.4	QC Batch:	QC23573	Date Analyzed:	9/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22067	Date Prepared:	9/16/02

Param	Flag	Result	Units	Dilution	RDL
Chemical Oxygen Demand		2820	mg/L	10	20

Sample: 207619 - ABT Inlet Tk 836

Analysis:	Phenolics	Analytical Method:	SM 5530D	QC Batch:	QC23594	Date Analyzed:	9/17/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB22084	Date Prepared:	9/17/02

Param	Flag	Result	Units	Dilution	RDL
Phenolics		114	mg/L	200	0.12

Sample: 207619 - ABT Inlet Tk 836

Analysis:	TKN	Analytical Method:	E 351.3	QC Batch:	QC23460	Date Analyzed:	9/11/02
Analyst:	MW	Preparation Method:	N/A	Prep Batch:	PB21990	Date Prepared:	9/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Kjeldahl Nitrogen - N		166	mg/L	1	4

Sample: 207620 - RO Reject

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC23490	Date Analyzed:	9/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22006	Date Prepared:	9/10/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		618	mg/L as CaCo3	1	1
Total Alkalinity		618	mg/L as CaCo3	1	1

Sample: 207620 - RO Reject

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC23549	Date Analyzed:	9/16/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB22048	Date Prepared:	9/16/02

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Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 207620 - RO Reject

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC23557 Date Analyzed: 9/11/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB22050 Date Prepared: 9/11/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		166	mg/L	5	1
Fluoride	[1]	3.46	mg/L	5	0.20
Nitrate-N	[2]	2.21	mg/L	5	0.20
Sulfate		1760	mg/L	50	1

Sample: 207620 - RO Reject

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC23525 Date Analyzed: 9/14/02
Analyst: RR Preparation Method: S 3005A Prep Batch: PB21982 Date Prepared: 9/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		609	mg/L	1.10	0.50
Dissolved Magnesium		205	mg/L	1.10	0.50
Dissolved Potassium		7.21	mg/L	1.10	0.50
Dissolved Sodium		114	mg/L	1.10	0.50

Sample: 207620 - RO Reject

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC23583 Date Analyzed: 9/17/02
Analyst: RR Preparation Method: S 3010A Prep Batch: PB22031 Date Prepared: 9/13/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		<0.050	mg/L	1	0.05
Total Barium		0.110	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.0713	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		<0.050	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		<0.025	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		<0.050	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		<0.025	mg/L	1	0.02

[1]Reran on IC091602-2: LCS = 90 RPD = 4; ICV = 90 and CCV = 94.
[2]Reran on IC091602-2: LCS = 92 RPD = 0; ICV = 92 and CCV = 92.

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Quality Control Report
Method Blank

Method Blank QCBatch: QC23460

Param	Flag	Results	Units	Reporting Limit
Total Kjeldahl Nitrogen - N		<4.0	mg/L	4

Method Blank QCBatch: QC23490

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank QCBatch: QC23525

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.550	mg/L	0.50
Dissolved Magnesium		<0.550	mg/L	0.50
Dissolved Potassium		<0.550	mg/L	0.50
Dissolved Sodium		<0.550	mg/L	0.50

Method Blank QCBatch: QC23549

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank QCBatch: QC23557

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC23572

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Param	Flag	Results	Units	Reporting Limit
Biological Oxygen Demand		< 1	mg/L	1

Method Blank QCBatch: QC23573

Param	Flag	Results	Units	Reporting Limit
Chemical Oxygen Demand		<20	mg/L	20

Method Blank QCBatch: QC23583

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.10
Total Arsenic		<0.050	mg/L	0.05
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		<0.0125	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.02	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC23594

Param	Flag	Results	Units	Reporting Limit
Phenolics		<0.12	mg/L	0.12

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC23490

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Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		50	49	mg/L as CaCo3	1	2	9.2
Total Alkalinity		50	49	mg/L as CaCo3	1	2	9.2

Duplicate

QCBatch: QC23572

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Biological Oxygen Demand		295	277	mg/L	1	6	25

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC23460

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Kjeldahl Nitrogen - N	45.1	44.0	mg/L	1	50	<4.0	90	2	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23525

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	98.2	99.9	mg/L	1.12	100	<0.550	98	1	75 - 125	20
Dissolved Magnesium	97.4	99.5	mg/L	1.12	100	<0.550	97	2	75 - 125	20
Dissolved Potassium	92.1	93.2	mg/L	1.12	100	<0.550	92	1	75 - 125	20
Dissolved Sodium	94.3	94.4	mg/L	1.12	100	<0.550	94	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23549

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00106	0.00107	mg/L	1	0.001	<0.0002	106	0	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23557

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.23	11.19	mg/L	1	12.50	<1.0	89	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23572

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Biological Oxygen Demand	206	196	mg/L	1	198	0.24	104	4	76 - 132	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23573

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chemical Oxygen Demand	246	251	mg/L	1	250	<20	98	2	95 - 105	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23583

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	1.01	1.00	mg/L	1	1	<0.100	101	1	75 - 125	20
Total Arsenic	0.569	0.585	mg/L	1	0.50	<0.050	114	3	75 - 125	20
Total Barium	1.06	1.06	mg/L	1	1	<0.100	106	0	75 - 125	20
Total Beryllium	0.0257	0.0257	mg/L	1	0.02	<0.0025	103	0	75 - 125	20
Total Boron	0.0479	0.0465	mg/L	1	0.05	<0.005	96	3	75 - 125	20
Total Cadmium	0.263	0.263	mg/L	1	0.25	<0.005	100	0	75 - 125	20
Total Chromium	0.105	0.105	mg/L	1	0.10	<0.010	105	0	75 - 125	20
Total Cobalt	0.262	0.262	mg/L	1	0.25	<0.025	105	0	75 - 125	20
Total Copper	0.133	0.132	mg/L	1	0.12	<0.0125	106	0	75 - 125	20
Total Iron	0.521	0.518	mg/L	1	0.50	<0.050	104	0	75 - 125	20
Total Lead	0.515	0.522	mg/L	1	0.50	<0.01	98	1	75 - 125	20
Total Manganese	0.265	0.263	mg/L	1	0.25	<0.025	106	1	75 - 125	20
Total Molybdenum	0.545	0.548	mg/L	1	0.50	<0.050	109	0	75 - 125	20
Total Nickel	0.265	0.265	mg/L	1	0.25	<0.025	106	0	75 - 125	20
Total Selenium	0.449	0.444	mg/L	1	0.50	<0.050	90	1	75 - 125	20
Total Silver	0.129	0.129	mg/L	1	0.12	<0.0125	103	0	75 - 125	20
Total Uranium	0.522	0.529	mg/L	1	0.50	<0.02	99	1	75 - 125	20
Total Vanadium	0.266	0.265	mg/L	1	0.25	<0.025	106	0	75 - 125	20
Total Zinc	0.268	0.268	mg/L	1	0.25	<0.025	107	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23594

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenolics	0.829	0.850	mg/L	1	0.80	<0.12	103	2	95 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC23460

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Kjeldahl Nitrogen - N	[3] 23.8	[4] 24.6	mg/L	1	50	<4.0	47	3	18 - 158	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23525

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	118	116	mg/L	1.12	100	23.1	94	2	75 - 125	20
Dissolved Magnesium	128	126	mg/L	1.12	100	38.4	89	2	75 - 125	20
Dissolved Potassium	105	104	mg/L	1.12	100	14.6	90	1	75 - 125	20
Dissolved Sodium	195	195	mg/L	1.12	100	86.6	108	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23549

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00140	0.00141	mg/L	1	0.001	0.00021	119	0	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23557

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	2131	2135	mg/L	1	1250	974	92	0	48 - 127	20
Sulfate	2402	2387	mg/L	1	1250	1190	96	1	59 - 121	20

[3]Matrix spike difficulties.
[4]Matrix spike difficulties.

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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23573

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chemical Oxygen Demand	291	287	mg/L	1	250	61.4	91	1	75 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23583

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	1.16	1.18	mg/L	1	1	<0.100	116	2	75 - 125	20
Total Arsenic	0.552	0.542	mg/L	1	0.50	<0.050	110	2	75 - 125	20
Total Barium	1.05	1.06	mg/L	1	1	0.110	93	1	75 - 125	20
Total Beryllium	0.0233	0.0237	mg/L	1	0.02	<0.0025	93	2	75 - 125	20
Total Boron	0.119	0.120	mg/L	1	0.05	0.0713	95	2	75 - 125	20
Total Cadmium	0.233	0.234	mg/L	1	0.25	<0.005	93	0	75 - 125	20
Total Chromium	0.0979	0.0979	mg/L	1	0.10	<0.010	98	0	75 - 125	20
Total Cobalt	0.247	0.250	mg/L	1	0.25	<0.025	99	1	75 - 125	20
Total Copper	0.141	0.144	mg/L	1	0.12	<0.0125	112	2	75 - 125	20
Total Iron	0.495	0.494	mg/L	1	0.50	<0.050	99	0	75 - 125	20
Total Lead	0.510	0.513	mg/L	1	0.50	<0.010	102	0	75 - 125	20
Total Manganese	0.249	0.253	mg/L	1	0.25	<0.025	100	2	75 - 125	20
Total Molybdenum	0.513	0.518	mg/L	1	0.50	<0.050	103	1	75 - 125	20
Total Nickel	0.238	0.240	mg/L	1	0.25	<0.025	95	1	75 - 125	20
Total Selenium	0.460	0.474	mg/L	1	0.50	<0.050	92	3	75 - 125	20
Total Silver	0.125	0.128	mg/L	1	0.12	<0.0125	100	2	75 - 125	20
Total Uranium	0.528	0.542	mg/L	1	0.50	<0.020	106	3	75 - 125	20
Total Vanadium	0.254	0.259	mg/L	1	0.25	<0.025	102	2	75 - 125	20
Total Zinc	0.238	0.240	mg/L	1	0.25	<0.025	95	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23594

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenolics	0.801	0.818	mg/L	1	0.80	<0.10	100	2	68 - 154	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC23460

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5	4.48	89	85 - 115	9/11/02

ICV (1) QCBatch: QC23460

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5	4.82	96	85 - 115	9/11/02

CCV (1) QCBatch: QC23490

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	9/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	240	0	90 - 110	9/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	9/10/02
Total Alkalinity		mg/L as CaCo3	250	246	98	90 - 110	9/10/02

ICV (1) QCBatch: QC23490

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	9/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	90 - 110	9/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	11	0	90 - 110	9/10/02
Total Alkalinity		mg/L as CaCo3	250	243	97	90 - 110	9/10/02

CCV (1) QCBatch: QC23525

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.0	100	90 - 110	9/14/02
Dissolved Magnesium		mg/L	25	24.7	99	90 - 110	9/14/02
Dissolved Potassium		mg/L	25	25.1	100	90 - 110	9/14/02
Dissolved Sodium		mg/L	25	25.0	100	90 - 110	9/14/02

ICV (1) QCBatch: QC23525

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.2	101	95 - 105	9/14/02
Dissolved Magnesium		mg/L	25	25.0	100	95 - 105	9/14/02
Dissolved Potassium		mg/L	25	25.4	102	95 - 105	9/14/02
Dissolved Sodium		mg/L	25	25.3	101	95 - 105	9/14/02

CCV (1) QCBatch: QC23549

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00099	99	80 - 120	9/16/02

ICV (1) QCBatch: QC23549

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	9/16/02

CCV (1) QCBatch: QC23557

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.19	89	90 - 110	9/11/02

ICV (1) QCBatch: QC23557

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.51	92	90 - 110	9/11/02

CCV (1) QCBatch: QC23573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chemical Oxygen Demand		mg/L	250	246	98	95 - 105	9/16/02

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ICV (1) QCBatch: QC23573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chemical Oxygen Demand		mg/L	250	242	96	95 - 105	9/16/02

CCV (1) QCBatch: QC23583

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.98	99	90 - 110	9/17/02
Total Arsenic		mg/L	1	0.987	99	90 - 110	9/17/02
Total Barium		mg/L	2	2.00	100	90 - 110	9/17/02
Total Beryllium		mg/L	0.05	0.0499	100	90 - 110	9/17/02
Total Boron		mg/L	0.10	0.105	105	90 - 110	9/17/02
Total Cadmium		mg/L	0.50	0.496	97	90 - 110	9/17/02
Total Chromium		mg/L	0.20	0.200	100	90 - 110	9/17/02
Total Cobalt		mg/L	0.50	0.498	100	90 - 110	9/17/02
Total Copper		mg/L	0.25	0.250	100	90 - 110	9/17/02
Total Iron		mg/L	1	0.983	98	90 - 110	9/17/02
Total Lead		mg/L	1	0.989	96	90 - 110	9/17/02
Total Manganese		mg/L	0.50	0.501	100	90 - 110	9/17/02
Total Molybdenum		mg/L	1	1.00	100	90 - 110	9/17/02
Total Nickel		mg/L	0.50	0.502	100	90 - 110	9/17/02
Total Selenium		mg/L	1	0.993	99	90 - 110	9/17/02
Total Silver		mg/L	0.25	0.249	100	90 - 110	9/17/02
Total Uranium		mg/L	1	0.990	96	90 - 110	9/17/02
Total Vanadium		mg/L	0.50	0.501	100	90 - 110	9/17/02
Total Zinc		mg/L	0.50	0.499	100	90 - 110	9/17/02

ICV (1) QCBatch: QC23583

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	2.02	101	95 - 105	9/17/02
Total Arsenic		mg/L	1	1.03	103	95 - 105	9/17/02
Total Barium		mg/L	2	2.06	103	95 - 105	9/17/02
Total Beryllium		mg/L	0.05	0.0513	103	95 - 105	9/17/02
Total Boron		mg/L	0.10	0.109	109	95 - 105	9/17/02
Total Cadmium		mg/L	0.50	0.512	100	95 - 105	9/17/02
Total Chromium		mg/L	0.20	0.206	103	95 - 105	9/17/02
Total Cobalt		mg/L	0.50	0.513	103	95 - 105	9/17/02
Total Copper		mg/L	0.25	0.255	102	95 - 105	9/17/02
Total Iron		mg/L	1	1.03	103	95 - 105	9/17/02
Total Lead		mg/L	1	1.02	100	95 - 105	9/17/02
Total Manganese		mg/L	0.50	0.515	103	95 - 105	9/17/02
Total Molybdenum		mg/L	1	1.03	103	95 - 105	9/17/02
Total Nickel		mg/L	0.50	0.515	103	95 - 105	9/17/02

Continued ...

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... Continued

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1	1.02	102	95 - 105	9/17/02
Total Silver		mg/L	0.25	0.256	102	95 - 105	9/17/02
Total Uranium		mg/L	1	1.01	98	95 - 105	9/17/02
Total Vanadium		mg/L	0.50	0.514	103	95 - 105	9/17/02
Total Zinc		mg/L	0.50	0.515	103	95 - 105	9/17/02

CCV (1)

QCBatch: QC23594

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenolics		mg/L	0.80	0.801	100	85 - 115	9/17/02

ICV (1)

QCBatch: QC23594

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenolics		mg/L	0.80	0.822	102	85 - 115	9/17/02

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Page_____of_____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 1D0291009

Company Name: NAVAJO
Phone #: 5057483311
Address: (Street, City, Zip) 501 E Main
Fax #: 5057465421
Contact Person: Charlie Plymale
Invoice to: (If different from above)
Project #:
Project Name: ABT Inlet / RO Reject
Project Location: Artesia
Sampler Signature:

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
207619	ABT Inlet JK836	1	1L	X						X		X		9/9/02	1445
	" "	1	1L	X								X	X	9/9/02	1445
	" "	1	500ml	X						X		X		9/9/02	1445
207620	RO Reject	1	1L	X								X	X	9/9/02	1530
	" "	1	1L	X					X			X		9/9/02	1530

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Turn Around Time if different from standard	Hold
				See List												

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	9/9/02	1615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
				9-10-02	10am

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp -1 °
Log-in Review MS

REMARKS:

☐ Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

Carrier # Fed Ex 7900-5576-0049

Page 2430 of 5828

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MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo refining Company

WDW-1	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
Jul-02	443	500	0	205	232	0	213	240	0	7037	7939	0	218,136
Aug-02	279	500	157	197	232	149	169	240	146	6744	7949	5112	209,077
Sep-02	198	261	97	167	199	117	145	152	142	5737	6809	3999	177,855
WDW-2													
Jul-02	172	268	0	113	160	0	99	152	0	3887	5485	0	120,499
Aug-02	219	303	104	130	160	58	187	311	112	4448	5472	1976	137,893
Sep-02	228	287	128	130	154	94	180	257	128	4473	5271	3223	138,649

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REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

October 30, 2001

RECEIVED
NOV 13 2001
Environmental Bureau
Oil Conservation Division

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2001 to September 30, 2001. We have disposed a total of 8,443,165 bbls. of fluid down the two wells as of September 30, 2001. This is broken down as follows: 6,446,668 bbls. down WDW-1 and 1,996,497 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 17, 2001

Order ID Number: A01100310

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
180928	Inj Well	Water	10/2/01	14:00	10/3/01

This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 180928 - Inj Well

Param	Flag	Result	Units
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L

Continued on next page ...

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 180928 continued ...

Param	Flag	Result	Units
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L

Continued on next page ...

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 180928 continued ...

Param	Flag	Result	Units
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 17, 2001

Order ID Number: A01100310

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
180928	Inj Well	Water	10/2/01	14:00	10/3/01

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 7 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report

Sample: 180928 - Inj Well

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC14881	Date Analyzed:	10/11/01
Analyst:	RC	Preparation Method:	E 3510C	Prep Batch:	PB12651	Date Prepared:	10/4/01

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 180928 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		16.26	mg/L	1	80	20	21 - 100
Phenol-d5		9.68	mg/L	1	80	12	11 - 94
Nitrobenzene-d5		47.77	mg/L	1	80	59	35 - 114
2-Fluorobiphenyl		47.08	mg/L	1	80	58	43 - 116
2,4,6-Tribromophenol		53.59	mg/L	1	80	66	10 - 123
Terphenyl-d14		28.71	mg/L	1	80	35	33 - 141

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Quality Control Report
Method Blank

Method Blank QCBatch: QC14881

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2.6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005

Continued ...

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... Continued

Param	Flag	Results	Units	Reporting Limit
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		14.24	mg/L	1	80	17	21 - 100
Phenol-d5		11.8	mg/L	1	80	14	11 - 94
Nitrobenzene-d5		68.41	mg/L	1	80	85	35 - 114
2-Fluorobiphenyl		63.26	mg/L	1	80	79	43 - 116
2,4,6-Tribromophenol		41.79	mg/L	1	80	52	10 - 123

Continued ...

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Terphenyl-d14		45.95	mg/L	1	80	57	33 - 141

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC14881

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	11.26	12.83	mg/L	1	80	<0.005	14	13	5 - 112	20
2-Chlorophenol	38.17	38.8	mg/L	1	80	<0.005	47	1	23 - 134	20
1,4-Dichlorobenzene	43.6	40.39	mg/L	1	80	<0.005	54	7	20 - 124	20
n-Nitrosodi-n-propylamine	46.61	48.78	mg/L	1	80	<0.005	58	4	0 - 230	20
1,2,4-Trichlorobenzene	53.13	55.74	mg/L	1	80	<0.005	66	4	44 - 142	20
4-Chloro-3-methylphenol	53.26	56.33	mg/L	1	80	<0.005	66	5	22 - 147	20
Acenaphthene	52.05	56.45	mg/L	1	80	<0.005	65	8	47 - 145	20
4-Nitrophenol	42.19	43.08	mg/L	1	80	<0.005	52	2	0 - 132	20
2,4-Dinitrotoluene	66.19	63.9	mg/L	1	80	<0.005	82	3	39 - 139	20
Pentachlorophenol	40.55	40.31	mg/L	1	80	<0.005	50	0	14 - 176	20
Pyrene	45.78	43.03	mg/L	1	80	<0.005	57	6	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	18.4	17.84	mg/L	1	80	23	22	21 - 100
Phenol-d5	10.42	10.48	mg/L	1	80	13	13	11 - 94
Nitrobenzene-d5	52.8	55.69	mg/L	1	80	66	69	35 - 114
2-Fluorobiphenyl	53.81	58.92	mg/L	1	80	67	73	43 - 116
2,4,6-Tribromophenol	71.61	67.1	mg/L	1	80	89	83	10 - 123
Terphenyl-d14	52.04	46.76	mg/L	1	80	65	58	33 - 141

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC14881

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	48.43	35.14	mg/L	1	80	<0.005	60	31	5 - 112	20
2-Chlorophenol	61.18	45.54	mg/L	1	80	<0.005	76	29	23 - 134	20
1,4-Dichlorobenzene	63.47	46.48	mg/L	1	80	<0.005	79	30	20 - 124	20
n-Nitrosodi-n-propylamine	63.08	47.76	mg/L	1	80	<0.005	78	27	0 - 230	20
1,2,4-Trichlorobenzene	77.67	60.88	mg/L	1	80	<0.005	97	24	44 - 142	20
4-Chloro-3-methylphenol	77.4	65.29	mg/L	1	80	<0.005	96	16	22 - 147	20
Acenaphthene	65.07	59.15	mg/L	1	80	<0.005	81	9	47 - 145	20
4-Nitrophenol	58.12	51.88	mg/L	1	80	<0.005	72	11	0 - 132	20
2,4-Dinitrotoluene	70.23	64.91	mg/L	1	80	<0.005	87	7	39 - 139	20
Pentachlorophenol	50.86	40.63	mg/L	1	80	<0.005	63	22	14 - 176	20
Pyrene	44.83	43.46	mg/L	1	80	<0.005	56	3	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dilution	Spike Amount	MS % Rec	MSD % Rec	Recovery Limits
2-Fluorophenol	51.96	38.64	mg/L	1	80	64	48	21 - 100
Phenol-d5	48.84	35.33	mg/L	1	80	61	44	11 - 94
Nitrobenzene-d5	71.74	57.13	mg/L	1	80	89	71	35 - 114
2-Fluorobiphenyl	70.11	60.74	mg/L	1	80	87	75	43 - 116
2,4,6-Tribromophenol	76.72	67.75	mg/L	1	80	95	84	10 - 123
Terphenyl-d14	45.3	41.26	mg/L	1	80	56	51	33 - 141

Quality Control Report
Continuing Calibration Verification Standards

CCV (1) QCBatch: QC14881

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	61.43	102	80 - 120	10/11/01
1,4-Dichlorobenzene		mg/L	60	62.38	103	80 - 120	10/11/01
2-Nitrophenol		mg/L	60	65.94	109	80 - 120	10/11/01
2,4-Dichlorophenol		mg/L	60	63.42	105	80 - 120	10/11/01
Hexachlorobutadiene		mg/L	60	66.39	110	80 - 120	10/11/01
4-Chloro-3-methylphenol		mg/L	60	60.2	100	80 - 120	10/11/01
2,4,6-Trichlorophenol		mg/L	60	65.44	109	80 - 120	10/11/01
Acenaphthene		mg/L	60	63.64	106	80 - 120	10/11/01
Diphenylamine		mg/L	60	60.27	100	80 - 120	10/11/01
Pentachlorophenol		mg/L	60	50.96	84	80 - 120	10/11/01
Fluoranthene		mg/L	60	68.23	113	80 - 120	10/11/01
Di-n-octylphthalate		mg/L	60	55.81	93	80 - 120	10/11/01
Benzo(a)pyrene		mg/L	60	60.73	101	80 - 120	10/11/01
2-Fluorophenol		mg/L	60	61.9	103	80 - 120	10/11/01
Phenol-d5		mg/L	60	61.44	102	80 - 120	10/11/01
Nitrobenzene-d5		mg/L	60	62.82	104	80 - 120	10/11/01
2-Fluorobiphenyl		mg/L	60	66.48	110	80 - 120	10/11/01
2,4,6-Tribromophenol		mg/L	60	67.15	111	80 - 120	10/11/01
Terphenyl-d14		mg/L	60	46.12	76	80 - 120	10/11/01

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Received by OCD: 5/16/2022 2:12:41 PM

180928

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A0110031O

Company Name: Navajo
Phone #: 505 7483311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 7465421
Contact Person: Darrell Moore or Charlie Bynum
Invoice to: (if different from above)
Project #:
Project Name: Inj well
Project Location:
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
180928	Inj well	1	1L	X								X	X	10/2/01	200

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See List

Extra bottle requested by Vicki

	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
		10/2/01	1615			
	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Hensley	10-3-01	10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact Y / N
Headspace Y / N
Temp 4 °
Log-in Review MF

REMARKS:

10/8

☐ Check If Special Reporting Limits Are Needed

Carrier # UPS 1Z 762 46 6 03 452 3845

Page 2444 of 5828

Quarterly Injection Pressures, Rates, and Volumes

NAVAJO REFINING COMPANY

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max Pressure (psig)	Monthly Min Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max Flow Volume (bpd)	Monthly Min Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min Annular Pressure (psig)	Total Volume (bbls)
July 2001	258	412	0	200	393	0	6850	8267	5608	259	360	120	212,543
August 2001	262	500	0	195	482	0	6773	8857	1782	255	372	118	207,732
September 2001	201	326	0	259	381	0	8876	10148	5044	188	328	113	266,295
WDW-2	**Monthly Avg. Pressure (psig)**	**Monthly Max Pressure (psig)**	**Monthly Min Pressure (psig)**	**Monthly Avg. Flow Rate (gpm)**	**Monthly Max Flow Rate (gpm)**	**Monthly Min. Flow Rate (gpm)**	**Monthly Avg. Flow Volume (bpd)**	**Monthly Max Flow Volume (bpd)**	**Monthly Min Flow Volume (bpd)**	**Monthly Avg. Annular Pressure (psig)**	**Monthly Max Annular Pressure (psig)**	**Monthly Min Annular Pressure (psig)**	**Total Volume (bbls)**
July 2001	143	341	0	28	178	0	3281	5913	25	161	500	17	98,443
August 2001	183	500	0	106	520	0	3529	7171	6	213	495	25	108,769
September 2001	48	277	0	94	206	0	1101	6097	4	132	500	22	33,040

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Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

February 12, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2001 to December 31, 2001. We have disposed a total of 9,429,075 bbls. of fluid down the two wells as of December 31, 2001. This is broken down as follows: 7,171,582 bbls. down WDW-1 and 2,257,493 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 1 of 5
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 30, 2002

Order ID Number: A02010402

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
188362	Inj. Wells	Water	1/3/01	9:00	1/4/02

0 This report consists of a total of 5 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 188362 - Inj. Wells

Param	Flag	Result	Units
Bromochloromethane		<1.00	µg/L
Dichlorodifluoromethane		<1.00	µg/L
Chloromethane (methyl chloride)		<1.00	µg/L
Vinyl Chloride		<1.00	µg/L
Bromomethane (methyl bromide)		<5.00	µg/L
Chloroethane		<1.00	µg/L
Trichlorofluoromethane		<1.00	µg/L
Acetone		17.4	µg/L
Iodomethane (methyl iodide)		<5.00	µg/L
Carbon Disulfide		<1.00	µg/L
Acrylonitrile		<1.00	µg/L
2-Butanone (MEK)		<5.00	µg/L
4-methyl-2-pentanone (MIBK)		<5.00	µg/L
2-hexanone		<5.00	µg/L
trans 1,4-Dichloro-2-butene		<10.0	µg/L
1,1-Dichloroethene		<1.00	µg/L
Methylene chloride		<5.00	µg/L
MTBE		<1.00	µg/L
trans-1,2-Dichloroethene		<1.00	µg/L
1,1-Dichloroethane		<1.00	µg/L
cis-1,2-Dichloroethene		<1.00	µg/L
2,2-Dichloropropane		<1.00	µg/L
1,2-Dichloroethane (EDC)		<1.00	µg/L
Chloroform		<1.00	µg/L
1,1,1-Trichloroethane		<1.00	µg/L
1,1-Dichloropropene		<1.00	µg/L
Benzene		<1.00	µg/L
Carbon Tetrachloride		<1.00	µg/L
1,2-Dichloropropane		<1.00	µg/L
Trichloroethene (TCE)		<1.00	µg/L
Dibromomethane (methylene bromide)		<1.00	µg/L
Bromodichloromethane		<1.00	µg/L

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This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 2 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
2-Chloroethyl vinyl ether		<5.00	µg/L
cis-1,3-Dichloropropene		<1.00	µg/L
trans-1,3-Dichloropropene		<1.00	µg/L
Toluene		<1.00	µg/L
1,1,2-Trichloroethane		<1.00	µg/L
1,3-Dichloropropane		<1.00	µg/L
Dibromochloromethane		<1.00	µg/L
1,2-Dibromoethane (EDB)		<1.00	µg/L
Tetrachloroethene (PCE)		<1.00	µg/L
Chlorobenzene		<1.00	µg/L
1,1,1,2-Tetrachloroethane		<1.00	µg/L
Ethylbenzene		2.20	µg/L
m,p-Xylene		3.72	µg/L
Bromoform		<1.00	µg/L
Styrene		<1.00	µg/L
o-Xylene		1.19	µg/L
1,1,2,2-Tetrachloroethane		<1.00	µg/L
2-Chlorotoluene		<1.00	µg/L
1,2,3-Trichloropropane		<1.00	µg/L
Isopropylbenzene		<1.00	µg/L
Bromobenzene		<1.00	µg/L
n-Propylbenzene		<1.00	µg/L
1,3,5-Trimethylbenzene		<1.00	µg/L
tert-Butylbenzene		<1.00	µg/L
1,2,4-Trimethylbenzene		1.08	µg/L
1,4-Dichlorobenzene (para)		<1.00	µg/L
sec-Butylbenzene		<1.00	µg/L
1,3-Dichlorobenzene		<1.00	µg/L
p-Isopropyltoluene		<1.00	µg/L
4-Chlorotoluene		<1.00	µg/L
1,2-Dichlorobenzene (ortho)		<1.00	µg/L
n-Butylbenzene		<1.00	µg/L
1,2-Dibromo-3-chloropropane		<5.00	µg/L
1,2,3-Trichlorobenzene		<5.00	µg/L
1,2,4-Trichlorobenzene		<5.00	µg/L
Naphthalene		<5.00	µg/L
Hexachlorobutadiene		<5.00	µg/L
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 3 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 4 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		12	mg/L as CaCo3
Bicarbonate Alkalinity		282	mg/L as CaCo3
Total Alkalinity		294	mg/L as CaCo3
Specific Conductance		4150	μMHOS/cm
Corrosivity		non-corrosive	mm/yr
pH		8.5	s.u.
Flashpoint	[1]	>150	F
Total Mercury		<0.0002	mg/L
Chloride		718	mg/L
Sulfate	[2]	500	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		157	mg/L
Dissolved Magnesium		25.3	mg/L
Dissolved Potassium		38.3	mg/L
Dissolved Sodium		452	mg/L
Total Dissolved Solids		1990	mg/L
Total Aluminum		0.842	mg/L
Total Arsenic		0.181	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.207	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L

Continued on next page ...

[1]There was not enough sample to duplicate.
[2]Sulfate re-ran on IC011002-1.sch (PB17016; QC17285). ICV %IA = 94; CCV %IA = 93; matrix spikes RPD = 0, %EA = 85; LCS spikes RPD = 1, %EA = 93.

This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 5 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Total Cobalt		<0.025	mg/L
Total Copper		0.0129	mg/L
Total Iron		1.77	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.080	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.292	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		0.0759	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.182	mg/L
pH	[3]	8.5	s.u.

[3] received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 30, 2002

Order ID Number: A02010402

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
188362	Inj. Wells	Water	1/3/01	9:00	1/4/02

0
These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.

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Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

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Analytical Report

Sample: 188362 - Inj. Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC17387	Date Analyzed:	1/7/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB17091	Date Prepared:	1/7/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<1.00	µg/L	1	1
Dichlorodifluoromethane		<1.00	µg/L	1	1
Chloromethane (methyl chloride)		<1.00	µg/L	1	1
Vinyl Chloride		<1.00	µg/L	1	1
Bromomethane (methyl bromide)		<5.00	µg/L	1	5
Chloroethane		<1.00	µg/L	1	1
Trichlorofluoromethane		<1.00	µg/L	1	1
Acetone		17.4	µg/L	1	10
Iodomethane (methyl iodide)		<5.00	µg/L	1	5
Carbon Disulfide		<1.00	µg/L	1	1
Acrylonitrile		<1.00	µg/L	1	1
2-Butanone (MEK)		<5.00	µg/L	1	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	1	5
2-hexanone		<5.00	µg/L	1	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	1	10
1,1-Dichloroethene		<1.00	µg/L	1	1
Methylene chloride		<5.00	µg/L	1	5
MTBE		<1.00	µg/L	1	1
trans-1,2-Dichloroethene		<1.00	µg/L	1	1
1,1-Dichloroethane		<1.00	µg/L	1	1
cis-1,2-Dichloroethene		<1.00	µg/L	1	1
2,2-Dichloropropane		<1.00	µg/L	1	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1
Chloroform		<1.00	µg/L	1	1
1,1,1-Trichloroethane		<1.00	µg/L	1	1
1,1-Dichloropropene		<1.00	µg/L	1	1
Benzene		<1.00	µg/L	1	1
Carbon Tetrachloride		<1.00	µg/L	1	1
1,2-Dichloropropane		<1.00	µg/L	1	1
Trichloroethene (TCE)		<1.00	µg/L	1	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1
Bromodichloromethane		<1.00	µg/L	1	1
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5
cis-1,3-Dichloropropene		<1.00	µg/L	1	1
trans-1,3-Dichloropropene		<1.00	µg/L	1	1
Toluene		<1.00	µg/L	1	1
1,1,2-Trichloroethane		<1.00	µg/L	1	1
1,3-Dichloropropane		<1.00	µg/L	1	1
Dibromochloromethane		<1.00	µg/L	1	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1
Tetrachloroethene (PCE)		<1.00	µg/L	1	1
Chlorobenzene		<1.00	µg/L	1	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1
Ethylbenzene		2.20	µg/L	1	1
m,p-Xylene		3.72	µg/L	1	1
Bromoform		<1.00	µg/L	1	1
Styrene		<1.00	µg/L	1	1
o-Xylene		1.19	µg/L	1	1

Continued ...

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... *Continued* Sample: 188362 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1
2-Chlorotoluene		<1.00	µg/L	1	1
1,2,3-Trichloropropane		<1.00	µg/L	1	1
Isopropylbenzene		<1.00	µg/L	1	1
Bromobenzene		<1.00	µg/L	1	1
n-Propylbenzene		<1.00	µg/L	1	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1
tert-Butylbenzene		<1.00	µg/L	1	1
1,2,4-Trimethylbenzene		1.08	µg/L	1	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1
sec-Butylbenzene		<1.00	µg/L	1	1
1,3-Dichlorobenzene		<1.00	µg/L	1	1
p-Isopropyltoluene		<1.00	µg/L	1	1
4-Chlorotoluene		<1.00	µg/L	1	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1	1
n-Butylbenzene		<1.00	µg/L	1	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	1	5
1,2,3-Trichlorobenzene		<5.00	µg/L	1	5
1,2,4-Trichlorobenzene		<5.00	µg/L	1	5
Naphthalene		<5.00	µg/L	1	5
Hexachlorobutadiene		<5.00	µg/L	1	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	84 - 122
Toluene-d8		48.5	µg/L	1	50	97	95 - 105
4-Bromofluorobenzene		50	µg/L	1	50	100	91 - 108

Sample: 188362 - Inj. Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC17449	Date Analyzed:	1/10/02
Analyst:	RC	Preparation Method:	E 3510C	Prep Batch:	PB17140	Date Prepared:	1/7/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 188362 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 188362 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		11.27	mg/L	1	80	14	21 - 100
Phenol-d5	[1]	6.21	mg/L	1	80	7	11 - 94
Nitrobenzene-d5		33.48	mg/L	1	80	41	35 - 114
2-Fluorobiphenyl		31.91	mg/L	1	80	39	43 - 116
2,4,6-Tribromophenol		55.66	mg/L	1	80	69	10 - 123
Terphenyl-d14		33.05	mg/L	1	80	41	33 - 141

Sample: 188362 - Inj. Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC17283	Date Analyzed:	1/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB17018	Date Prepared:	1/10/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		12	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		282	mg/L as CaCo3	1	1
Total Alkalinity		294	mg/L as CaCo3	1	1

Sample: 188362 - Inj. Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC17280	Date Analyzed:	1/9/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17013	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		4150	μMHOS/cm	1	

[1] Sample surrogate out of limits due to sample matrix.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 188362 - Inj. Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC17689	Date Analyzed:	1/24/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17318	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		non-corrosive	mm/yr	1	
pH		8.5	s.u.	1	

Sample: 188362 - Inj. Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC17688	Date Analyzed:	1/23/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17317	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Flashpoint	[2]	>150	F	1	

Sample: 188362 - Inj. Wells

Analysis:	Hg, Total	Analytical Method:	E 245.2	QC Batch:	QC17473	Date Analyzed:	1/17/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB17163	Date Prepared:	1/16/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 188362 - Inj. Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC17284	Date Analyzed:	1/8/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17015	Date Prepared:	1/8/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		718	mg/L	50	0.50
Sulfate	[3]	500	mg/L	50	0.50

Sample: 188362 - Inj. Wells

Analysis:	Reactivity	Analytical Method:	ASTM D 5049-90/4978-95	QC Batch:	QC17690	Date Analyzed:	1/23/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17319	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 188362 - Inj. Wells

Analysis:	Salts	Analytical Method:	E 200.7	QC Batch:	QC17367	Date Analyzed:	1/14/02
Analyst:	BC	Preparation Method:	S 3005A	Prep Batch:	PB16960	Date Prepared:	1/10/02

[2]There was not enough sample to duplicate.
[3]Sulfate re-ran on IC011002-1.sch (PB17016; QC17285). ICV %IA = 94; CCV %IA = 93; matrix spikes RPD = 0, %EA = 85; LCS spikes RPD = 1, %EA = 93.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		157	mg/L	1	0.50
Dissolved Magnesium		25.3	mg/L	1	0.50
Dissolved Potassium		38.3	mg/L	1	0.50
Dissolved Sodium		452	mg/L	1	0.50

Sample: 188362 - Inj. Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC17251	Date Analyzed:	1/10/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB16995	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		1990	mg/L	5	10

Sample: 188362 - Inj. Wells

Analysis:	Total Metals	Analytical Method:	E 200.7	QC Batch:	QC17264	Date Analyzed:	1/11/01
Analyst:	RR	Preparation Method:	N/A	Prep Batch:	PB16946	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.842	mg/L	1	0.10
Total Arsenic		0.181	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.207	mg/L	1	0.01
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		0.0129	mg/L	1	0.01
Total Iron		1.77	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.080	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.292	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		0.0759	mg/L	1	0.05
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.182	mg/L	1	0.02

Sample: 188362 - Inj. Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC17324	Date Analyzed:	1/8/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB17046	Date Prepared:	1/8/02

Param	Flag	Result	Units	Dilution	RDL
pH	[4]	8.5	s.u.	1	1

[4] received out of holding time

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Method Blank QCBatch: QC17251

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC17280

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		10.3	µMHOS/cm	

Method Blank QCBatch: QC17283

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank QCBatch: QC17284

Param	Flag	Results	Units	Reporting Limit
Chloride		<2.0	mg/L	0.50

Method Blank QCBatch: QC17367

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank QCBatch: QC17387

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		48.6	µg/L	1	50	97	84 - 122
Toluene-d8		48.6	µg/L	1	50	97	95 - 105
4-Bromofluorobenzene		48.1	µg/L	1	50	96	91 - 108

Method Blank

QCBatch: QC17449

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		34.33	mg/L	1	80	42	21 - 100
Phenol-d5		15.74	mg/L	1	80	19	11 - 94
Nitrobenzene-d5		88.13	mg/L	1	80	110	35 - 114
2-Fluorobiphenyl		90.46	mg/L	1	80	113	43 - 116
2,4,6-Tribromophenol		50.64	mg/L	1	80	63	10 - 123
Terphenyl-d14		101.21	mg/L	1	80	126	33 - 141

Method Blank

QCBatch: QC17473

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Quality Control Report
Duplicate Samples

Duplicate

QCBatch: QC17251

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		2035	1990	mg/L	1	2	8.9

Duplicate

QCBatch: QC17280

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4494	4490	µMHOS/cm	1	0	5.9

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Duplicate QCBatch: QC17283

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	7
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	7
Bicarbonate Alkalinity		528	532	mg/L as CaCo3	1	0	7
Total Alkalinity		528	532	mg/L as CaCo3	1	0	7

Duplicate QCBatch: QC17324

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	0.99

Duplicate QCBatch: QC17689

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		non-corrosive	non-corrosive	mm/yr	1	0	20
pH		8.5	8.5	s.u.	1	0	20

Duplicate QCBatch: QC17690

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		non-reactive	Non-reactive		1	0	20

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC17284

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.40	11.43	mg/L	1	12.50	<2.0	91	0	90 - 110	20
Nitrate-N	2.39	2.40	mg/L	1	2.50	<0.2	95	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes QCBatch: QC17387

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	105	107	µg/L	1	100	<1.00	105	1	92 - 129	20
Benzene	100	102	µg/L	1	100	<1.00	100	1	94 - 112	20
Trichloroethene (TCE)	105	107	µg/L	1	100	<1.00	105	1	90 - 113	20
Toluene	98	99	µg/L	1	100	<1.00	98	1	89 - 109	20
Chlorobenzene	101	104	µg/L	1	100	<1.00	101	2	93 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	48.8	48.5	µg/L	1	50	97	97	84 - 122
Toluene-d8	48.2	48.4	µg/L	1	50	96	96	95 - 105
4-Bromofluorobenzene	49.6	48.9	µg/L	1	50	99	97	91 - 108

Laboratory Control Spikes

QCBatch: QC17449

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	18.67	15.7	mg/L	1	80	<0.005	23	17	5 - 112	20
2-Chlorophenol	54.98	48.68	mg/L	1	80	<0.005	68	12	23 - 134	20
1,4-Dichlorobenzene	77.53	73.98	mg/L	1	80	<0.005	96	4	20 - 124	20
n-Nitrosodi-n-propylamine	69.29	53.43	mg/L	1	80	<0.005	86	25	0 - 230	20
1,2,4-Trichlorobenzene	88.58	87.4	mg/L	1	80	<0.005	110	1	44 - 142	20
4-Chloro-3-methylphenol	50.17	41.2	mg/L	1	80	<0.005	62	19	22 - 147	20
Acenaphthene	89.13	92.62	mg/L	1	80	<0.005	111	3	47 - 145	20
4-Nitrophenol	7.99	7.97	mg/L	1	80	<0.005	9	0	0 - 132	20
2,4-Dinitrotoluene	84.12	78.26	mg/L	1	80	<0.005	105	7	39 - 139	20
Pentachlorophenol	44.65	27.62	mg/L	1	80	<0.005	55	47	14 - 176	20
Pyrene	79.77	70.62	mg/L	1	80	<0.005	99	12	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	27.55	24.99	mg/L	1	80	34	31	21 - 100
Phenol-d5	14.57	11.59	mg/L	1	80	18	14	11 - 94
Nitrobenzene-d5	84.82	79.23	mg/L	1	80	106	99	35 - 114
2-Fluorobiphenyl	84.29	78.19	mg/L	1	80	105	97	43 - 116
2,4,6-Tribromophenol	70.76	62.61	mg/L	1	80	88	78	10 - 123
Terphenyl-d14	82.84	67.84	mg/L	1	80	103	84	33 - 141

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC17284

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	187.73	188.76	mg/L	1	125	72.0	90	0	52 - 131	20

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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1) QCBatch: QC17251

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1014	101	90 - 110	1/10/02

ICV (1) QCBatch: QC17251

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	998	99	90 - 110	1/10/02

CCV (1) QCBatch: QC17264

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.97	98	90 - 110	1/11/01
Total Arsenic		mg/L	1	1.01	101	90 - 110	1/11/01
Total Barium		mg/L	2	2.00	100	90 - 110	1/11/01
Total Beryllium		mg/L	0.05	0.0495	99	90 - 110	1/11/01
Total Boron		mg/L	0.10	0.102	102	90 - 110	1/11/01
Total Cadmium		mg/L	0.50	0.502	100	90 - 110	1/11/01
Total Chromium		mg/L	0.20	0.200	100	90 - 110	1/11/01
Total Cobalt		mg/L	0.50	0.501	100	90 - 110	1/11/01
Total Copper		mg/L	0.25	0.249	100	90 - 110	1/11/01
Total Iron		mg/L	1	1.01	101	90 - 110	1/11/01
Total Lead		mg/L	1	0.995	100	90 - 110	1/11/01
Total Manganese		mg/L	0.50	0.498	100	90 - 110	1/11/01
Total Molybdenum		mg/L	1	0.995	100	90 - 110	1/11/01
Total Nickel		mg/L	0.50	0.500	100	90 - 110	1/11/01
Total Selenium		mg/L	1	0.991	99	90 - 110	1/11/01
Total Silver		mg/L	0.25	0.247	99	90 - 110	1/11/01
Total Uranium		mg/L	1	1.03	103	90 - 110	1/11/01
Total Vanadium		mg/L	0.50	0.493	99	90 - 110	1/11/01
Total Zinc		mg/L	0.50	0.508	102	90 - 110	1/11/01

ICV (1) QCBatch: QC17264

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.97	98	90 - 110	1/11/01
Total Arsenic		mg/L	1	1.02	102	90 - 110	1/11/01
Total Barium		mg/L	2	2.01	100	90 - 110	1/11/01
Total Beryllium		mg/L	0.05	0.050	100	90 - 110	1/11/01
Total Boron		mg/L	0.10	0.104	104	90 - 110	1/11/01
Total Cadmium		mg/L	0.50	0.504	101	90 - 110	1/11/01
Total Chromium		mg/L	0.20	0.202	101	90 - 110	1/11/01
Total Cobalt		mg/L	0.50	0.507	101	90 - 110	1/11/01
Total Copper		mg/L	0.25	0.250	100	90 - 110	1/11/01
Total Iron		mg/L	1	1.01	101	90 - 110	1/11/01
Total Lead		mg/L	1	1.01	101	90 - 110	1/11/01
Total Manganese		mg/L	0.50	0.503	101	90 - 110	1/11/01
Total Molybdenum		mg/L	1	1.01	101	90 - 110	1/11/01
Total Nickel		mg/L	0.50	0.504	101	90 - 110	1/11/01
Total Selenium		mg/L	1	1.01	101	90 - 110	1/11/01
Total Silver		mg/L	0.25	0.250	100	90 - 110	1/11/01
Total Uranium		mg/L	1	1.01	101	90 - 110	1/11/01
Total Vanadium		mg/L	0.50	0.500	100	90 - 110	1/11/01
Total Zinc		mg/L	0.50	0.502	100	90 - 110	1/11/01

CCV (1) QCBatch: QC17280

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1447	102	90 - 110	1/9/02

ICV (1) QCBatch: QC17280

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1400	1449	103	90 - 110	1/9/02

CCV (1) QCBatch: QC17283

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	1/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	90 - 110	1/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	12	0	90 - 110	1/10/02
Total Alkalinity		mg/L as CaCo3	250	236	94	90 - 110	1/10/02

ICV (1) QCBatch: QC17283

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	1/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	236	0	90 - 110	1/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	1/10/02
Total Alkalinity		mg/L as CaCo3	250	242	96	90 - 110	1/10/02

CCV (1) QCBatch: QC17284

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.44	91	90 - 110	1/8/02
Nitrate-N		mg/L	2.50	2.39	95	90 - 110	1/8/02

ICV (1) QCBatch: QC17284

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.31	90	90 - 110	1/8/02
Nitrate-N		mg/L	2.50	2.37	94	90 - 110	1/8/02

CCV (1) QCBatch: QC17324

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	1/8/02

ICV (1) QCBatch: QC17324

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	1/8/02

CCV (1) QCBatch: QC17367

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	27.2	108	90 - 110	1/14/02
Dissolved Magnesium		mg/L	25	27.5	110	90 - 110	1/14/02
Dissolved Potassium		mg/L	25	23.5	94	90 - 110	1/14/02

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Sodium		mg/L	25	26.1	104	90 - 110	1/14/02

ICV (1)

QCBatch: QC17367

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.6	102	95 - 105	1/14/02
Dissolved Magnesium		mg/L	25	25.4	101	95 - 105	1/14/02
Dissolved Potassium		mg/L	25	25.7	102	95 - 105	1/14/02
Dissolved Sodium		mg/L	25	25.8	103	95 - 105	1/14/02

CCV (1)

QCBatch: QC17387

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	86	86	80 - 120	1/7/02
1,1-Dichloroethene		µg/L	100	100	100	80 - 120	1/7/02
Chloroform		µg/L	100	96	96	80 - 120	1/7/02
1,2-Dichloropropane		µg/L	100	96	96	80 - 120	1/7/02
Toluene		µg/L	100	98	98	80 - 120	1/7/02
Chlorobenzene		µg/L	100	100	100	80 - 120	1/7/02
Ethylbenzene		µg/L	100	99	99	80 - 120	1/7/02
Dibromofluoromethane		µg/L	50	48.8	97	80 - 120	1/7/02
Toluene-d8		µg/L	50	47.9	95	80 - 120	1/7/02
4-Bromofluorobenzene		µg/L	50	51.7	103	80 - 120	1/7/02

CCV (1)

QCBatch: QC17449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	58.4	97	80 - 120	1/10/02
1,4-Dichlorobenzene		mg/L	60	61.28	102	80 - 120	1/10/02
2-Nitrophenol		mg/L	60	50.66	84	80 - 120	1/10/02
2,4-Dichlorophenol		mg/L	60	59.77	99	80 - 120	1/10/02
Hexachlorobutadiene		mg/L	60	67.23	112	80 - 120	1/10/02
4-Chloro-3-methylphenol		mg/L	60	57.54	95	80 - 120	1/10/02
2,4,6-Trichlorophenol		mg/L	60	63.18	105	80 - 120	1/10/02
Acenaphthene		mg/L	60	63.72	106	80 - 120	1/10/02
Diphenylamine		mg/L	60	60.31	100	80 - 120	1/10/02
Pentachlorophenol		mg/L	60	64.31	107	80 - 120	1/10/02
Fluoranthene		mg/L	60	63.95	106	80 - 120	1/10/02
Di-n-octylphthalate		mg/L	60	57.07	95	80 - 120	1/10/02
Benzo(a)pyrene		mg/L	60	53.49	89	80 - 120	1/10/02

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
2-Fluorophenol		mg/L	60	62.05	103	80 - 120	1/10/02
Phenol-d5		mg/L	60	59.75	99	80 - 120	1/10/02
Nitrobenzene-d5		mg/L	60	65.33	108	80 - 120	1/10/02
2-Fluorobiphenyl		mg/L	60	71.3	118	80 - 120	1/10/02
2,4,6-Tribromophenol		mg/L	60	66.34	110	80 - 120	1/10/02
Terphenyl-d14		mg/L	60	71.42	119	80 - 120	1/10/02

CCV (1)

QCBatch: QC17473

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00091	91	80 - 120	1/17/02

ICV (1)

QCBatch: QC17473

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00099	99	80 - 120	1/17/02

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Page_____of_____

501 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon,Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # H02010402

Company Name: NAVASO Phone #:

Address: (Street, City, Zip) Fax #:

Contact Person: Darrell Moore

Invoice to: (If different from above)

Project #: Project Name: Inj. wells

Project Location: Artesia Sampler Signature:

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
188362	Inj. Wells	2	1L	X								X	X	1/3/02	900
	" "	1	500ml	X					X			X		1/3/02	900
	" "	2	40ml	X				X				X		1/3/02	900

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See L-57

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	1/3/02	615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Beasley	1-4-01	10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact Y N

Headspace Y / N

Temp 1 °

Log-in Review MS

REMARKS:

1/3 1P

☐ Check If Special Reporting Limits Are Needed

Carrier # Fed Ex 3462642211

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Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max. Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max. Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Oct-01	236	350	0	262	393	0	8982	13474	0	197	269	140	278,442
Nov-01	223	363	0	214	649	0	7337	22251	0	192	414	110	220,110
Dec-01	500	500	111	219	647	0	7508	22182	0	239	499	108	232,748

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max. Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max. Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Oct-01	71	299	0	45	647	0	1542	22182	0	161	466	22	47,802
Nov-01	93	336	0	52	647	0	1782	22182	0	146	448	15	53,460
Dec-01	462	500	44	155	647	0	5314	22182	0	225	339	160	164,734

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

September 3, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 2nd quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from April 1, 2002 to June 30, 2002. We have disposed a total of 10,376,491 bbls. of fluid into the two wells as of December 31, 2001. This is broken down as follows: 7,902,016 bbls. into WDW-1 and 2,474,475 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: August 29, 2002

Order ID Number: A02071026

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
201170	Inj Wells	Water	7/9/02	9:00	7/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

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Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report

Sample: 201170 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC21973	Date Analyzed:	7/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20783	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		90	mg/L as CaCo3	1	1
Total Alkalinity		90	mg/L as CaCo3	1	1

Sample: 201170 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC21780	Date Analyzed:	7/11/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB20631	Date Prepared:	7/11/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5830	μMHOS/cm	1	

Sample: 201170 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC21915	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:		Prep Batch:	PB20741	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		0.4970 non-corrosive	mm/yr	1	
pH		7.57	s.u.	1	

Sample: 201170 - Inj Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC21917	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB20743	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Flashpoint		>140	F	1	

Sample: 201170 - Inj Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC22023	Date Analyzed:	7/19/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB20842	Date Prepared:	7/19/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 201170 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC21914	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:		Prep Batch:	PB20740	Date Prepared:	7/16/02

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: August 29, 2002 Order Number: A02071026 Page Number: 3 of 20
N/A Injection Wells N/A

Param	Flag	Result	Units	Dilution	RDL

Sample: 201170 - Inj Wells

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC21805 Date Analyzed: 7/10/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB20648 Date Prepared: 7/10/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		1090	mg/L	100	1
Nitrate-N		<0.2	mg/L	5	0.20
Sulfate		934	mg/L	100	1

Sample: 201170 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC21916 Date Analyzed: 7/16/02
Analyst: BC Preparation Method: Prep Batch: PB20742 Date Prepared: 7/16/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 201170 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC22163 Date Analyzed: 7/22/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB20704 Date Prepared: 7/15/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		170	mg/L	1	0.50
Dissolved Magnesium		31.7	mg/L	1	0.50
Dissolved Potassium		19.3	mg/L	1	0.50
Dissolved Sodium		691	mg/L	1	0.50

Sample: 201170 - Inj Wells

Analysis: Semivolatiles Analytical Method: S 8270C QC Batch: QC22072 Date Analyzed: 7/16/02
Analyst: RC Preparation Method: E 3510C Prep Batch: PB20791 Date Prepared: 7/15/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.017	mg/L	3.33	0.005
n-Nitrosodimethylamine		<0.017	mg/L	3.33	0.005
2-Picoline		<0.017	mg/L	3.33	0.005
Methyl methanesulfonate		<0.017	mg/L	3.33	0.005
Ethyl methanesulfonate		<0.017	mg/L	3.33	0.005
Phenol		<0.017	mg/L	3.33	0.005
Aniline		<0.017	mg/L	3.33	0.005
bis (2-chloroethyl) ether		<0.017	mg/L	3.33	0.005
2-Chlorophenol		<0.017	mg/L	3.33	0.005
1,3-Dichlorobenzene (meta)		<0.017	mg/L	3.33	0.005
1,4-Dichlorobenzene		<0.017	mg/L	3.33	0.005
Benzyl alcohol		<0.017	mg/L	3.33	0.005

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Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 201170 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
1,2-Dichlorobenzene		<0.017	mg/L	3.33	0.005
2-Methylphenol		<0.017	mg/L	3.33	0.005
bis (2-chloroisopropyl) ether		<0.017	mg/L	3.33	0.005
4-Methylphenol/3-Methylphenol		<0.017	mg/L	3.33	0.005
Acetophenone		<0.017	mg/L	3.33	0.005
n-Nitrosodi-n-propylamine		<0.017	mg/L	3.33	0.005
Hexachloroethane		<0.017	mg/L	3.33	0.005
Nitrobenzene		<0.017	mg/L	3.33	0.005
n-Nitrosopiperidine		<0.017	mg/L	3.33	0.005
Isophorone		<0.017	mg/L	3.33	0.005
2-Nitrophenol		<0.017	mg/L	3.33	0.005
2,4-Dimethylphenol		<0.017	mg/L	3.33	0.005
bis (2-chloroethoxy) methane		<0.017	mg/L	3.33	0.005
Benzoic acid		<0.017	mg/L	3.33	0.005
2,4-Dichlorophenol		<0.017	mg/L	3.33	0.005
1,2,4-Trichlorobenzene		<0.017	mg/L	3.33	0.005
a,a-Dimethylphenethylamine		<0.017	mg/L	3.33	0.005
Naphthalene		<0.017	mg/L	3.33	0.005
4-Chloroaniline		<0.017	mg/L	3.33	0.005
2,6-Dichlorophenol		<0.017	mg/L	3.33	0.005
Hexachlorobutadiene		<0.017	mg/L	3.33	0.005
n-Nitroso-di-n-butylamine		<0.017	mg/L	3.33	0.005
4-Chloro-3-methylphenol		<0.017	mg/L	3.33	0.005
1-Methylnaphthalene		<0.017	mg/L	3.33	0.005
2-Methylnaphthalene		<0.017	mg/L	3.33	0.005
1,2,4,5-Tetrachlorobenzene		<0.017	mg/L	3.33	0.005
Hexachlorocyclopentadiene		<0.017	mg/L	3.33	0.005
2,4,6-Trichlorophenol		<0.017	mg/L	3.33	0.005
2,4,5-Trichlorophenol		<0.017	mg/L	3.33	0.005
2-Chloronaphthalene		<0.017	mg/L	3.33	0.005
1-Chloronaphthalene		<0.017	mg/L	3.33	0.005
2-Nitroaniline		<0.017	mg/L	3.33	0.005
Dimethylphthalate		<0.017	mg/L	3.33	0.005
Acenaphthylene		<0.017	mg/L	3.33	0.005
2,6-Dinitrotoluene		<0.017	mg/L	3.33	0.005
3-Nitroaniline		<0.017	mg/L	3.33	0.005
Acenaphthene		<0.017	mg/L	3.33	0.005
2,4-Dinitrophenol		<0.017	mg/L	3.33	0.005
Dibenzofuran		<0.017	mg/L	3.33	0.005
Pentachlorobenzene		<0.017	mg/L	3.33	0.005
4-Nitrophenol		<0.017	mg/L	3.33	0.005
1-Naphthylamine		<0.017	mg/L	3.33	0.005
2,4-Dinitrotoluene		<0.017	mg/L	3.33	0.005
2-Naphthylamine		<0.017	mg/L	3.33	0.005
2,3,4,6-Tetrachlorophenol		<0.017	mg/L	3.33	0.005
Fluorene		<0.017	mg/L	3.33	0.005
Diethylphthalate		<0.017	mg/L	3.33	0.005
4-Chlorophenyl-phenylether		<0.017	mg/L	3.33	0.005
4-Nitroaniline		<0.017	mg/L	3.33	0.005
4,6-Dinitro-2-methylphenol		<0.017	mg/L	3.33	0.005
Diphenylamine		<0.017	mg/L	3.33	0.005
Diphenylhydrazine		<0.017	mg/L	3.33	0.005
4-Bromophenyl-phenylether		<0.017	mg/L	3.33	0.005

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... *Continued* Sample: 201170 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
Phenacetin		<0.017	mg/L	3.33	0.005
Hexachlorobenzene		<0.017	mg/L	3.33	0.005
4-Aminobiphenyl		<0.017	mg/L	3.33	0.005
Pentachlorophenol		<0.017	mg/L	3.33	0.005
Pentachloronitrobenzene		<0.017	mg/L	3.33	0.005
Pronamide		<0.017	mg/L	3.33	0.005
Phenanthrene		<0.017	mg/L	3.33	0.005
Anthracene		<0.017	mg/L	3.33	0.005
Di-n-butylphthalate		<0.017	mg/L	3.33	0.005
Fluoranthene		<0.017	mg/L	3.33	0.005
Benzidine		<0.017	mg/L	3.33	0.005
Pyrene		<0.017	mg/L	3.33	0.005
p-Dimethylaminoazobenzene		<0.017	mg/L	3.33	0.005
Butylbenzylphthalate		<0.017	mg/L	3.33	0.005
Benzo(a)anthracene		<0.017	mg/L	3.33	0.005
3,3-Dichlorobenzidine		<0.017	mg/L	3.33	0.005
Chrysene		<0.017	mg/L	3.33	0.005
Bis (2-ethylhexyl) phthalate		<0.017	mg/L	3.33	0.005
Di-n-octylphthalate		<0.017	mg/L	3.33	0.005
Benzo(b)fluoranthene		<0.017	mg/L	3.33	0.005
7,12-Dimethylbenz(a)anthracene		<0.017	mg/L	3.33	0.005
Benzo(k)fluoranthene		<0.017	mg/L	3.33	0.005
Benzo(a)pyrene		<0.017	mg/L	3.33	0.005
3-Methylcholanthrene		<0.017	mg/L	3.33	0.005
Dibenzo(a,j)acridine		<0.017	mg/L	3.33	0.005
Indeno(1,2,3-cd)pyrene		<0.017	mg/L	3.33	0.005
Dibenzo(a,h)anthracene		<0.017	mg/L	3.33	0.005
Benzo(g,h,i)perylene		<0.017	mg/L	3.33	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		26.51	mg/L	3.33	80	33	0 - 66
Phenol-d5		25.68	mg/L	3.33	80	32	0 - 70
Nitrobenzene-d5		63.42	mg/L	3.33	80	79	23 - 99
2-Fluorobiphenyl		52.98	mg/L	3.33	80	66	27 - 95
2,4,6-Tribromophenol		47.99	mg/L	3.33	80	59	0 - 199
Terphenyl-d14		57.69	mg/L	3.33	80	72	20 - 96

Sample: 201170 - Inj Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC21968	Date Analyzed:	7/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20788	Date Prepared:	7/15/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2920	mg/L	5	10

Sample: 201170 - Inj Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC21824	Date Analyzed:	7/12/02
Analyst:	RR	Preparation Method:	S 3010A	Prep Batch:	PB20632	Date Prepared:	7/11/02

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.347	mg/L	1	0.10
Total Arsenic		0.142	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.285	mg/L	10	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		4.08	mg/L	10	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.124	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.422	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.316	mg/L	1	0.02

Sample: 201170 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC22002	Date Analyzed:	7/17/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB20818	Date Prepared:	7/17/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1

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... *Continued* Sample: 201170 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		51.6	µg/L	5	50	103	77 - 122
Toluene-d8		54.9	µg/L	5	50	109	96 - 111
4-Bromofluorobenzene		45.9	µg/L	5	50	91	87 - 113

[1] elevated reporting limits due to matrix problems.

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: August 29, 2002 Order Number: A02071026 Page Number: 8 of 20
N/A Injection Wells N/A

Sample: 201170 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC21883	Date Analyzed:	7/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20720	Date Prepared:	7/10/02

Param	Flag	Result	Units	Dilution	RDL
pH		7.2	s.u.	1	1

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Quality Control Report
Method Blank

Method Blank

QCBatch: QC21780

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		3.32	µMHOS/cm	

Method Blank

QCBatch: QC21805

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank

QCBatch: QC21824

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.10
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		<0.0125	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank

QCBatch: QC21968

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

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Method Blank

QCBatch: QC21973

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank

QCBatch: QC22002

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1

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Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Results	Units	Reporting Limit
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.7	µg/L	1	50	101	77 - 122
Toluene-d8		54.7	µg/L	1	50	109	96 - 111
4-Bromofluorobenzene		43.4	µg/L	1	50	86	87 - 113

Method Blank

QCBatch: QC22023

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank

QCBatch: QC22072

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		26.07	mg/L	1	80	32	0 - 66
Phenol-d5		25.47	mg/L	1	80	31	0 - 70
Nitrobenzene-d5		67.96	mg/L	1	80	84	23 - 99
2-Fluorobiphenyl		65.91	mg/L	1	80	82	27 - 95
2,4,6-Tribromophenol		38.44	mg/L	1	80	48	0 - 199
Terphenyl-d14		74.16	mg/L	1	80	92	20 - 96

Released to Imaging: 7/12/2024 10:49:45 AM

Method Blank QCBatch: QC22163

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC21780

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		5830	5830	µMHOS/cm	1	0	20

Duplicate QCBatch: QC21883

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		9.2	9.2	s.u.	1	0	0

Duplicate QCBatch: QC21915

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		0.7441 non-corrosive	0.4970 non-corrosive	mm/yr	1	39	20
pH		7.57	7.57	s.u.	1	0	0

Duplicate QCBatch: QC21916

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Reactivity		non-reactive	Non-reactive		1	0	20

Duplicate QCBatch: QC21917

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Flashpoint		>140	>140	F	1	0	20

Received by OCD: 5/16/2022 2:12:41 PM

Duplicate

QCBatch: QC21968

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		3230	2920	mg/L	1	10	9.7

Duplicate

QCBatch: QC21973

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		212	208	mg/L as CaCo3	1	1	9.2
Total Alkalinity		212	208	mg/L as CaCo3	1	1	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC21805

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.78	11.16	mg/L	1	12.50	<1.0	94	5	90 - 110	20
Nitrate-N	2.33	2.34	mg/L	1	2.50	<0.2	93	0	90 - 110	20
Sulfate	11.6	11.57	mg/L	1	12.50	<1.0	92	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC22002

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	110	111	µg/L	1	100	<1.00	110	0	84 - 124	20
Benzene	100	101	µg/L	1	100	<1.00	100	0	87 - 112	20
Trichloroethene (TCE)	91	92	µg/L	1	100	<1.00	91	1	81 - 105	20
Toluene	98	98	µg/L	1	100	<1.00	98	0	90 - 108	20
Chlorobenzene	98	97	µg/L	1	100	<1.00	98	1	84 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	50.4	50.0	µg/L	1	50	100	100	77 - 122
Toluene-d8	53.3	52.4	µg/L	1	50	106	104	96 - 111
4-Bromofluorobenzene	46.3	44.6	µg/L	1	50	92	89	87 - 113

Laboratory Control Spikes

QCBatch: QC22023

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00116	0.00115	mg/L	1	0.001	<0.0002	116	0	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC22072

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	33.00	30.27	mg/L	1	80	<0.005	41	8	0 - 81	20
2-Chlorophenol	62.6	59.26	mg/L	1	80	<0.005	78	5	12 - 83	20
1,4-Dichlorobenzene	72.36	66.83	mg/L	1	80	<0.005	90	7	13 - 88	20
n-Nitrosodi-n-propylamine	76.72	72.71	mg/L	1	80	<0.005	95	5	9 - 101	20
1,2,4-Trichlorobenzene	69.72	67.82	mg/L	1	80	<0.005	87	2	21 - 87	20
4-Chloro-3-methylphenol	62.44	63.16	mg/L	1	80	<0.005	78	1	14 - 92	20
Acenaphthene	66.04	63.46	mg/L	1	80	<0.005	82	3	26 - 86	20
4-Nitrophenol	23.40	27.78	mg/L	1	80	<0.005	29	17	0 - 104	20
2,4-Dinitrotoluene	73.07	79.28	mg/L	1	80	<0.005	91	8	29 - 94	20
Pentachlorophenol	[2] 43.16	54.00	mg/L	1	80	<0.005	53	22	1 - 97	20
Pyrene	73.53	66.03	mg/L	1	80	<0.005	91	10	25 - 90	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	41.00	39.53	mg/L	1	80	51	49	0 - 66
Phenol-d5	27.97	26.74	mg/L	1	80	34	33	0 - 70
Nitrobenzene-d5	59.2	58.00	mg/L	1	80	74	72	23 - 99
2-Fluorobiphenyl	57.39	54.89	mg/L	1	80	71	68	27 - 95
2,4,6-Tribromophenol	53.32	58.67	mg/L	1	80	66	73	0 - 199
Terphenyl-d14	64.51	59.09	mg/L	1	80	80	73	20 - 96

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC21805

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	2210	2200	mg/L	1	1250		89	0	48 - 127	20
Chloride	2210	2200	mg/L	1	1250	1090	89	0	48 - 127	20
Nitrate-N	243	235	mg/L	1	250		97	3	87 - 100	20
Nitrate-N	243	235	mg/L	1	250	<0.2	97	3	87 - 100	20
Sulfate	2090	2090	mg/L	1	1250		92	0	59 - 121	20
Sulfate	2090	2090	mg/L	1	1250	934	92	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[2]Irradic recovery of penta chlorophenol other analytes show process is in control.

Released to Imaging: 7/12/2024 10:49:45 AM

Matrix Spikes

QCBatch: QC22023

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00104	0.00105	mg/L	1	0.001	<0.0002	104	0	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC21780

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1385	98	90 - 110	7/11/02

ICV (1)

QCBatch: QC21780

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1400	99	90 - 110	7/11/02

CCV (1)

QCBatch: QC21805

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.74	93	90 - 110	7/10/02
Nitrate-N		mg/L	2.50	2.33	93	90 - 110	7/10/02
Sulfate		mg/L	12.50	11.49	91	90 - 110	7/10/02

ICV (1)

QCBatch: QC21805

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.89	95	90 - 110	7/10/02
Nitrate-N		mg/L	2.50	2.34	93	90 - 110	7/10/02
Sulfate		mg/L	12.50	11.69	93	90 - 110	7/10/02

Received by OCD: 5/16/2022 2:12:41 PM

CCV (1) QCBatch: QC21824

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	0.25	0.246	98	90 - 110	7/12/02
Total Zinc		mg/L	0.50	0.498	99	90 - 110	7/12/02

ICV (1) QCBatch: QC21824

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	0.25	0.248	99	95 - 105	7/12/02
Total Zinc		mg/L	0.50	0.500	100	95 - 105	7/12/02

CCV (1) QCBatch: QC21883

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	7/10/02

ICV (1) QCBatch: QC21883

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	7/10/02

CCV (1) QCBatch: QC21968

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	965	96	90 - 110	7/16/02

ICV (1) QCBatch: QC21968

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1029	102	90 - 110	7/16/02

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

CCV (1) QCBatch: QC21973

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	7/16/02
Carbonate Alkalinity		mg/L as CaCo3	0	228	0	90 - 110	7/16/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	8	0	90 - 110	7/16/02
Total Alkalinity		mg/L as CaCo3	250	236	94	90 - 110	7/16/02

ICV (1) QCBatch: QC21973

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	7/16/02
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	90 - 110	7/16/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	7/16/02
Total Alkalinity		mg/L as CaCo3	250	238	95	90 - 110	7/16/02

CCV (1) QCBatch: QC22002

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	51	102	80 - 120	7/17/02
1,1-Dichloroethene		µg/L	50	50	100	80 - 120	7/17/02
Chloroform		µg/L	50	50	100	80 - 120	7/17/02
1,2-Dichloropropane		µg/L	50	52	104	80 - 120	7/17/02
Toluene		µg/L	50	50	100	80 - 120	7/17/02
Chlorobenzene		µg/L	50	50	100	80 - 120	7/17/02
Ethylbenzene		µg/L	50	51	102	80 - 120	7/17/02
Dibromofluoromethane		µg/L	50	49.9	99	80 - 120	7/17/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	7/17/02
4-Bromofluorobenzene		µg/L	50	50.9	101	80 - 120	7/17/02

CCV (1) QCBatch: QC22023

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00105	105	80 - 120	7/19/02

ICV (1) QCBatch: QC22023

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00095	95	80 - 120	7/19/02

CCV (1) QCBatch: QC22072

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	58.5	97	80 - 120	7/16/02
1,4-Dichlorobenzene		mg/L	60	59.73	99	80 - 120	7/16/02
2-Nitrophenol		mg/L	60	62.14	103	80 - 120	7/16/02
2,4-Dichlorophenol		mg/L	60	61.05	101	80 - 120	7/16/02
Hexachlorobutadiene		mg/L	60	60.03	100	80 - 120	7/16/02
4-Chloro-3-methylphenol		mg/L	60	60.24	100	80 - 120	7/16/02
2,4,6-Trichlorophenol		mg/L	60	57.57	95	80 - 120	7/16/02
Acenaphthene		mg/L	60	59.24	98	80 - 120	7/16/02
Diphenylamine		mg/L	60	60.37	100	80 - 120	7/16/02
Pentachlorophenol		mg/L	60	51.44	85	80 - 120	7/16/02
Fluoranthene		mg/L	60	60.02	100	80 - 120	7/16/02
Di-n-octylphthalate		mg/L	60	60.12	100	80 - 120	7/16/02
Benzo(a)pyrene		mg/L	60	59.34	98	80 - 120	7/16/02
2-Fluorophenol		mg/L	60	58.33	97	80 - 120	7/16/02
Phenol-d5		mg/L	60	57.94	96	80 - 120	7/16/02
Nitrobenzene-d5		mg/L	60	60.01	100	80 - 120	7/16/02
2-Fluorobiphenyl		mg/L	60	59.77	99	80 - 120	7/16/02
2,4,6-Tribromophenol		mg/L	60	58.63	97	80 - 120	7/16/02
Terphenyl-d14		mg/L	60	58.81	98	80 - 120	7/16/02

CCV (1) QCBatch: QC22163

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	26.0	104	90 - 110	7/22/02
Dissolved Magnesium		mg/L	25	25.6	102	90 - 110	7/22/02
Dissolved Potassium		mg/L	25	24.0	96	90 - 110	7/22/02
Dissolved Sodium		mg/L	25	25.5	102	90 - 110	7/22/02

ICV (1) QCBatch: QC22163

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	26.0	104	95 - 105	7/22/02
Dissolved Magnesium		mg/L	25	25.7	102	95 - 105	7/22/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	7/22/02
Dissolved Sodium		mg/L	25	26.2	104	95 - 105	7/22/02

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NAVAJO REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P.O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

OIL CONSERVATION DIV.
01 JUL 27 PM 1:26

July 3, 2001

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2000 to March 30, 2001. Due to an oversight on our part, quarterly samples for the 4th quarter of 2000 were not collected. Samples for the 2nd quarter of 2001 have been collected and those results will be forwarded as soon as we receive them.

We have disposed a total of 6,619,428 bbls. of fluid down the two wells as of March 31, 2001. This is broken down as follows: 5,145,012 bbls. down WDW-1 and 1,474,416 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Received by OCD: 5/16/2022 2:12:41 PM

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 1 of 5
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: June 29, 2001

Order ID Number: A01040410

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
168299	Injection Wells	Water	4/3/01	10:10	4/4/01

This report consists of a total of 5 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 168299 - Injection Wells

Param	Flag	Result	Units
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<5.00	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone	1	74.3	µg/L
Iodomethane (methyl iodide)		<5.00	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L

Continued on next page . . .

[1]estimated concentration, RSD value above 15% on initial calibration

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 2 of 5
N/A Injection Wells N/A

Sample 168299 continued . . .

Param	Flag	Result	Units
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroethene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortho)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L

Continued on next page . . .

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 3 of 5
N/A Injection Wells N/A

Sample 168299 continued ...

Param	Flag	Result	Units
bis (2-chloroisopropyl) ether		<0.005	mg/L
4 Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L

Continued on next page

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: AG10410 Page Number: 4 of 5
N/A Injection Wells N/A

Sample 168299 continued ...

Param	Flag	Result	Units
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		514	mg/L as CaCo3
Total Alkalinity		514	mg/L as CaCo3
Specific Conductance		7300	µMHOS/cm
Corrosivity		0.4327	mm/yr
pH		8.63	s.u.
Total Mercury		<0.0002	mg/L
Ignitability		non-ignitable	
CL		1700	mg/L
Fluoride		76	mg/L
Nitrate-N	2	<1.0	mg/L
Sulfate		460	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	
Hydrogen Cyanide		<2.5	
Dissolved Calcium		110	mg/L
Dissolved Magnesium		32	mg/L
Dissolved Potassium		28	mg/L
Dissolved Sodium		1100	mg/L
Total Dissolved Solids		3800	mg/L
Total Aluminum		0.23	mg/L
Total Arsenic		0.309	mg/L
Total Barium		<0.1	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.512	mg/L

Continued on next page ...

[2]Sample re-ran out of hold time for NO3.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 5 of 5
N/A Injection Wells N/A

Sample 168299 continued . . .

Param	Flag	Result	Units
Total Cadmium		<0.025	mg/L
Total Chromium		0.0106	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		0.0144	mg/L
Total Iron		3.14	mg/L
Total Lead		<0.01	mg/L
Total Manganese		0.108	mg/L
Total Molybdenum		<0.05	mg/L
Total Nickel		<0.25	mg/L
Total Selenium		0.552	mg/L
Total Silver		<0.125	mg/L
Total Uranium		0.0502	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.118	mg/L
pH	3	8.3	s.u.

[3]Sample run out of holding time

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: NAVAJO Refining Phone #: 505 748 3311

Address: (Street, City, Zip) 501 E. Main Fax #: 505 746 5421

Contact Person: Darrell Moore

Invoice to: (if different from above)

Project #: Project Name: Injection wells

Project Location: Artesia Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
16129	Injection wells	2	40ml	X				X				X		4/5/01	1040
	" "	2	1L	X								X	X	4/5/01	1050
	" "	1	200ml	X					X			X		4/5/01	1010

ANALYSIS REQUEST (Circle or Specify Method No.)

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg (or specify) 6010B/7000 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

PAH 8270C

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	4/5/01	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

LAB USE ONLY

REMARKS:

☐ Check if Special Reporting Limits Are Needed

Carrier # Fed Ex 917-7348-474

Submittal of sample constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Page 2500 of 5828

Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Jan 2001	197	305	86	230	317	84	7885.71	10868.57	2880.00	226	299	146	236,571
Feb 2001	227	297	142	261	293	208	8948.57	10045.71	7131.43	208	297	161	268,457
March 2001	210	292	104	243	290	192	8331.43	9942.86	6582.86	212	309	153	249,943

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Jan 2001	251	251	0	92	144	0	3154.286	4937.143	0	131	164	121	94,629
Feb 2001	118	175	0	47	176	0	1611.429	6034.286	0	152	177	129	48,343
March 2001	116	160	0	23	171	0	788.5714	5862.857	0	163	220	141	23,657

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Page 2501 of 5828

Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
April 2001	258	318	63	237	272	145	8125.71	9325.71	4971.43	258	324	169	243,771
May 2001	245	304	114	199	251	100	6822.86	8605.71	3428.57	245	308	164	204,686
June 2001	243	308	104	162	223	119	5554.29	7645.71	4080.00	245	302	182	166,629

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
April 2001	83	127	0	17	138	0	582.8571	4731.429	0	145	167	126	17,486
May 2001	115	249	0	115	184	0	3942.857	6308.571	0	185	325	72	118,286
June 2001	142	258	37	142	168	35	4868.571	5760	1200	163	262	91	146,057

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TELEPHONE
(505) 748-3311

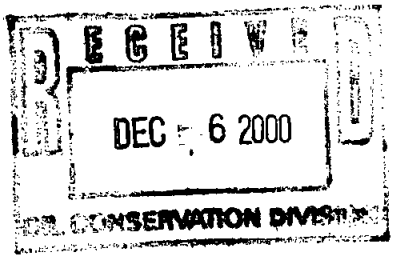
EASYLINK
62905278

NAVAJO REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

December 4, 2000



Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2000 to September 30, 2000. We have disposed a total of 4,464,244 bbls. of fluid down the two wells. This is broken down as follows: 3,620,341 bbls. down WDW-1 and 843,903 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Page 2503 of 5828

Qrtly Injection Press

Navajo R

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthl Min. Flo Rate (gp
July 2000	210	289	-12.1	201	480	10.1
August 2000	276	397	-12.4	210	261	12.1
September 2000	314	380	-12.3	221	265	11.6

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthl Min. Flo Rate (gp
July 2000	215	281	-14.6	156	203	0
August 2000	272	367	-15.4	188	209	100
September 2000	192	358	-15.4	159	202	110

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TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 24, 2000

Order ID Number: A00100302

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
154738	Injection Wells	Water	10/2/00	9:30	10/3/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 25 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

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Analytical and Quality Control Report

Sample: 154738 - Injection Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC05404	Date Analyzed:	10/6/00
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB04714	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<10.0	µg/L	5	1
Dichlorodifluoromethane		<10.0	µg/L	5	1
Chloromethane (methyl chloride)		<10.0	µg/L	5	1
Vinyl Chloride		<10.0	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	1
Chloroethane		<10.0	µg/L	5	1
Trichlorofluoromethane		<10.0	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<10.0	µg/L	5	1
Carbon Disulfide		<10.0	µg/L	5	1
Acrylonitrile		<25.0	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<10.0	µg/L	5	5
1,1-Dichloroethene		<10.0	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<10.0	µg/L	5	1
trans-1,2-Dichloroethene		<10.0	µg/L	5	1
1,1-Dichloroethane		<10.0	µg/L	5	1
cis-1,2-dichloroethene		<10.0	µg/L	5	1
2,2-Dichloropropane		<10.0	µg/L	5	1
1,2-Dichloroethane (EDC)		<10.0	µg/L	5	1
Chloroform		<10.0	µg/L	5	1
1,1,1-Trichloroethane		<10.0	µg/L	5	1
1,1-Dichloropropene		<10.0	µg/L	5	1
Benzene		<10.0	µg/L	5	1
Carbon Tetrachloride		<10.0	µg/L	5	1
1,2-Dichloropropane		<10.0	µg/L	5	1
Trichloroethene (TCE)		<10.0	µg/L	5	1
Dibromomethane (methylene bromide)		<10.0	µg/L	5	1
Bromodichloromethane		<10.0	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<10.0	µg/L	5	1
trans-1,3-Dichloropropene		<10.0	µg/L	5	1
Toluene		<10.0	µg/L	5	1
1,1,2-Trichloroethane		<10.0	µg/L	5	1
1,3-Dichloropropane		<10.0	µg/L	5	1
Dibromochloromethane		<10.0	µg/L	5	1
1,2-Dibromoethane (EDB)		<10.0	µg/L	5	1
Tetrachloroethene (PCE)		<10.0	µg/L	5	1
Chlorobenzene		<10.0	µg/L	5	1
1,1,1,2-Tetrachloroethane		<10.0	µg/L	5	1
Ethylbenzene		<10.0	µg/L	5	1
m,p-Xylene		<10.0	µg/L	5	1
Bromoform		<10.0	µg/L	5	1

Continued ...

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... *Continued* Sample: 154738 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
Styrene		<10.0	µg/L	5	1
o-Xylene		<10.0	µg/L	5	1
1,1,2,2-Tetrachloroethane		<10.0	µg/L	5	1
2-Chlorotoluene		<10.0	µg/L	5	1
1,2,3-Trichloropropane		<10.0	µg/L	5	1
Isopropylbenzene		<10.0	µg/L	5	1
Bromobenzene		<10.0	µg/L	5	1
n-Propylbenzene		<10.0	µg/L	5	1
1,3,5-Trimethylbenzene		<10.0	µg/L	5	1
tert-Butylbenzene		<10.0	µg/L	5	1
1,2,4-Trimethylbenzene		<10.0	µg/L	5	1
1,4-Dichlorobenzene (para)		<10.0	µg/L	5	1
sec-Butylbenzene		<10.0	µg/L	5	1
1,3-Dichlorobenzene		<10.0	µg/L	5	1
p-Isopropyltoluene		<10.0	µg/L	5	1
4-Chlorotoluene		<10.0	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<10.0	µg/L	5	1
n-Butylbenzene		<10.0	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		15.8	µg/L	5	1
Hexachlorobutadiene		<25.0	µg/L	5	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.88	µg/L	1	50	101	85 - 117
Toluene-d8		51.11	µg/L	1	50	102	93 - 109
4-Bromofluorobenzene		46.96	µg/L	1	50	93	76 - 109

Sample: 154738 - Injection Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC05390	Date Analyzed:	10/5/00
Analyst:	MA	Preparation Method:	E 3510C	Prep Batch:	PB04703	Date Prepared:	10/3/00

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005

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... *Continued* Sample: 154738 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		0.015	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 154738 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		23.99	mg/L	1	80	29	8 - 73
Phenol-d5		17.95	mg/L	1	80	22	8 - 62
Nitrobenzene-d5		49.72	mg/L	1	80	62	44 - 109
2-Fluorobiphenyl		51.99	mg/L	1	80	64	45 - 109
2,4,6-Tribromophenol		53.92	mg/L	1	80	67	39 - 132
Terphenyl-d14		38.24	mg/L	1	80	47	46 - 121

Sample: 154738 - Injection Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC05424	Date Analyzed:	10/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04729	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		156	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		516	mg/L as CaCo3	1	1
Total Alkalinity		672	mg/L as CaCo3	1	1

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Sample: 154738 - Injection Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC05428	Date Analyzed:	10/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04725	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		6500	uMHOS/cm	1	

Sample: 154738 - Injection Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC05800	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:		Prep Batch:	PB05078	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		0.053	mm/yr	1	
pH		8.60	s.u.	1	

Sample: 154738 - Injection Wells

Analysis:	Dissolved Metals	Analytical Method:	E 200.7	QC Batch:	QC05813	Date Analyzed:	10/4/00
Analyst:	RR	Preparation Method:		Prep Batch:	PB05088	Date Prepared:	10/4/00

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		70	mg/L	1	0.50
Dissolved Magnesium		40	mg/L	1	0.50
Dissolved Potassium		6.7	mg/L	1	0.50
Dissolved Sodium		920	mg/L	1	0.50

Sample: 154738 - Injection Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC05801	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:	N/A	Prep Batch:	PB05081	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Flashpoint		>150	F	1	

Sample: 154738 - Injection Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC05733	Date Analyzed:	10/13/00
Analyst:	MHS	Preparation Method:	N/A	Prep Batch:	PB05017	Date Prepared:	10/10/00

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 154738 - Injection Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC05435	Date Analyzed:	10/5/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB04738	Date Prepared:	10/5/00

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Param	Flag	Result	Units	Dilution	RDL
CL		940	mg/L	1	0.50
Sulfate		890	mg/L	1	0.50

Sample: 154738 - Injection Wells

Analysis:	Reactivity	Analytical Method:	S 7.3	QC Batch:	QC05799	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:		Prep Batch:	PB05087	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10		1	
Hydrogen Cyanide		<2.5		1	

Sample: 154738 - Injection Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC05422	Date Analyzed:	10/5/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04731	Date Prepared:	10/4/00

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2700	mg/L	1	10

Sample: 154738 - Injection Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC05814	Date Analyzed:	10/7/00
Analyst:	RR	Preparation Method:	E 3010A	Prep Batch:	PB05089	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.44	mg/L	1	0.20
Total Arsenic		0.27	mg/L	1	0.01
Total Barium		<0.01	mg/L	1	0.01
Total Beryllium		<0.01	mg/L	1	0.01
Total Boron		0.56	mg/L	1	0.20
Total Cadmium		<0.01	mg/L	1	0.01
Total Chromium		<0.01	mg/L	1	0.01
Total Cobalt		<0.01	mg/L	1	0.01
Total Copper		0.08	mg/L	1	0.01
Total Iron		1.3	mg/L	1	0.01
Total Lead		<0.01	mg/L	1	0.01
Total Manganese		0.15	mg/L	1	0.01
Total Molybdenum		<0.01	mg/L	1	0.01
Total Nickel		<0.01	mg/L	1	0.01
Total Selenium		0.44	mg/L	1	0.01
Total Silver		<0.01	mg/L	1	0.01
Total Uranium		<0.50	mg/L	1	0.50
Total Vanadium		<0.01	mg/L	1	0.01
Total Zinc		0.02	mg/L	1	0.01

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 154738 - Injection Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC05449	Date Analyzed:	10/3/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04752	Date Prepared:	10/3/00

Param	Flag	Result	Units	Dilution	RDL
pH	[1]	8.7	s.u.	1	1

Quality Control Report
Method Blank

Sample: Method Blank QCBatch: QC05390

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005

Continued ...

[1] Sample was run out of holding time, but was tested the day it was received.

Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Results	Units	Reporting Limit
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005

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Param	Flag	Results	Units	Reporting Limit
Bis (2-ethylhexyl) phthalate		0.029	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorophenol		31.70	mg/L	80	39	8 - 73
Phenol-d5		21.81	mg/L	80	27	8 - 62
Nitrobenzene-d5		64.33	mg/L	80	80	44 - 109
2-Fluorobiphenyl		60.92	mg/L	80	76	45 - 109
2,4,6-Tribromophenol		68.44	mg/L	80	85	39 - 132
Terphenyl-d14		82.55	mg/L	80	103	46 - 121

Sample: Method Blank

QCBatch: QC05404

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<2.00	µg/L	1
Dichlorodifluoromethane		<2.00	µg/L	1
Chloromethane (methyl chloride)		<2.00	µg/L	1
Vinyl Chloride		<2.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	1
Chloroethane		<2.00	µg/L	1
Trichlorofluoromethane		<2.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<2.00	µg/L	1
Carbon Disulfide		<2.00	µg/L	1
Acrylonitrile		<5.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<2.00	µg/L	5
1,1-Dichloroethene		<2.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<2.00	µg/L	1
trans-1,2-Dichloroethene		<2.00	µg/L	1
1,1-Dichloroethane		<2.00	µg/L	1
cis-1,2-dichloroethene		<2.00	µg/L	1
2,2-Dichloropropane		<2.00	µg/L	1
1,2-Dichloroethane (EDC)		<2.00	µg/L	1

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
Chloroform		<2.00	µg/L	1
1,1,1-Trichloroethane		<2.00	µg/L	1
1,1-Dichloropropene		<2.00	µg/L	1
Benzene		<2.00	µg/L	1
Carbon Tetrachloride		<2.00	µg/L	1
1,2-Dichloropropane		<2.00	µg/L	1
Trichloroethene (TCE)		<2.00	µg/L	1
Dibromomethane (methylene bromide)		<2.00	µg/L	1
Bromodichloromethane		<2.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<2.00	µg/L	1
trans-1,3-Dichloropropene		<2.00	µg/L	1
Toluene		<2.00	µg/L	1
1,1,2-Trichloroethane		<2.00	µg/L	1
1,3-Dichloropropane		<2.00	µg/L	1
Dibromochloromethane		<2.00	µg/L	1
1,2-Dibromoethane (EDB)		<2.00	µg/L	1
Tetrachloroethene (PCE)		<2.00	µg/L	1
Chlorobenzene		<2.00	µg/L	1
1,1,1,2-Tetrachloroethane		<2.00	µg/L	1
Ethylbenzene		<2.00	µg/L	1
m,p-Xylene		<2.00	µg/L	1
Bromoform		<2.00	µg/L	1
Styrene		<2.00	µg/L	1
o-Xylene		<2.00	µg/L	1
1,1,2,2-Tetrachloroethane		<2.00	µg/L	1
2-Chlorotoluene		<2.00	µg/L	1
1,2,3-Trichloropropane		<2.00	µg/L	1
Isopropylbenzene		<2.00	µg/L	1
Bromobenzene		<2.00	µg/L	1
n-Propylbenzene		<2.00	µg/L	1
1,3,5-Trimethylbenzene		<2.00	µg/L	1
tert-Butylbenzene		<2.00	µg/L	1
1,2,4-Trimethylbenzene		<2.00	µg/L	1
1,4-Dichlorobenzene (para)		<2.00	µg/L	1
sec-Butylbenzene		<2.00	µg/L	1
1,3-Dichlorobenzene		<2.00	µg/L	1
p-Isopropyltoluene		<2.00	µg/L	1
4-Chlorotoluene		<2.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<2.00	µg/L	1
n-Butylbenzene		<2.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<2.00	µg/L	1
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Dibromofluoromethane		50.44	µg/L	50	100	85 - 117

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Released to Imaging: 7/12/2024 10:49:45 AM

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Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Toluene-d8		50.69	µg/L	50	101	93 - 109
4-Bromofluorobenzene		47.32	µg/L	50	94	76 - 109

Sample: Method Blank QCBatch: QC05422

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Sample: Method Blank QCBatch: QC05424

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Sample: Method Blank QCBatch: QC05428

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		6.2	uMHOS/cm	

Sample: Method Blank QCBatch: QC05435

Param	Flag	Results	Units	Reporting Limit
CL		<0.5	mg/L	0.50
Sulfate		<0.5	mg/L	0.50

Sample: Method Blank QCBatch: QC05733

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Sample: Method Blank QCBatch: QC05813

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.50	mg/L	0.50
Dissolved Magnesium		<0.50	mg/L	0.50
Dissolved Potassium		<0.50	mg/L	0.50
Dissolved Sodium		<0.50	mg/L	0.50

Sample: Method Blank QCBatch: QC05814

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.20	mg/L	0.20
Total Arsenic		<0.01	mg/L	0.01
Total Barium		<0.01	mg/L	0.01
Total Beryllium		<0.01	mg/L	0.01
Total Boron		<0.20	mg/L	0.20
Total Cadmium		<0.01	mg/L	0.01
Total Chromium		<0.01	mg/L	0.01
Total Cobalt		<0.01	mg/L	0.01
Total Copper		<0.01	mg/L	0.01
Total Iron		<0.01	mg/L	0.01
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.01	mg/L	0.01
Total Molybdenum		<0.01	mg/L	0.01
Total Nickel		<0.01	mg/L	0.01
Total Selenium		<0.01	mg/L	0.01
Total Silver		<0.01	mg/L	0.01
Total Uranium		<0.50	mg/L	0.50
Total Vanadium		<0.01	mg/L	0.01
Total Zinc		<0.01	mg/L	0.01

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Sample: LCS QC Batch: QC05390

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		20.905	mg/L	1	80	<0.005	26		5 - 57	20
2-Chlorophenol		48.293	mg/L	1	80	<0.005	60		29 - 110	20
1,4-Dichlorobenzene		55.729	mg/L	1	80	<0.005	69		25 - 94	20
n-Nitrosodi-n-propylamine		72.637	mg/L	1	80	<0.005	90		36 - 119	20
1,2,4-Trichlorobenzene		61.425	mg/L	1	80	<0.005	76		28 - 110	20
4-Chloro-3-methylphenol		55.224	mg/L	1	80	<0.005	69		40 - 126	20
Acenaphthene		64.238	mg/L	1	80	<0.005	80		47 - 118	20
4-Nitrophenol		20.895	mg/L	1	80	<0.005	26		0 - 69	20

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
2,4-Dinitrotoluene		84.211	mg/L	1	80	<0.005	105		46 - 133	20
Pentachlorophenol		52.617	mg/L	1	80	<0.005	65		21 - 131	20
Pyrene		73.392	mg/L	1	80	<0.005	91		44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		33.96	mg/L	1	80	42	8 - 73
Phenol-d5		22.60	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		68.20	mg/L	1	80	85	44 - 109
2-Fluorobiphenyl		69.55	mg/L	1	80	86	45 - 109
2,4,6-Tribromophenol		75.50	mg/L	1	80	94	39 - 132
Terphenyl-d14		78.63	mg/L	1	80	98	46 - 121

Sample: LCSD

QC Batch: QC05390

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		20.796	mg/L	1	80	<0.005	25	0	5 - 57	20
2-Chlorophenol		48.069	mg/L	1	80	<0.005	60	0	29 - 110	20
1,4-Dichlorobenzene		56.142	mg/L	1	80	<0.005	70	1	25 - 94	20
n-Nitrosodi-n-propylamine		74.847	mg/L	1	80	<0.005	93	3	36 - 119	20
1,2,4-Trichlorobenzene		61.727	mg/L	1	80	<0.005	77	0	28 - 110	20
4-Chloro-3-methylphenol		55.437	mg/L	1	80	<0.005	69	0	40 - 126	20
Acenaphthene		64.974	mg/L	1	80	<0.005	81	1	47 - 118	20
4-Nitrophenol		19.242	mg/L	1	80	<0.005	24	8	0 - 69	20
2,4-Dinitrotoluene		85.367	mg/L	1	80	<0.005	106	1	46 - 133	20
Pentachlorophenol		52.533	mg/L	1	80	<0.005	65	0	21 - 131	20
Pyrene		74.244	mg/L	1	80	<0.005	92	1	44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		33.33	mg/L	1	80	41	8 - 73
Phenol-d5		22.45	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		68.50	mg/L	1	80	85	44 - 109
2-Fluorobiphenyl		69.49	mg/L	1	80	86	45 - 109
2,4,6-Tribromophenol		77.03	mg/L	1	80	96	39 - 132
Terphenyl-d14		79.52	mg/L	1	80	99	46 - 121

Sample: LCS

QC Batch: QC05404

Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		126	µg/L	1	100	<2.00	126		65 - 147	20
Benzene		114	µg/L	1	100	<2.00	114		79 - 124	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103		80 - 119	20
Toluene		111	µg/L	1	100	<2.00	111		78 - 118	20
Chlorobenzene		110	µg/L	1	100	<2.00	110		85 - 118	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		50.59	µg/L	1	50	101	85 - 117
Toluene-d8		49.17	µg/L	1	50	98	93 - 109
4-Bromofluorobenzene		47.76	µg/L	1	50	95	76 - 109

Sample: LCSD

QC Batch: QC05404

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		125	µg/L	1	100	<2.00	125	1	65 - 147	20
Benzene		114	µg/L	1	100	<2.00	114	0	79 - 124	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103	0	80 - 119	20
Toluene		111	µg/L	1	100	<2.00	111	0	78 - 118	20
Chlorobenzene		110	µg/L	1	100	<2.00	110	0	85 - 118	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		51.04	µg/L	1	50	102	85 - 117
Toluene-d8		50.26	µg/L	1	50	100	93 - 109
4-Bromofluorobenzene		46.44	µg/L	1	50	92	76 - 109

Sample: LCS

QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00101	mg/L	1	0.001	<0.0002	101		80 - 120	20

Sample: LCSD

QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00114	mg/L	1	0.001	<0.0002	114	12	80 - 120	20

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Sample: LCS QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		979	mg/L	1	1000	<0.50	97		75 - 125	20
Dissolved Magnesium		944	mg/L	1	1000	<0.50	94		75 - 125	20
Dissolved Potassium		1067	mg/L	1	1000	<0.50	106		75 - 125	20
Dissolved Sodium		1061	mg/L	1	1000	<0.50	106		75 - 125	20

Sample: LCSD QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1011	mg/L	1	1000	<0.50	101	3	75 - 125	20
Dissolved Magnesium		982	mg/L	1	1000	<0.50	98	4	75 - 125	20
Dissolved Potassium		1104	mg/L	1	1000	<0.50	110	3	75 - 125	20
Dissolved Sodium		1085	mg/L	1	1000	<0.50	108	2	75 - 125	20

Sample: LCS QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.16	mg/L	1	2	<0.20	108		75 - 125	20
Total Arsenic		1.00	mg/L	1	1	<0.01	100		75 - 125	20
Total Barium		2.12	mg/L	1	2	<0.01	106		75 - 125	20
Total Beryllium		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Boron		1.09	mg/L	1	1	<0.20	109		75 - 125	20
Total Cadmium		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Chromium		0.43	mg/L	1	0.40	<0.01	107		75 - 125	20
Total Cobalt		1.05	mg/L	1	1	<0.01	105		75 - 125	20
Total Copper		0.41	mg/L	1	0.40	<0.01	102		75 - 125	20
Total Iron		2.12	mg/L	1	2	<0.01	106		75 - 125	20
Total Lead		1.03	mg/L	1	1	<0.01	103		75 - 125	20
Total Manganese		0.21	mg/L	1	0.20	<0.01	105		75 - 125	20
Total Molybdenum		1.07	mg/L	1	1	<0.01	107		75 - 125	20
Total Nickel		1.01	mg/L	1	1	<0.01	101		75 - 125	20
Total Selenium		0.90	mg/L	1	1	<0.01	90		75 - 125	20
Total Silver		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Uranium		2.18	mg/L	1	2	<0.50	109		75 - 125	20
Total Vanadium		1.05	mg/L	1	1	<0.01	105		75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	<0.01	110		75 - 125	20

Sample: LCSD QC Batch: QC05814

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.14	mg/L	1	2	<0.20	107	1	75 - 125	20
Total Arsenic		0.98	mg/L	1	1	<0.01	98	2	75 - 125	20
Total Barium		2.10	mg/L	1	2	<0.01	105	1	75 - 125	20
Total Beryllium		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Boron		1.09	mg/L	1	1	<0.20	109	0	75 - 125	20
Total Cadmium		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Chromium		0.42	mg/L	1	0.40	<0.01	105	2	75 - 125	20
Total Cobalt		1.04	mg/L	1	1	<0.01	104	1	75 - 125	20
Total Copper		0.40	mg/L	1	0.40	<0.01	100	2	75 - 125	20
Total Iron		2.11	mg/L	1	2	<0.01	105	0	75 - 125	20
Total Lead		1.02	mg/L	1	1	<0.01	102	1	75 - 125	20
Total Manganese		0.21	mg/L	1	0.20	<0.01	105	0	75 - 125	20
Total Molybdenum		1.06	mg/L	1	1	<0.01	106	1	75 - 125	20
Total Nickel		1.00	mg/L	1	1	<0.01	100	1	75 - 125	20
Total Selenium		0.90	mg/L	1	1	<0.01	90	0	75 - 125	20
Total Silver		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Uranium		2.15	mg/L	1	2	<0.50	107	1	75 - 125	20
Total Vanadium		1.04	mg/L	1	1	<0.01	104	1	75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	<0.01	110	0	75 - 125	20

Quality Control Report
Matrix Spikes and Duplicate Spikes

Sample: MS QC Batch: QC05435

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		1289.87	mg/L	1	625	660	100		80 - 120	20
Sulfate		814.53	mg/L	1	625	150	106		80 - 120	20

Sample: MSD QC Batch: QC05435

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		1285.88	mg/L	1	625	660	100	1	80 - 120	20
Sulfate		799.39	mg/L	1	625	150	103	2	80 - 120	20

Sample: MS QC Batch: QC05733

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00098	mg/L	1	0.001	<0.0002	98		80 - 120	20

Sample: MSD QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00104	mg/L	1	0.001	<0.0002	104	6	80 - 120	20

Sample: MS QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1038	mg/L	1	1000	70	96		75 - 125	20
Dissolved Magnesium		986	mg/L	1	1000	40	94		75 - 125	20
Dissolved Potassium		1090	mg/L	1	1000	6.7	108		75 - 125	20
Dissolved Sodium		1965	mg/L	1	1000	920	104		75 - 125	20

Sample: MSD QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1014	mg/L	1	1000	70	94	2	75 - 125	20
Dissolved Magnesium		963	mg/L	1	1000	40	92	2	75 - 125	20
Dissolved Potassium		1063	mg/L	1	1000	6.7	105	2	75 - 125	20
Dissolved Sodium		1898	mg/L	1	1000	920	97	7	75 - 125	20

Sample: MS QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.52	mg/L	1	2	0.44	104		75 - 125	20
Total Arsenic		1.21	mg/L	1	1	0.27	94		75 - 125	20
Total Barium		1.89	mg/L	1	2	<0.01	94		75 - 125	20
Total Beryllium		0.18	mg/L	1	0.20	<0.01	90		75 - 125	20
Total Boron		1.54	mg/L	1	1	0.56	98		75 - 125	20
Total Cadmium		0.18	mg/L	1	0.20	<0.01	90		75 - 125	20
Total Chromium		0.37	mg/L	1	0.40	<0.01	92		75 - 125	20
Total Cobalt		0.92	mg/L	1	1	<0.01	92		75 - 125	20

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Copper		0.47	mg/L	1	0.40	0.08	97		75 - 125	20
Total Iron		3.2	mg/L	1	2	1.3	95		75 - 125	20
Total Lead		0.88	mg/L	1	1	<0.01	88		75 - 125	20
Total Manganese		0.34	mg/L	1	0.20	0.15	95		75 - 125	20
Total Molybdenum		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Nickel		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Selenium		1.29	mg/L	1	1	0.44	85		75 - 125	20
Total Silver		0.19	mg/L	1	0.20	<0.01	95		75 - 125	20
Total Uranium		1.76	mg/L	1	2	<0.50	88		75 - 125	20
Total Vanadium		0.95	mg/L	1	1	<0.01	95		75 - 125	20
Total Zinc		0.26	mg/L	1	0.20	0.02	120		75 - 125	20

Sample: MSD QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.46	mg/L	1	2	0.44	101	3	75 - 125	20
Total Arsenic		1.21	mg/L	1	1	0.27	94	0	75 - 125	20
Total Barium		1.87	mg/L	1	2	<0.01	93	1	75 - 125	20
Total Beryllium		0.18	mg/L	1	0.20	<0.01	90	0	75 - 125	20
Total Boron		1.43	mg/L	1	1	0.56	87	12	75 - 125	20
Total Cadmium		0.18	mg/L	1	0.20	<0.01	90	0	75 - 125	20
Total Chromium		0.37	mg/L	1	0.40	<0.01	92	0	75 - 125	20
Total Cobalt		0.92	mg/L	1	1	<0.01	92	0	75 - 125	20
Total Copper		0.46	mg/L	1	0.40	0.08	95	2	75 - 125	20
Total Iron		3.2	mg/L	1	2	1.3	95	0	75 - 125	20
Total Lead		0.87	mg/L	1	1	<0.01	87	1	75 - 125	20
Total Manganese		0.34	mg/L	1	0.20	0.15	95	0	75 - 125	20
Total Molybdenum		0.95	mg/L	1	1	<0.01	95	1	75 - 125	20
Total Nickel		0.94	mg/L	1	1	<0.01	94	0	75 - 125	20
Total Selenium		1.28	mg/L	1	1	0.44	84	1	75 - 125	20
Total Silver		0.18	mg/L	1	0.20	<0.01	90	5	75 - 125	20
Total Uranium		1.75	mg/L	1	2	<0.50	87	0	75 - 125	20
Total Vanadium		0.94	mg/L	1	1	<0.01	94	1	75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	0.02	100	18	75 - 125	20

Quality Control Report
Duplicate Samples

Sample: Duplicate QC Batch: QC05422

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1326	1400	mg/L	1	5	20

Sample: Duplicate QC Batch: QC05424

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity		212	214	mg/L as CaCo3	1	1	20
Total Alkalinity		212	214	mg/L as CaCo3	1	1	20

Sample: Duplicate QC Batch: QC05428

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		2623	2600	uMHOS/cm	1	1	20

Sample: Duplicate QC Batch: QC05449

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	20

Sample: Duplicate QC Batch: QC05799

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		Non-reactive	Non-reactive		1	0	20

Sample: Duplicate QC Batch: QC05800

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		0.053	0.053	mm/yr	1	0	20
pH		8.62	8.60	s.u.	1	0	20

Sample: Duplicate QC Batch: QC05801

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Flashpoint		>150	>150	F	1	0	20

Quality Control Report
Continuing Calibration Verification Standards

Sample: CCV (1)

QC Batch: QC05390

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	61.43	102	5 - 57	10/5/00
1,4-Dichlorobenzene		mg/L	60	62.16	103	25 - 94	10/5/00
2-Nitrophenol		mg/L	60	64.78	107	80 - 120	10/5/00
2,4-Dichlorophenol		mg/L	60	62.37	103	80 - 120	10/5/00
Hexachlorobutadiene		mg/L	60	61.30	102	80 - 120	10/5/00
4-Chloro-3-methylphenol		mg/L	60	62.56	104	40 - 126	10/5/00
2,4,6-Trichlorophenol		mg/L	60	63.41	105	80 - 120	10/5/00
Acenaphthene		mg/L	60	60.76	101	47 - 118	10/5/00
Diphenylamine		mg/L	60	60.83	101	80 - 120	10/5/00
Pentachlorophenol		mg/L	60	67.19	111	21 - 131	10/5/00
Fluoranthene		mg/L	60	60.33	100	80 - 120	10/5/00
Di-n-octylphthalate		mg/L	60	59.88	99	80 - 120	10/5/00
Benzo(a)pyrene		mg/L	60	64.30	107	80 - 120	10/5/00
2-Fluorophenol		mg/L	60	63.36	105	8 - 73	10/5/00
Phenol-d5		mg/L	60	62.44	104	8 - 62	10/5/00
Nitrobenzene-d5		mg/L	60	63.47	105	44 - 109	10/5/00
2-Fluorobiphenyl		mg/L	60	61.53	102	45 - 109	10/5/00
2,4,6-Tribromophenol		mg/L	60	63.19	105	39 - 132	10/5/00
Terphenyl-d14		mg/L	60	63.08	105	46 - 121	10/5/00

Sample: CCV (1)

QC Batch: QC05404

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	95	95	80 - 120	10/6/00
1,1-Dichloroethene		µg/L	100	103	103	73 - 154	10/6/00
Chloroform		µg/L	100	106	106	80 - 120	10/6/00
1,2-Dichloropropane		µg/L	100	102	102	80 - 120	10/6/00
Toluene		µg/L	100	100	100	81 - 122	10/6/00
Chlorobenzene		µg/L	100	96	96	86 - 121	10/6/00
Ethylbenzene		µg/L	100	99	99	80 - 120	10/6/00
Dibromofluoromethane		µg/L	50	55.86	111	80 - 120	10/6/00
Toluene-d8		µg/L	50	49.08	98	80 - 120	10/6/00
4-Bromofluorobenzene		µg/L	50	51.43	102	80 - 120	10/6/00

Released to Imaging: 7/12/2024 10:49:45 AM

Sample: CCV (1) QC Batch: QC05422

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	972	97	80 - 120	10/5/00

Sample: ICV (1) QC Batch: QC05422

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	953	95	80 - 120	10/5/00

Sample: CCV (1) QC Batch: QC05424

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	8.0	0	80 - 120	10/6/00
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	80 - 120	10/6/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Total Alkalinity		mg/L as CaCo3	250	228	91	80 - 120	10/6/00

Sample: ICV (1) QC Batch: QC05424

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Carbonate Alkalinity		mg/L as CaCo3	0	240	0	80 - 120	10/6/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Total Alkalinity		mg/L as CaCo3	250	240	96	80 - 120	10/6/00

Sample: CCV (1) QC Batch: QC05428

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1408	99	80 - 120	10/6/00

Sample: ICV (1) QC Batch: QC05428

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1408	99	80 - 120	10/6/00

Sample: CCV (1) QC Batch: QC05435

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	12.43	99	80 - 120	10/5/00
Sulfate		mg/L	12.50	12.77	102	80 - 120	10/5/00

Sample: ICV (1) QC Batch: QC05435

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	12.28	98	80 - 120	10/5/00
Sulfate		mg/L	12.50	12.79	102	80 - 120	10/5/00

Sample: CCV (1) QC Batch: QC05449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	10/3/00

Sample: ICV (1) QC Batch: QC05449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	10/3/00

Sample: CCV (1) QC Batch: QC05733

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00100	100	80 - 120	10/13/00

Received by OCD: 5/16/2022 2:12:41 PM

Sample: ICV (1)

QC Batch: QC05733

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00092	92	80 - 120	10/13/00

Sample: CCV (1)

QC Batch: QC05813

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	100	119	119	75 - 125	10/4/00
Dissolved Magnesium		mg/L	100	117	117	75 - 125	10/4/00
Dissolved Potassium		mg/L	100	129	129	75 - 125	10/4/00
Dissolved Sodium		mg/L	100	128	128	75 - 125	10/4/00

Sample: ICV (1)

QC Batch: QC05813

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	100	120	120	75 - 125	10/4/00
Dissolved Magnesium		mg/L	100	121	121	75 - 125	10/4/00
Dissolved Potassium		mg/L	100	128	128	75 - 125	10/4/00
Dissolved Sodium		mg/L	100	128	128	75 - 125	10/4/00

Sample: CCV (1)

QC Batch: QC05814

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.85	97	75 - 125	10/7/00
Total Arsenic		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Barium		mg/L	5	4.98	99	75 - 125	10/7/00
Total Beryllium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Boron		mg/L	2.50	2.44	97	75 - 125	10/7/00
Total Cadmium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Chromium		mg/L	1	0.99	99	75 - 125	10/7/00
Total Cobalt		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Copper		mg/L	1	0.99	99	75 - 125	10/7/00
Total Iron		mg/L	5	4.98	99	75 - 125	10/7/00
Total Lead		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Manganese		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Molybdenum		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Nickel		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Selenium		mg/L	2.50	2.47	98	75 - 125	10/7/00

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Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Uranium		mg/L	5	4.93	98	75 - 125	10/7/00
Total Vanadium		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Zinc		mg/L	0.50	0.49	98	75 - 125	10/7/00

Sample: ICV (1)

QC Batch: QC05814

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.90	98	75 - 125	10/7/00
Total Arsenic		mg/L	2.50	2.49	99	75 - 125	10/7/00
Total Barium		mg/L	5	5.02	100	75 - 125	10/7/00
Total Beryllium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Boron		mg/L	2.50	2.45	98	75 - 125	10/7/00
Total Cadmium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Chromium		mg/L	1	0.99	99	75 - 125	10/7/00
Total Cobalt		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Copper		mg/L	1	1.00	100	75 - 125	10/7/00
Total Iron		mg/L	5	5.00	100	75 - 125	10/7/00
Total Lead		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Manganese		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Molybdenum		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Nickel		mg/L	2.50	2.49	99	75 - 125	10/7/00
Total Selenium		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	10/7/00
Total Uranium		mg/L	5	5.00	100	75 - 125	10/7/00
Total Vanadium		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Zinc		mg/L	0.50	0.49	98	75 - 125	10/7/00

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Page ____ of ____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
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1 (800) 378-1296

TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A000160302

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 746 5421
Contact Person:
Invoice to: (if different from above)
Project #:
Project Name: Injection Wells
Project Location:
Sampler Signature: Charles Lloyd

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	NaHSO4	H2SO4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
154738	Injection Wells	2	1L	X									X	X	10/2/00	930
	" "	2	40ml	X						X			X		10/2/00	930
	" "	1	500ml	X					X				X		10/2/00	930

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See List

Relinquished by: Charles Lloyd Date: 10/2/00 Time: 1615 Received by: Date: Time:
Relinquished by: Date: Time: Received by: Date: Time:
Relinquished by: Date: Time: Received at Laboratory by: Nicki Crowley Date: 10-2-00 Time: 9:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 4 °
Log-in Review MS

REMARKS: 10/25

Carrier # FED EX 304 4184 017

Page 2529 of 5828

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TELEPHONE
(505) 748-3311

EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

August 3, 2000

AUG – 4 2000

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from April 1, 2000 to June 30, 2000. We have disposed a total of 3,296,815 bbls. of fluid down the two wells. This is broken down as follows: 2,970,284 bbls. down WDW-1 and 326,531 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Page 2531 of 5828

WDW-1

Month	Wellhead Pressure			Injection Flow Rate			Flow Rate		Annulus Pressure			Annulus Level		
	Avg	Min	Max	Avg	Min	Max	Average	Total	Avg	Min	Max	Avg	Min	Max
	psig	psig	psig	gpm	gpm	gpm	BPD	Bbl	psig	psig	psig	%	%	%
Oct-99	87	-12.7	328	330	11	499	11,314	350,743						
Nov-99	161	-12.4	410	249	0	344	8,534	256,011						
Dec-99	156	-12.3	322	272	14	377	9,309	288,566						
Jan-00	297	-12	400	369	0	350	12,651	392,195	NA	NA	NA	NA	NA	NA
Feb-00	319	-12	400	319	0	350	10,937	317,173	243	145	318	91	90	92
Mar-00	309	-12	400	309	0	350	10,584	328,114	252	155	325	91	90	92
Apr-00	76	-12	455	297	0	455	10,183	305,486	393	372	500	88	86	89
May-00	230	-12	361	342	0	418	11,726	363,497	476	314	500	86	84	89
Jun-00	241	-12	350	310	0	353	10,629	318,857	496	370	500	85	83	86

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Page 2532 of 5828

WDW-2

Month	Wellhead Pressure			Injection Flow Rate			Avg Flow	Total Flow	Annulus Pressure			Annulus Level		
	Avg	Min	Max	Avg	Min	Max	BPD	Bbl	Avg	Min	Max	Avg	Min	Max
	psig	psig	psig	gpm	gpm	gpm			psig	psig	psig	%	%	%
Oct-99	NA	NA	NA	NA	NA	NA	NA	NA						
Nov-99	140	-13	337	159	0	437	5,434	163,029						
Dec-99	140	-13	338	70	0	341	2,390	74,081						
Jan-00	-13	-13	-13	0	0	0	0	0	NA	NA	NA	NA	NA	NA
Feb-00	-13	-13	-13	0	0	0	0	0	252	232	295	88	86	89
Mar-00	-13	-13	-13	0	0	0	0	0	201	181	243	89	87	90
Apr-00	10	-13	245	33	221	0	1,131	33,943	128	81	196	83	83	86
May-00	59	-13	234	36	122	0	1,234	38,263	161	71	311	83	79	88
Jun-00	105	-13	294	65	158	0	2,229	66,857	302	127	500	78	76	80

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TRACEANALYSIS, INC.
6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Charlie Plymale or Darrell Moore
501 E. Main
Artesia, NM 88210

July 13,2000
Receiving Date: 07/06/2000
Sample Type: Water
Project No: NA
Project Location: Artesia

Sampling Date: 07/05/2000
Sample Condition: Intact & Cool
Sample Received by: VH
Project Name: Injection Wells

TA#	FIELD CODE	TOTAL Hg (mg/L)	TOTAL U (mg/L)
T149250	Inj. Wells	<0.0002	<0.10
ICV		0.00098	1.00
CCV		0.00110	0.98
REPORTING LIMIT		0.0002	0.10
PREP DATE		07/07/2000	07/06/2000
ANALYSIS DATE		07/10/2000	07/10/2000
RPD		3*	1
% Extraction Accuracy		70*	85
% Instrument Accuracy		98	98

*NOTE: Low spike recovery due to nature of sample: extremely high dissolved solids with precipitate. Used LCS/LCSD for RPD and % Extraction Accuracy.

METHODS: EPA SW 846-3010B, 6010B, 7471A.
CHEMIST: TOTAL Hg: JM TOTAL U: RR
TOTAL Hg SPIKE: 0.001 mg/L TOTAL Hg.
TOTAL Hg CV: 0.001 mg/L TOTAL Hg.
TOTAL U SPIKE: 2.0 mg/L TOTAL U.
TOTAL U CV: 1.0 mg/L TOTAL U.

Director, Dr. Blair Leftwich

7-13-00
DATE

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: July 14, 2000

Order ID Number: A00070613

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
149250	Inj Wells	Water	7/5/00	10:30	7/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 25 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

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Analytical and Quality Control Report

Sample: 149250 - Inj Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC03650	Date Analyzed:	7/7/00
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB03149	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<10.00	µg/L	5	2
Dichlorodifluoromethane		<10.00	µg/L	5	2
Chloromethane (methyl chloride)		<10.00	µg/L	5	2
Vinyl Chloride		<10.00	µg/L	5	2
Bromomethane (methyl bromide)		<25.00	µg/L	5	5
Chloroethane		<10.00	µg/L	5	2
Trichlorofluoromethane		<10.00	µg/L	5	2
Acetone		<50.00	µg/L	5	10
Iodomethane (methyl iodide)		<10.00	µg/L	5	2
Carbon Disulfide		<10.00	µg/L	5	2
Acrylonitrile		<10.00	µg/L	5	2
2-Butanone (MEK)		<10.00	µg/L	5	2
4-methyl-2-pentanone (MIBK)		<50.00	µg/L	5	10
2-hexanone		<10.00	µg/L	5	2
trans 1,4-Dichloro-2-butene		<50.00	µg/L	5	10
1,1-Dichloroethene		<10.00	µg/L	5	2
Methylene chloride		<25.00	µg/L	5	5
MTBE		<10.00	µg/L	5	2
trans-1,2-Dichloroethene		<10.00	µg/L	5	2
1,1-Dichloroethane		<10.00	µg/L	5	2
cis-1,2-dichloroethene		<10.00	µg/L	5	2
2,2-Dichloropropane		<10.00	µg/L	5	2
1,2-Dichloroethane (EDC)		<10.00	µg/L	5	2
Chloroform		<10.00	µg/L	5	2
1,1,1-Trichloroethane		<10.00	µg/L	5	2
1,1-Dichloropropene		<10.00	µg/L	5	2
Benzene		<10.00	µg/L	5	2
Carbon Tetrachloride		<10.00	µg/L	5	2
1,2-Dichloropropane		<10.00	µg/L	5	2
Trichloroethene (TCE)		<10.00	µg/L	5	2
Dibromomethane (methylene bromide)		<10.00	µg/L	5	2
Bromodichloromethane		<10.00	µg/L	5	2
2-Chloroethyl vinyl ether		<50.00	µg/L	5	10
cis-1,3-Dichloropropene		<10.00	µg/L	5	2
trans-1,3-Dichloropropene		<10.00	µg/L	5	2
Toluene		<10.00	µg/L	5	2
1,1,2-Trichloroethane		<10.00	µg/L	5	2
1,3-Dichloropropane		<10.00	µg/L	5	2
Dibromochloromethane		<10.00	µg/L	5	2
1,2-Dibromoethane (EDB)		<10.00	µg/L	5	2
Tetrachloroethene (PCE)		<10.00	µg/L	5	2
Chlorobenzene		<10.00	µg/L	5	2
1,1,1,2-Tetrachloroethane		<10.00	µg/L	5	2
Ethylbenzene		<10.00	µg/L	5	2
m,p-Xylene		12.80	µg/L	5	2

Continued ...

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... *Continued* Sample: 149250 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
Bromoform		<10.00	µg/L	5	2
Styrene		<10.00	µg/L	5	2
o-Xylene		<10.00	µg/L	5	2
1,1,2,2-Tetrachloroethane		<10.00	µg/L	5	2
2-Chlorotoluene		<10.00	µg/L	5	2
1,2,3-Trichloropropane		<10.00	µg/L	5	2
Isopropylbenzene		<10.00	µg/L	5	2
Bromobenzene		<10.00	µg/L	5	2
n-Propylbenzene		<10.00	µg/L	5	2
1,3,5-Trimethylbenzene		19.63	µg/L	5	2
tert-Butylbenzene		<10.00	µg/L	5	2
1,2,4-Trimethylbenzene		47.55	µg/L	5	2
1,4-Dichlorobenzene (para)		<10.00	µg/L	5	2
sec-Butylbenzene		<10.00	µg/L	5	2
1,3-Dichlorobenzene		<10.00	µg/L	5	2
p-Isopropyltoluene		<10.00	µg/L	5	2
4-Chlorotoluene		<10.00	µg/L	5	2
1,2-Dichlorobenzene (ortho)		<10.00	µg/L	5	2
n-Butylbenzene		<10.00	µg/L	5	2
1,2-Dibromo-3-chloropropane		<25.00	µg/L	5	5
1,2,3-Trichlorobenzene		<25.00	µg/L	5	5
1,2,4-Trichlorobenzene		<25.00	µg/L	5	5
Naphthalene		109.02	µg/L	5	2
Hexachlorobutadiene		<25.00	µg/L	5	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.88	µg/L	1	50	105	84 - 116
Toluene-d8		49.86	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		49.84	µg/L	1	50	99	80 - 110

Sample: 149250 - Inj Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC03678	Date Analyzed:	7/11/00
Analyst:	MA	Preparation Method:	E 3510C	Prep Batch:	PB03137	Date Prepared:	7/10/00

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 149250 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		0.050	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		0.020	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		0.052	mg/L	1	0.005
2-Methylnaphthalene		0.017	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Napthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Napthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 149250 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		27.61	mg/L	1	80	34	8 - 73
Phenol-d5		22.85	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		43.84	mg/L	1	80	54	44 - 109
2-Fluorobiphenyl		45.99	mg/L	1	80	57	45 - 109
2,4,6-Tribromophenol		40.31	mg/L	1	80	50	39 - 132
Terphenyl-d14		30.72	mg/L	1	80	38	46 - 121

Sample: 149250 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC03622	Date Analyzed:	7/7/00
Analyst:	LD	Preparation Method:	N/A	Prep Batch:	PB03116	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		360	mg/L as CaCo3	1	1
Total Alkalinity		360	mg/L as CaCo3	1	1

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 149250 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC03621	Date Analyzed:	7/6/00
Analyst:	LD	Preparation Method:	N/A	Prep Batch:	PB03115	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		4700	uMHOS/cm	1	

Sample: 149250 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC03709	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03199	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non 0.91	mm/yr	1	
pH		8.24	s.u.	1	

Sample: 149250 - Inj Wells

Analysis:	Dissolved Metals	Analytical Method:	E 200.7	QC Batch:	QC03653	Date Analyzed:	7/10/00
Analyst:	RR	Preparation Method:	E 3005A	Prep Batch:	PB03097	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		123	mg/L	1	0.50
Dissolved Magnesium		48	mg/L	1	0.50
Dissolved Potassium		35	mg/L	1	0.50
Dissolved Sodium		475	mg/L	1	0.50

Sample: 149250 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC03710	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03200	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 149250 - Inj Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC03642	Date Analyzed:	7/7/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB03142	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
CL		650	mg/L	1	0.50
Sulfate		820	mg/L	1	0.50

Sample: 149250 - Inj Wells

Analysis:	Reactivity	Analytical Method:	S 7.3	QC Batch:	QC03708	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03198	Date Prepared:	7/7/00

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10		1	
Hydrogen Cyanide		<2.5		1	

Sample: 149250 - Inj Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC03649	Date Analyzed:	7/10/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB03148	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2100	mg/L	1	10

Sample: 149250 - Inj Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC03651	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	E 3010A	Prep Batch:	PB03078	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		2.7	mg/L	1	0.05
Total Arsenic		0.21	mg/L	1	0.01
Total Barium		<0.01	mg/L	1	0.01
Total Beryllium		<0.01	mg/L	1	0.01
Total Boron		0.54	mg/L	1	0.10
Total Cadmium		<0.002	mg/L	1	0.002
Total Chromium		<0.005	mg/L	1	0.005
Total Cobalt		<0.02	mg/L	1	0.02
Total Copper		<0.02	mg/L	1	0.02
Total Iron		1.5	mg/L	1	0.05
Total Lead		<0.01	mg/L	1	0.01
Total Manganese		0.11	mg/L	1	0.01
Total Molybdenum		<0.05	mg/L	1	0.05
Total Nickel		<0.02	mg/L	1	0.02
Total Selenium		0.39	mg/L	1	0.01
Total Silver		<0.005	mg/L	1	0.005
Total Vanadium		<0.01	mg/L	1	0.01
Total Zinc		0.05	mg/L	1	0.05

Sample: 149250 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC03616	Date Analyzed:	7/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB03110	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
pH		7.8	s.u.	1	1

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Sample: Method Blank QCBatch: QC03621

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		4.8	uMHOS/cm	

Sample: Method Blank QCBatch: QC03642

Param	Flag	Results	Units	Reporting Limit
CL		<0.5	mg/L	0.50
Sulfate		<0.5	mg/L	0.50

Sample: Method Blank QCBatch: QC03649

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Sample: Method Blank QCBatch: QC03650

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<2.00	µg/L	2
Dichlorodifluoromethane		<2.00	µg/L	2
Chloromethane (methyl chloride)		<2.00	µg/L	2
Vinyl Chloride		<2.00	µg/L	2
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<2.00	µg/L	2
Trichlorofluoromethane		<2.00	µg/L	2
Acetone		<10.00	µg/L	10
Iodomethane (methyl iodide)		<2.00	µg/L	2
Carbon Disulfide		<2.00	µg/L	2
Acrylonitrile		<2.00	µg/L	2
2-Butanone (MEK)		<2.00	µg/L	2
4-methyl-2-pentanone (MIBK)		<10.00	µg/L	10
2-hexanone		<2.00	µg/L	2
trans 1,4-Dichloro-2-butene		<10.00	µg/L	10
1,1-Dichloroethene		<2.00	µg/L	2
Methylene chloride		<5.00	µg/L	5
MTBE		<2.00	µg/L	2
trans-1,2-Dichloroethene		<2.00	µg/L	2

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
1,1-Dichloroethane		<2.00	µg/L	2
cis-1,2-dichloroethene		<2.00	µg/L	2
2,2-Dichloropropane		<2.00	µg/L	2
1,2-Dichloroethane (EDC)		<2.00	µg/L	2
Chloroform		<2.00	µg/L	2
1,1,1-Trichloroethane		<2.00	µg/L	2
1,1-Dichloropropene		<2.00	µg/L	2
Benzene		<2.00	µg/L	2
Carbon Tetrachloride		<2.00	µg/L	2
1,2-Dichloropropane		<2.00	µg/L	2
Trichloroethene (TCE)		<2.00	µg/L	2
Dibromomethane (methylene bromide)		<2.00	µg/L	2
Bromodichloromethane		<2.00	µg/L	2
2-Chloroethyl vinyl ether		<10.00	µg/L	10
cis-1,3-Dichloropropene		<2.00	µg/L	2
trans-1,3-Dichloropropene		<2.00	µg/L	2
Toluene		<2.00	µg/L	2
1,1,2-Trichloroethane		<2.00	µg/L	2
1,3-Dichloropropane		<2.00	µg/L	2
Dibromochloromethane		<2.00	µg/L	2
1,2-Dibromoethane (EDB)		<2.00	µg/L	2
Tetrachloroethene (PCE)		<2.00	µg/L	2
Chlorobenzene		<2.00	µg/L	2
1,1,1,2-Tetrachloroethane		<2.00	µg/L	2
Ethylbenzene		<2.00	µg/L	2
m,p-Xylene		<2.00	µg/L	2
Bromoform		<2.00	µg/L	2
Styrene		<2.00	µg/L	2
o-Xylene		<2.00	µg/L	2
1,1,2,2-Tetrachloroethane		<2.00	µg/L	2
2-Chlorotoluene		<2.00	µg/L	2
1,2,3-Trichloropropane		<2.00	µg/L	2
Isopropylbenzene		<2.00	µg/L	2
Bromobenzene		<2.00	µg/L	2
n-Propylbenzene		<2.00	µg/L	2
1,3,5-Trimethylbenzene		<2.00	µg/L	2
tert-Butylbenzene		<2.00	µg/L	2
1,2,4-Trimethylbenzene		<2.00	µg/L	2
1,4-Dichlorobenzene (para)		<2.00	µg/L	2
sec-Butylbenzene		<2.00	µg/L	2
1,3-Dichlorobenzene		<2.00	µg/L	2
p-Isopropyltoluene		<2.00	µg/L	2
4-Chlorotoluene		<2.00	µg/L	2
1,2-Dichlorobenzene (ortho)		<2.00	µg/L	2
n-Butylbenzene		<2.00	µg/L	2
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<2.00	µg/L	2
Hexachlorobutadiene		<5.00	µg/L	5

Released to Imaging: 7/12/2024 10:49:45 AM

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Dibromofluoromethane		53.42	µg/L	50	106	84 - 116
Toluene-d8		51.43	µg/L	50	102	92 - 108
4-Bromofluorobenzene		45.60	µg/L	50	91	80 - 110

Sample: Method Blank QCBatch: QC03651

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.05	mg/L	0.05
Total Arsenic		<0.01	mg/L	0.01
Total Barium		<0.01	mg/L	0.01
Total Beryllium		<0.01	mg/L	0.01
Total Boron		<0.10	mg/L	0.10
Total Cadmium		<0.002	mg/L	0.002
Total Chromium		<0.005	mg/L	0.005
Total Cobalt		<0.02	mg/L	0.02
Total Copper		<0.02	mg/L	0.02
Total Iron		<0.05	mg/L	0.05
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.01	mg/L	0.01
Total Molybdenum		<0.05	mg/L	0.05
Total Nickel		<0.02	mg/L	0.02
Total Selenium		<0.01	mg/L	0.01
Total Silver		<0.005	mg/L	0.005
Total Vanadium		<0.01	mg/L	0.01
Total Zinc		<0.05	mg/L	0.05

Sample: Method Blank QCBatch: QC03653

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.50	mg/L	0.50
Dissolved Magnesium		<0.50	mg/L	0.50
Dissolved Potassium		<0.50	mg/L	0.50
Dissolved Sodium		<0.50	mg/L	0.50

Sample: Method Blank QCBatch: QC03678

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005

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Param	Flag	Results	Units	Reporting Limit
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Napthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
2-Napthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorophenol		31.91	mg/L	80	39	8 - 73
Phenol-d5		23.93	mg/L	80	29	8 - 62
Nitrobenzene-d5		38.82	mg/L	80	48	44 - 109
2-Fluorobiphenyl		40.47	mg/L	80	50	45 - 109
2,4,6-Tribromophenol		37.81	mg/L	80	47	39 - 132
Terphenyl-d14		42.21	mg/L	80	52	46 - 121

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Sample: LCS

QC Batch: QC03650

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		111	µg/L	1	100	<2.00	111		73 - 154	20
Benzene		107	µg/L	1	100	<2.00	107		84 - 126	20
Trichloroethene (TCE)		104	µg/L	1	100	<2.00	104		82 - 123	20
Toluene		105	µg/L	1	100	<2.00	105		81 - 122	20
Chlorobenzene		102	µg/L	1	100	<2.00	102		86 - 121	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		52.19	µg/L	1	50	104	84 - 116
Toluene-d8		49.92	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		46.05	µg/L	1	50	92	80 - 110

Sample: LCSD

QC Batch: QC03650

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		112	µg/L	1	100	<2.00	112	1	73 - 154	20
Benzene		107	µg/L	1	100	<2.00	107	0	84 - 126	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103	1	82 - 123	20
Toluene		105	µg/L	1	100	<2.00	105	0	81 - 122	20
Chlorobenzene		101	µg/L	1	100	<2.00	101	1	86 - 121	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		52.87	µg/L	1	50	105	84 - 116
Toluene-d8		49.59	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		46.22	µg/L	1	50	92	80 - 110

Sample: LCS

QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.0	mg/L	2	2	<0.05	100		75 - 125	20
Total Arsenic		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Barium		2.0	mg/L	2	2	<0.01	100		75 - 125	20

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Beryllium		0.18	mg/L	0.20	0.20	<0.01	90		75 - 125	20
Total Boron		0.99	mg/L	1	1	<0.10	99		75 - 125	20
Total Cadmium		0.19	mg/L	0.20	0.20	<0.002	95		75 - 125	20
Total Chromium		0.40	mg/L	0.40	0.40	<0.005	100		75 - 125	20
Total Cobalt		1.0	mg/L	1	1	<0.02	100		75 - 125	20
Total Copper		0.39	mg/L	0.40	0.40	<0.02	97		75 - 125	20
Total Iron		2.1	mg/L	2	2	<0.05	105		75 - 125	20
Total Lead		0.98	mg/L	1	1	<0.01	98		75 - 125	20
Total Manganese		0.21	mg/L	0.20	0.20	<0.01	105		75 - 125	20
Total Molybdenum		1.0	mg/L	1	1	<0.05	100		75 - 125	20
Total Nickel		0.96	mg/L	1	1	<0.02	96		75 - 125	20
Total Selenium		0.82	mg/L	1	1	<0.01	82		75 - 125	20
Total Silver		0.20	mg/L	0.20	0.20	<0.005	100		75 - 125	20
Total Vanadium		1.0	mg/L	1	1	<0.01	100		75 - 125	20
Total Zinc		0.23	mg/L	0.20	0.20	<0.05	115		75 - 125	20

Sample: LCSD

QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		1.9	mg/L	1	2	<0.05	95	5	75 - 125	20
Total Arsenic		0.94	mg/L	1	1	<0.01	94	0	75 - 125	20
Total Barium		2.0	mg/L	2	2	<0.01	100	0	75 - 125	20
Total Beryllium		0.18	mg/L	0.20	2	<0.01	90	0	75 - 125	20
Total Boron		0.98	mg/L	1	2	<0.10	98	1	75 - 125	20
Total Cadmium		0.19	mg/L	0.20	2	<0.002	95	0	75 - 125	20
Total Chromium		0.40	mg/L	0.40	2	<0.005	100	0	75 - 125	20
Total Cobalt		1.0	mg/L	1	2	<0.02	100	0	75 - 125	20
Total Copper		0.39	mg/L	0.40	2	<0.02	97	0	75 - 125	20
Total Iron		2.0	mg/L	2	2	<0.05	100	5	75 - 125	20
Total Lead		0.98	mg/L	1	2	<0.01	98	0	75 - 125	20
Total Manganese		0.20	mg/L	0.20	2	<0.01	100	5	75 - 125	20
Total Molybdenum		1.0	mg/L	1	2	<0.05	100	0	75 - 125	20
Total Nickel		0.95	mg/L	1	100	<0.02	95	1	75 - 125	20
Total Selenium		0.81	mg/L	1	2	<0.01	81	1	75 - 125	20

Sample: LCS

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1050	mg/L	1	1000	<0.50	105		75 - 125	20
Dissolved Magnesium		1020	mg/L	1	1000	<0.50	102		75 - 125	20
Dissolved Potassium		1020	mg/L	1	1000	<0.50	102		75 - 125	20
Dissolved Sodium		1020	mg/L	1	1000	<0.50	102		75 - 125	20

Released to Imaging: 7/12/2024 10:49:45 AM

Sample: LCSD QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1030	mg/L	1	1000	<0.50	103	2	75 - 125	20
Dissolved Magnesium		1010	mg/L	1	1000	<0.50	101	1	75 - 125	20
Dissolved Potassium		999	mg/L	1	1000	<0.50	99	2	75 - 125	20
Dissolved Sodium		1010	mg/L	1	1000	<0.50	101	1	75 - 125	20

Sample: LCS QC Batch: QC03678

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		16.013	mg/L	1	80	<0.005	20		5 - 57	20
2-Chlorophenol		28.475	mg/L	1	80	<0.005	35		29 - 110	20
1,4-Dichlorobenzene		22.986	mg/L	1	80	<0.005	28		25 - 94	20
n-Nitrosodi-n-propylamine		20.749	mg/L	1	80	<0.005	25		36 - 119	20
1,2,4-Trichlorobenzene		24.908	mg/L	1	80	<0.005	31		28 - 110	20
4-Chloro-3-methylphenol		29.224	mg/L	1	80	<0.005	36		40 - 126	20
Acenaphthene		37.435	mg/L	1	80	<0.005	46		47 - 118	20
4-Nitrophenol		10.298	mg/L	1	80	<0.005	12		0 - 69	20
2,4-Dinitrotoluene		27.080	mg/L	1	80	<0.005	33		46 - 133	20
Pentachlorophenol		27.106	mg/L	1	80	<0.005	33		21 - 131	20
Pyrene		37.798	mg/L	1	80	<0.005	47		44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		84.40	mg/L	1	80	105	8 - 73
Phenol-d5		75.05	mg/L	1	80	93	8 - 62
Nitrobenzene-d5		80.85	mg/L	1	80	101	44 - 109
2-Fluorobiphenyl		80.05	mg/L	1	80	100	45 - 109
2,4,6-Tribromophenol		72.25	mg/L	1	80	90	39 - 132
Terphenyl-d14		72.08	mg/L	1	80	90	46 - 121

Sample: LCSD QC Batch: QC03678

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		14.027	mg/L	1	80	<0.005	17	13	5 - 57	20
2-Chlorophenol		25.110	mg/L	1	80	<0.005	31	12	29 - 110	20
1,4-Dichlorobenzene		19.835	mg/L	1	80	<0.005	24	15	25 - 94	20
n-Nitrosodi-n-propylamine		21.234	mg/L	1	80	<0.005	26	2	36 - 119	20
1,2,4-Trichlorobenzene		21.578	mg/L	1	80	<0.005	26	14	28 - 110	20
4-Chloro-3-methylphenol		26.048	mg/L	1	80	<0.005	32	11	40 - 126	20
Acenaphthene		37.566	mg/L	1	80	<0.005	46	0	47 - 118	20

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
4-Nitrophenol		8.783	mg/L	1	80	<0.005	10	16	0 - 69	20
2,4-Dinitrotoluene		22.423	mg/L	1	80	<0.005	28	19	46 - 133	20
Pentachlorophenol		24.661	mg/L	1	80	<0.005	30	9	21 - 131	20
Pyrene		41.124	mg/L	1	80	<0.005	51	8	44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		59.15	mg/L	1	80	73	8 - 73
Phenol-d5		50.50	mg/L	1	80	63	8 - 62
Nitrobenzene-d5		72.39	mg/L	1	80	90	44 - 109
2-Fluorobiphenyl		72.77	mg/L	1	80	90	45 - 109
2,4,6-Tribromophenol		68.99	mg/L	1	80	86	39 - 132
Terphenyl-d14		78.25	mg/L	1	80	97	46 - 121

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Matrix Spikes and Duplicate Spikes

Sample: MS QC Batch: QC03642

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		94.54	mg/L	1	62.50	38	90		80 - 120	20
Sulfate		86.33	mg/L	1	62.50	25	98		80 - 120	20

Sample: MSD QC Batch: QC03642

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		94.60	mg/L	1	62.50	38	90	0	80 - 120	20
Sulfate		85.71	mg/L	1	62.50	25	97	1	80 - 120	20

Sample: MS QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		4.5	mg/L	4	2	2.7	90		75 - 125	20
Total Arsenic		1.1	mg/L	1	1	0.21	89		75 - 125	20
Total Barium		1.8	mg/L	1	2	<0.01	90		75 - 125	20
Total Beryllium		0.17	mg/L	0.20	0.20	<0.01	85		75 - 125	20
Total Boron		1.4	mg/L	1	1	0.54	86		75 - 125	20
Total Cadmium		0.17	mg/L	0.20	0.20	<0.002	85		75 - 125	20
Total Chromium		0.37	mg/L	0.40	0.40	<0.005	92		75 - 125	20
Total Cobalt		0.89	mg/L	1	1	<0.02	89		75 - 125	20
Total Copper		0.38	mg/L	0.40	0.40	<0.02	95		75 - 125	20
Total Iron		3.4	mg/L	2	2	1.5	95		75 - 125	20
Total Lead		0.88	mg/L	1	1	<0.01	88		75 - 125	20
Total Manganese		0.29	mg/L	0.20	0.20	0.11	90		75 - 125	20
Total Molybdenum		0.92	mg/L	1	1	<0.05	92		75 - 125	20
Total Nickel		0.90	mg/L	1	1	<0.02	90		75 - 125	20
Total Selenium		1.2	mg/L	1	1	0.39	81		75 - 125	20
Total Silver		0.18	mg/L	0.20	0.20	<0.005	90		75 - 125	20
Total Vanadium		0.92	mg/L	1	1	<0.01	92		75 - 125	20
Total Zinc		0.19	mg/L	0.20	0.20	0.05	70		75 - 125	20

Sample: MSD QC Batch: QC03651

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		4.6	mg/L	4	2	2.7	95	5	75 - 125	20
Total Arsenic		1.1	mg/L	1	0.20	0.21	89	0	75 - 125	20
Total Barium		1.8	mg/L	1	2	<0.01	90	0	75 - 125	20
Total Beryllium		0.17	mg/L	0.20	0.20	<0.01	85	0	75 - 125	20
Total Boron		1.4	mg/L	1	1	0.54	86	0	75 - 125	20
Total Cadmium		0.17	mg/L	0.20	20.20	<0.002	85	0	75 - 125	20
Total Chromium		0.36	mg/L	0.40	0.40	<0.005	90	3	75 - 125	20
Total Cobalt		0.88	mg/L	1	1	<0.02	88	1	75 - 125	20
Total Copper		0.38	mg/L	0.40	0.40	<0.02	95	0	75 - 125	20
Total Iron		3.3	mg/L	2	2	1.5	90	5	75 - 125	20
Total Lead		0.87	mg/L	1	1	<0.01	87	1	75 - 125	20
Total Manganese		0.29	mg/L	0.20	0.20	0.11	90	0	75 - 125	20
Total Molybdenum		0.91	mg/L	1	1	<0.05	91	1	75 - 125	20
Total Nickel		0.88	mg/L	1	1	<0.02	88	2	75 - 125	20
Total Selenium		1.1	mg/L	1	1	0.39	71	13	75 - 125	20
Total Silver		0.18	mg/L	0.20	0.20	<0.005	90	0	75 - 125	20
Total Vanadium		0.92	mg/L	1	1	<0.01	92	0	75 - 125	20
Total Zinc		0.21	mg/L	0.20	1	0.05	80	13	75 - 125	20

Sample: MS

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1170	mg/L	1	1000	160	101		75 - 125	20
Dissolved Magnesium		1180	mg/L	1	1000	195	98		75 - 125	20
Dissolved Potassium		1040	mg/L	1	1000	26	101		75 - 125	20
Dissolved Sodium		1200	mg/L	1	1000	170	103		75 - 125	20

Sample: MSD

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1200	mg/L	1	1000	160	104	3	75 - 125	20
Dissolved Magnesium		1230	mg/L	1	1000	195	103	5	75 - 125	20
Dissolved Potassium		1080	mg/L	1	1000	26	105	4	75 - 125	20
Dissolved Sodium		1250	mg/L	1	1000	170	108	5	75 - 125	20

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Duplicate Samples

Sample: Duplicate

QC Batch: QC03616

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	20

Sample: Duplicate

QC Batch: QC03621

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		2746	2700	uMHOS/cm	1	2	20

Sample: Duplicate

QC Batch: QC03622

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity		220	213	mg/L as CaCo3	1	3	20
Total Alkalinity		220	213	mg/L as CaCo3	1	3	20

Sample: Duplicate

QC Batch: QC03649

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1852	1800	mg/L	1	3	20

Sample: Duplicate

QC Batch: QC03708

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		Non-reactive	Non-reactive		1	0	20

Sample: Duplicate

QC Batch: QC03709

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		Non 0.91	Non 0.91	mm/yr	1	0	20
pH		8.24	8.24	s.u.	1	0	20

Sample: Duplicate

QC Batch: QC03710

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Ignitability		non-ignitable	non-ignitable		1	0	20

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Continuing Calibration Verification Standards

Sample: CCV (1) QC Batch: QC03616

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	7/6/00

Sample: ICV (1) QC Batch: QC03616

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	7/6/00

Sample: CCV (1) QC Batch: QC03621

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1417	100	80 - 120	7/6/00

Sample: ICV (1) QC Batch: QC03621

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1417	100	80 - 120	7/6/00

Sample: CCV (1) QC Batch: QC03622

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	7/7/00
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	80 - 120	7/7/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	7	0	80 - 120	7/7/00
Total Alkalinity		mg/L as CaCo3	250	239	95	80 - 120	7/7/00

Sample: ICV (1) QC Batch: QC03622

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	7/7/00
Carbonate Alkalinity		mg/L as CaCo3	0	242	0	80 - 120	7/7/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	0	0	80 - 120	7/7/00
Total Alkalinity		mg/L as CaCo3	250	243	97	80 - 120	7/7/00

Sample: CCV (1) QC Batch: QC03642

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	11.36	90	80 - 120	7/7/00
Sulfate		mg/L	12.50	12.36	98	80 - 120	7/7/00

Sample: ICV (1) QC Batch: QC03642

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	11.35	90	80 - 120	7/7/00
Sulfate		mg/L	12.50	11.79	94	80 - 120	7/7/00

Sample: CCV (1) QC Batch: QC03649

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	977	97	80 - 120	7/10/00

Sample: ICV (1) QC Batch: QC03649

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	966	96	80 - 120	7/10/00

Sample: CCV (1) QC Batch: QC03650

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	113	113	80 - 120	7/7/00
1,1-Dichloroethene		µg/L	100	109	109	73 - 154	7/7/00
Chloroform		µg/L	100	111	111	80 - 120	7/7/00
1,2-Dichloropropane		µg/L	100	102	102	80 - 120	7/7/00
Toluene		µg/L	100	99	99	81 - 122	7/7/00
Chlorobenzene		µg/L	100	94	94	86 - 121	7/7/00
Ethylbenzene		µg/L	100	98	98	80 - 120	7/7/00
Dibromofluoromethane		µg/L	50	57.48	114	80 - 120	7/7/00
Toluene-d8		µg/L	50	48.77	97	80 - 120	7/7/00
4-Bromofluorobenzene		µg/L	50	51.72	103	80 - 120	7/7/00

Sample: CCV (1)

QC Batch: QC03651

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	5.1	102	75 - 125	7/7/00
Total Arsenic		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Barium		mg/L	5	5.1	102	75 - 125	7/7/00
Total Beryllium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Boron		mg/L	2.50	2.6	104	75 - 125	7/7/00
Total Cadmium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Chromium		mg/L	1	1.0	100	75 - 125	7/7/00
Total Cobalt		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Copper		mg/L	1	1.0	100	75 - 125	7/7/00
Total Iron		mg/L	5	5.1	102	75 - 125	7/7/00
Total Lead		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Manganese		mg/L	0.50	0.51	102	75 - 125	7/7/00
Total Molybdenum		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Nickel		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Selenium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Vanadium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Zinc		mg/L	0.50	0.53	106	75 - 125	7/7/00

Sample: ICV (1)

QC Batch: QC03651

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.9	98	75 - 125	7/7/00

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Arsenic		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Barium		mg/L	5	5.1	102	75 - 125	7/7/00
Total Beryllium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Boron		mg/L	2.50	2.6	104	75 - 125	7/7/00
Total Cadmium		mg/L	0.50	0.51	102	75 - 125	7/7/00
Total Chromium		mg/L	1	1.0	100	75 - 125	7/7/00
Total Cobalt		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Copper		mg/L	1	1.0	100	75 - 125	7/7/00
Total Iron		mg/L	5	5.0	100	75 - 125	7/7/00
Total Lead		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Manganese		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Molybdenum		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Nickel		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Selenium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Vanadium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Zinc		mg/L	0.50	0.54	108	75 - 125	7/7/00

Sample: CCV (1) QC Batch: QC03653

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	20	20.6	103	75 - 125	7/10/00
Dissolved Magnesium		mg/L	20	20.0	100	75 - 125	7/10/00
Dissolved Potassium		mg/L	20	18.7	93	75 - 125	7/10/00
Dissolved Sodium		mg/L	20	20.2	101	75 - 125	7/10/00

Sample: ICV (1) QC Batch: QC03653

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	20	20.6	103	75 - 125	7/10/00
Dissolved Magnesium		mg/L	20	20.2	101	75 - 125	7/10/00
Dissolved Potassium		mg/L	20	18.6	93	75 - 125	7/10/00
Dissolved Sodium		mg/L	20	20.0	100	75 - 125	7/10/00

Sample: CCV (1) QC Batch: QC03678

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	55.36	92	5 - 57	7/11/00
1,4-Dichlorobenzene		mg/L	60	58.97	98	25 - 94	7/11/00
2-Nitrophenol		mg/L	60	59.23	98	80 - 120	7/11/00
2,4-Dichlorophenol		mg/L	60	60.33	100	80 - 120	7/11/00
Hexachlorobutadiene		mg/L	60	58.79	97	80 - 120	7/11/00
4-Chloro-3-methylphenol		mg/L	60	57.70	96	40 - 126	7/11/00
2,4,6-Trichlorophenol		mg/L	60	58.60	97	80 - 120	7/11/00
Acenaphthene		mg/L	60	58.33	97	47 - 118	7/11/00
Diphenylamine		mg/L	60	58.11	96	80 - 120	7/11/00
Pentachlorophenol		mg/L	60	57.33	95	21 - 131	7/11/00
Fluoranthene		mg/L	60	56.95	94	80 - 120	7/11/00
Di-n-octylphthalate		mg/L	60	56.99	94	80 - 120	7/11/00
Benzo(a)pyrene		mg/L	60	59.82	99	80 - 120	7/11/00
2-Fluorophenol		mg/L	60	57.35	95	8 - 73	7/11/00
Phenol-d5		mg/L	60	55.81	93	8 - 62	7/11/00
Nitrobenzene-d5		mg/L	60	58.76	97	44 - 109	7/11/00
2-Fluorobiphenyl		mg/L	60	57.63	96	45 - 109	7/11/00
2,4,6-Tribromophenol		mg/L	60	55.41	92	39 - 132	7/11/00
Terphenyl-d14		mg/L	60	54.30	90	46 - 121	7/11/00

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Page_____of_____

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
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Fax (606) 794-1298
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TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A0007061 3

Company Name: NAVAJO Phone #:

Address: (Street, City, Zip) Fax #:

Contact Person: Charlie Plymale or Darrell Moore

Invoice to: (if different from above)

Project #: Project Name: Injection Wells

Project Location: Artesia Sampler Signature: Charlie Plymale

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	NaHSO4	H2SO4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
149250	Inj. wells	2	1L	X						X			X	X	7/5/00	10:30
	" "	2	40ml	X						X			X		7/5/00	10:30
	" "	1	500ml	X					X					X	7/5/00	10:30

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

Select

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Plymale	7/5/00	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Ansley	7-6-00	10:00am

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact (Y) / N

Headspace Y / (N)

Temp 13° C

Log-in Review SAS

REMARKS: 7/14/00

Carrier # Fed Ex 799 [illegible]

Page 2559 of 5828

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TELEPHONE
(505) 748-3311

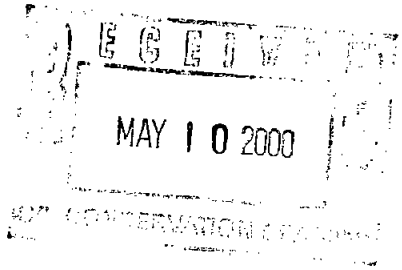
EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

May 8, 2000



Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: First Quarter 2000 Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2000 to March 31, 2000. We have disposed a total of 2,169,912 bbls. of fluid down the two wells. This is broken down as follows: 1,932,802 bbls. down WDW-1 and 237,110 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Page 2561 of 5828

WDW-1

Month	Wellhead Pressure			Injection Flow Rate			Flow Rate		Annulus Pressure			Annulus Level		
	Avg	**Min**	**Max**	**Avg**	**Min**	**Max**	**Average**	**Total**	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**
	psig	psig	psig	gpm	gpm	gpm	**BPD**	**Bbl**	psig	psig	psig	%	%	%
Oct-99	87	-12.7	328	330	499	10.8	11,314	350,743						
Nov-99	161	-12.4	410	249	344	0	8,534	256,011						
Dec-99	156	-12.3	322	272	377	13.5	9,309	288,566						
Jan-00	297	-12	400	369	350	0	12,651	392,195	NA	NA	NA	NA	NA	NA
Feb-00	319	-12	400	319	350	0	10,937	317,173	243	145	318	91	90	92
Mar-00	309	-12	400	309	350	0	10,584	328,114	252	155	325	91	90	92

WDW-2

Month	Wellhead Pressure			Injection Flow Rate			Avg Flow	Total Flow	Annulus Pressure			Annulus Level		
	Avg	**Min**	**Max**	**Avg**	**Min**	**Max**	BPD	Bbl	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**
	psig	psig	psig	gpm	gpm	gpm			psig	psig	psig	%	%	%
Oct-99	NA	NA	NA	NA	NA	NA	NA	NA						
Nov-99	140.3	-15.4	337	159	437	0	5,434	163,029						
Dec-99	140.3	-15.4	338	70	341	0	2,390	74,081						
Jan-00	-13	-13	-13	0	0	0	0	0	NA	NA	NA	NA	NA	NA
Feb-00	-13	-13	-13	0	0	0	0	0	252	232	295	88	86	89
Mar-00	-13	-13	-13	0	0	0	0	0	201	181	243	89	87	90

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TRACEANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 4/14/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00033024

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
143547	Injection Wells	Water	3/29/00	8:30	3/30/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 20 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Results Report

Sample Number: 143547
Description: Injection Wells

Param	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
624 (µg/L)									
Bromochloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dichlorodifluoromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chloromethane (methyl chloride)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Vinyl Chloride	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromomethane (methyl bromide)	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
Chloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Trichlorofluoromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Acetone	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
Iodomethane (methyl iodide)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Carbon Disulfide	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Acrylonitrile	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Butanone (MEK)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
4-methyl-2-pentanone (MIBK)	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
2-hexanone	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans 1,4-Dichloro-2-butene	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
1,1-Dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Methylene chloride	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
MTBE	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans-1,2-Dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1-Dichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
cis-1,2-dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2,2-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichloroethane (EDC)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chloroform	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,1-Trichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Benzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Carbon Tetrachloride	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Trichloroethene (TCE)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dibromomethane (methylene bromide)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromodichloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Chloroethyl vinyl ether	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
cis-1,3-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans-1,3-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Toluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,2-Trichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dibromochloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dibromoethane (EDB)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Tetrachloroethene (PCE)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chlorobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,1,2-Tetrachloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Ethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
m,p-Xylene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromoform	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Styrene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
o-Xylene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2

1,1,2,2-Tetrachloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Chlorotoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2,3-Trichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Isopropylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
n-Propylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3,5-Trimethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
tert-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2,4-Trimethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,4-Dichlorobenzene (para)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
sec-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3-Dichlorobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
p-Isopropyltoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
4-Chlorotoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichlorobenzene (ortho)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
n-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dibromo-3-chloropropane	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
1,2,3-Trichlorobenzene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
1,2,4-Trichlorobenzene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
Naphthalene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Hexachlorobutadiene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #
Dibromofluoromethane	51.31	1	50	103	72 - 128	JG	PB01722	QC02061
Toluene-d8	49.28	1	50	99	91 - 107	JG	PB01722	QC02061
4-Bromofluorobenzene	48.81	1	50	98	74 - 106	JG	PB01722	QC02061

625 (mg/L)									
Pyridine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosodimethylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Picoline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Methyl methanesulfonate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Ethyl methanesulfonate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Aniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroethyl) ether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Chlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,3-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,4-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzyl alcohol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroisopropyl) ether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Methylphenol/3-Methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acetophenone	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosodi-n-propylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachloroethane	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Nitrobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosopiperidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Isophorone	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Nitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dimethylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroethoxy) methane	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzoic acid	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2,4-Trichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

a,a-Dimethylphenethylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Naphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chloroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,6-Dichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorobutadiene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitroso-di-n-butylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chloro-3-methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Methylnaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Methylnaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2,4,5-Tetrachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorocyclopentadiene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4,6-Trichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4,5-Trichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Chloronaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Chloronaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dimethylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acenaphthylene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,6-Dinitrotoluene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acenaphthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dinitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzofuran	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Nitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Napthylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dinitrotoluene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Napthylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,3,4,6-Tetrachlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Fluorene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diethylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chlorophenyl-phenylether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4,6-Dinitro-2-methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diphenylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diphenylhydrazine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Bromophenyl-phenylether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenacetin	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Aminobiphenyl	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachloronitrobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pronamide	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenanthrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Di-n-butylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
p-Dimethylaminoazobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Butylbenzylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(a)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3,3-Dichlorobenzidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Chrysene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Bis (2-ethylhexyl) phthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Di-n-octylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Benzo(b)fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
7,12-Dimethylbenz(a)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(k)fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(a)pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3-Methylcholanthrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzo(a,j)acridine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Indeno(1,2,3-cd)pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzo(a,h)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(g,h,i)perylene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Surrogate (mg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
2-Fluorophenol	13.42	1	80	17	8 - 73	MA	PB01723	QC02062	
Phenol-d5	10.12	1	80	13	8 - 62	MA	PB01723	QC02062	
Nitrobenzene-d5	39.11	1	80	49	44 - 109	MA	PB01723	QC02062	
2-Fluorobiphenyl	46.86	1	80	59	45 - 109	MA	PB01723	QC02062	
2,4,6-Tribromophenol	27.61	1	80	35	39 - 132	MA	PB01723	QC02062	
Terphenyl-d14	32.93	1	80	41	46 - 121	MA	PB01723	QC02062	
Alkalinity (mg/L as CaCo3)									
Hydroxide Alkalinity	<1.0	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Carbonate Alkalinity	<1.0	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Bicarbonate Alkalinity	325	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Total Alkalinity	325	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Conductivity (uMHOS/cm)									
Specific Conductance	7000	1	SM 2510B	4/5/00	4/5/00	JS	PB01580	QC01888	
Corrosivity (mm/yr)									
Corrosivity	Non 0.18	1	S 1110	4/3/00	4/3/00	JM	PB01743	QC02088	
pH	8.67	1	S 1110	4/3/00	4/3/00	JM	PB01743	QC02088	
Dissolved Metals (mg/L)									
Dissolved Calcium	131	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Magnesium	24	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Potassium	26	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Sodium	832	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Hg, Total (mg/L)									
Total Mercury	<0.0002	1	S 7470A	4/4/00	4/6/00	JM	PB01644	QC01968	0.0002
Ignitability									
Ignitability	>150	1	W-846 Ch. 7	4/3/00	4/3/00	JM	PB01744	QC02089	
Ion Chromatography (IC) (mg/L)									
CL	1600	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.5
Fluoride	29	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.2
Nitrate-N	2.6	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.2
Sulfate	870	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.5
pH (s.u.)									
pH	* 8.4	1	E 150.1	3/30/00	3/30/00	RS	PB01527	QC01825	1
* pH - Out of holding time.									
Reactivity									
Reactivity	Non-reactive	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	
Hydrogen Sulfide	<10	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	
Hydrogen Cyanide	<2.5	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 6 of 20

N/A Injection Wells N/A

TDS (mg/L)									
Total Dissolved Solids	* 3200	1	E 160.1	4/7/00	4/8/00	JS	PB01628	QC01956	10
* Total Dissolved Solids - Sample re-ran out of holding time									
Total Metals (mg/L)									
Total Aluminum	0.24	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Arsenic	0.21	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Barium	0.03	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Beryllium	<0.004	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.004
Total Boron	0.24	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Cadmium	<0.002	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.002
Total Chromium	<0.005	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.005
Total Cobalt	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Copper	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Iron	0.27	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Lead	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Manganese	0.05	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Molybdenum	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Nickel	0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Selenium	0.44	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Silver	<0.005	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.005
Total Uranium	<0.50	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.5
Total Vanadium	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Zinc	0.02	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Bromochloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dichlorodifluoromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chloromethane (methyl chloride) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Vinyl Chloride (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Bromomethane (methyl bromide) (µg/L)		<5.00	5	4/3/00	PB01722	QC02061
Chloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Trichlorofluoromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Acetone (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
Iodomethane (methyl iodide) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Carbon Disulfide (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Acrylonitrile (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2-Butanone (MEK) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
4-methyl-2-pentanone (MIBK) (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
2-hexanone (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans 1,4-Dichloro-2-butene (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
1,1-Dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Methylene chloride (µg/L)		<5.00	5	4/3/00	PB01722	QC02061
MTBE (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans-1,2-Dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1-Dichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
cis-1,2-dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2,2-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chloroform (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,1-Trichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Benzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Carbon Tetrachloride (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Trichloroethene (TCE) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dibromomethane (methylene bromide) (µg		<2.00	2	4/3/00	PB01722	QC02061
Bromodichloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2-Chloroethyl vinyl ether (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
cis-1,3-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans-1,3-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Toluene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,2-Trichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,3-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dibromochloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Tetrachloroethene (PCE) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chlorobenzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Ethylbenzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
m,p-Xylene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061

Bromoform (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Styrene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
o-Xylene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,1,2,2-Tetrachloroethane (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
2-Chlorotoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2,3-Trichloropropane (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Isopropylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Bromobenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
n-Propylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,3,5-Trimethylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
tert-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2,4-Trimethylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,4-Dichlorobenzene (para) (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
sec-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,3-Dichlorobenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
p-Isopropyltoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
4-Chlorotoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichlorobenzene (ortho) (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
n-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
1,2,3-Trichlorobenzene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
1,2,4-Trichlorobenzene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
Naphthalene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Hexachlorobutadiene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	51.31	50	103	72 - 128	QC02061
Toluene-d8 (µg/L)	49.28	50	99	91 - 107	QC02061
4-Bromofluorobenzene (µg/L)	48.81	50	98	74 - 106	QC02061

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Pyridine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosodimethylamine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Picoline (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Methyl methanesulfonate (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Ethyl methanesulfonate (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Phenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Aniline (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroethyl) ether (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Chlorophenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,3-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,4-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Benzyl alcohol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,2-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Methylphenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroisopropyl) ether (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
4-Methylphenol/3-Methylphenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Acetophenone (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosodi-n-propylamine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Hexachloroethane (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062

Nitrobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosopiperidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Isophorone (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Nitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dimethylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroethoxy) methane (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzoic acid (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1,2,4-Trichlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
a,a-Dimethylphenethylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Naphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chloroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,6-Dichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorobutadiene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitroso-di-n-butylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chloro-3-methylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Methylnaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Methylnaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1,2,4,5-Tetrachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorocyclopentadiene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4,6-Trichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4,5-Trichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Chloronaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Chloronaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dimethylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Acenaphthylene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,6-Dinitrotoluene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Acenaphthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dinitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzofuran (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Nitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Napthylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dinitrotoluene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Napthylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,3,4,6-Tetrachlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Fluorene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diethylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chlorophenyl-phenylether (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4,6-Dinitro-2-methylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diphenylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diphenylhydrazine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Bromophenyl-phenylether (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Phenacetin (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Aminobiphenyl (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachloronitrobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 10 of 20

N/A Injection Wells N/A

Pronamide (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Phenanthrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Di-n-butylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
p-Dimethylaminoazobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Butylbenzylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(a)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3,3-Dichlorobenzidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Chrysene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Bis (2-ethylhexyl) phthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Di-n-octylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(b)fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
7,12-Dimethylbenz(a)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(k)fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(a)pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3-Methylcholanthrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzo(a,j)acridine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Indeno(1,2,3-cd)pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzo(a,h)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(g,h,i)perylene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
2-Fluorophenol (mg/L)	21.51	80	27	8 - 73	QC02062
Phenol-d5 (mg/L)	14.16	80	18	8 - 62	QC02062
Nitrobenzene-d5 (mg/L)	52.84	80	66	44 - 109	QC02062
2-Fluorobiphenyl (mg/L)	55.45	80	69	45 - 109	QC02062
2,4,6-Tribromophenol (mg/L)	47.37	80	59	39 - 132	QC02062
Terphenyl-d14 (mg/L)	53.65	80	67	46 - 121	QC02062

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Hydroxide Alkalinity (mg/L as CaCo3)		<1.0	1	4/5/00	PB01579	QC01887
Carbonate Alkalinity (mg/L as CaCo3)		<1.0	1	4/5/00	PB01579	QC01887
Bicarbonate Alkalinity (mg/L as CaCo3)		<4.0	1	4/5/00	PB01579	QC01887
Total Alkalinity (mg/L as CaCo3)		<4.0	1	4/5/00	PB01579	QC01887

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Specific Conductance (uMHOS/cm)		3.1		4/5/00	PB01580	QC01888

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dissolved Calcium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Magnesium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Potassium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Sodium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 11 of 20

N/A Injection Wells N/A

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Mercury (mg/L)		<0.0002	0.0002	4/6/00	PB01644	QC01968

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL (mg/L)		<0.5	0.5	3/30/00	PB01514	QC01806
Fluoride (mg/L)		<0.2	0.2	3/30/00	PB01514	QC01806
Nitrate-N (mg/L)		<0.2	0.2	3/30/00	PB01514	QC01806
Sulfate (mg/L)		<0.5	0.5	3/30/00	PB01514	QC01806

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Dissolved Solids (mg/L)		<10	10	4/8/00	PB01628	QC01956

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Aluminum (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Arsenic (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Barium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Beryllium (mg/L)		<0.004	0.004	4/6/00	PB01721	QC02060
Total Boron (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Cadmium (mg/L)		<0.002	0.002	4/6/00	PB01721	QC02060
Total Chromium (mg/L)		<0.005	0.005	4/6/00	PB01721	QC02060
Total Cobalt (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Copper (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Iron (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Lead (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Manganese (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Molybdenum (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Nickel (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Selenium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Silver (mg/L)		<0.005	0.005	4/6/00	PB01721	QC02060
Total Uranium (mg/L)		<0.50	0.5	4/6/00	PB01721	QC02060
Total Vanadium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Zinc (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 12 of 20
N/A Injection Wells N/A

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	86	1	125	200.21	91		80 - 120	-	QC01806
MS	Fluoride (mg/L)	4.5	1	25	28.98	98		80 - 120	-	QC01806
MS	Nitrate-N (mg/L)	5.7	1	50	50.58	90		80 - 120	-	QC01806
MS	Sulfate (mg/L)	160	1	125	280.50	96		80 - 120	-	QC01806
MSD	CL (mg/L)	86	1	125	199.06	90	1	-	0 - 20	QC01806
MSD	Fluoride (mg/L)	4.5	1	25	27.82	93	5	-	0 - 20	QC01806
MSD	Nitrate-N (mg/L)	5.7	1	50	49.86	88	2	-	0 - 20	QC01806
MSD	Sulfate (mg/L)	160	1	125	279.52	96	1	-	0 - 20	QC01806

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Dissolved Calcium (mg/L)	108	1	1000	1094	99		75 - 125	-	QC01950
MS	Dissolved Magnesium (mg/L)	24	1	1000	1014	99		75 - 125	-	QC01950
MS	Dissolved Potassium (mg/L)	14	1	1000	970	96		75 - 125	-	QC01950
MS	Dissolved Sodium (mg/L)	62	1	1000	947	89		75 - 125	-	QC01950
MSD	Dissolved Calcium (mg/L)	108	1	1000	1094	99	0	-	0 - 20	QC01950
MSD	Dissolved Magnesium (mg/L)	24	1	1000	1014	99	0	-	0 - 20	QC01950
MSD	Dissolved Potassium (mg/L)	14	1	1000	1023	101	5	-	0 - 20	QC01950
MSD	Dissolved Sodium (mg/L)	62	1	1000	1075	101	13	-	0 - 20	QC01950

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Total Mercury (mg/L)	<0.0002	1	0.001	0.00103	103		80 - 120	-	QC01968
MSD	Total Mercury (mg/L)	<0.0002	1	0.001	0.00112	112	8	-	0 - 20	QC01968

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Total Aluminum (mg/L)	0.24	1	2	2.11	94		75 - 125	-	QC02060
MS	Total Arsenic (mg/L)	0.21	1	2	1.95	87		75 - 125	-	QC02060
MS	Total Barium (mg/L)	0.03	1	2	1.85	91		75 - 125	-	QC02060
MS	Total Beryllium (mg/L)	<0.004	1	2	1.68	84		75 - 125	-	QC02060
MS	Total Boron (mg/L)	0.24	1	2	1.97	87		75 - 125	-	QC02060
MS	Total Cadmium (mg/L)	<0.002	1	2	1.61	81		75 - 125	-	QC02060
MS	Total Chromium (mg/L)	<0.005	1	2	1.69	85		75 - 125	-	QC02060
MS	Total Cobalt (mg/L)	<0.01	1	2	1.72	86		75 - 125	-	QC02060
MS	Total Copper (mg/L)	<0.01	1	2	1.96	98		75 - 125	-	QC02060

MS	Total Iron (mg/L)	0.27	1	2	1.97	85	75 - 125	-	QC02060
MS	Total Lead (mg/L)	<0.01	1	2	1.67	84	75 - 125	-	QC02060
MS	Total Manganese (mg/L)	0.05	1	2	1.75	85	75 - 125	-	QC02060
MS	Total Molybdenum (mg/L)	<0.01	1	2	1.67	84	75 - 125	-	QC02060
MS	Total Nickel (mg/L)	0.01	1	2	1.81	90	75 - 125	-	QC02060
MS	Total Selenium (mg/L)	0.44	1	2	2.16	86	75 - 125	-	QC02060
MS	Total Silver (mg/L)	<0.005	1	0.25	0.26	104	75 - 125	-	QC02060
MS	Total Uranium (mg/L)	<0.50	1	2	2.12	106	75 - 125	-	QC02060
MS	Total Vanadium (mg/L)	<0.01	1	2	1.69	85	75 - 125	-	QC02060
MS	Total Zinc (mg/L)	0.02	1	2	1.73	86	75 - 125	-	QC02060
MSD	Total Aluminum (mg/L)	0.24	1	2	2.11	94	0	-	0 - 20	QC02060
MSD	Total Arsenic (mg/L)	0.21	1	2	1.95	87	0	-	0 - 20	QC02060
MSD	Total Barium (mg/L)	0.03	1	2	1.85	91	0	-	0 - 20	QC02060
MSD	Total Beryllium (mg/L)	<0.004	1	2	1.68	84	0	-	0 - 20	QC02060
MSD	Total Boron (mg/L)	0.24	1	2	1.98	87	1	-	0 - 20	QC02060
MSD	Total Cadmium (mg/L)	<0.002	1	2	1.61	81	0	-	0 - 20	QC02060
MSD	Total Chromium (mg/L)	<0.005	1	2	1.70	85	1	-	0 - 20	QC02060
MSD	Total Cobalt (mg/L)	<0.01	1	2	1.72	86	0	-	0 - 20	QC02060
MSD	Total Copper (mg/L)	<0.01	1	2	1.97	99	1	-	0 - 20	QC02060
MSD	Total Iron (mg/L)	0.27	1	2	1.98	86	1	-	0 - 20	QC02060
MSD	Total Lead (mg/L)	<0.01	1	2	1.67	84	0	-	0 - 20	QC02060
MSD	Total Manganese (mg/L)	0.05	1	2	1.76	86	1	-	0 - 20	QC02060
MSD	Total Molybdenum (mg/L)	<0.01	1	2	1.67	84	0	-	0 - 20	QC02060
MSD	Total Nickel (mg/L)	0.01	1	2	1.81	90	0	-	0 - 20	QC02060
MSD	Total Selenium (mg/L)	0.44	1	2	2.17	87	1	-	0 - 20	QC02060
MSD	Total Silver (mg/L)	<0.005	1	0.25	0.22	88	17	-	0 - 20	QC02060
MSD	Total Uranium (mg/L)	<0.50	1	2	2.14	107	1	-	0 - 20	QC02060
MSD	Total Vanadium (mg/L)	<0.01	1	2	1.69	85	0	-	0 - 20	QC02060
MSD	Total Zinc (mg/L)	0.02	1	2	1.75	87	1	-	0 - 20	QC02060

Quality Control Report
Duplicates

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydroxide Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC01887
Duplicate	Carbonate Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC01887
Duplicate	Bicarbonate Alkalinity (mg/L as CaC		247	248	1	0	0 - 20	QC01887
Duplicate	Total Alkalinity (mg/L as CaCo3)		247	248	1	0	0 - 20	QC01887

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Specific Conductance (uMHOS/cm)		6973	7000	1	0	0 - 20	QC01888

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 14 of 20
N/A Injection Wells N/A

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Corrosivity (mm/yr)		Non 0.11	Non 0.18	1	0	0 - 20	QC02088
Duplicate	pH (s.u.)		8.52	8.67	1	2	0 - 20	QC02088

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Ignitability		>150	>150	1	0	0 - 20	QC02089

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	pH (s.u.)		8.6	8.6	1	0	0 - 20	QC01825

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydrogen Cyanide		<2.5	<2.5	1	0	0 - 20	QC02090
Duplicate	Hydrogen Sulfide		<10	<10	1	0	0 - 20	QC02090
Duplicate	Reactivity		Non	Non-reactive	1	0	0 - 20	QC02090

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Total Dissolved Solids (mg/L)		3275	3200	1	2	0 - 20	QC01956

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Phenol (mg/L)	<0.005	1	80	19.456	24		5 - 57	-	QC02062
LCS	2-Chlorophenol (mg/L)	<0.005	1	80	45.702	57		29 - 110	-	QC02062
LCS	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	44.401	56		25 - 94	-	QC02062
LCS	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	59.842	74		36 - 119	-	QC02062
LCS	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	54.118	68		28 - 110	-	QC02062
LCS	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	47.100	59		40 - 126	-	QC02062
LCS	Acenaphthene (mg/L)	<0.005	1	80	60.703	76		47 - 118	-	QC02062
LCS	4-Nitrophenol (mg/L)	<0.005	1	80	12.383	15		0 - 69	-	QC02062
LCS	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	47.651	60		46 - 133	-	QC02062
LCS	Pentachlorophenol (mg/L)	<0.005	1	80	44.187	55		21 - 131	-	QC02062
LCS	Pyrene (mg/L)	<0.005	1	80	55.480	69		44 - 125	-	QC02062

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	2-Fluorophenol (mg/L)	1	80	20.66	26	8 - 73	QC02062
LCS	Phenol-d5 (mg/L)	1	80	13.92	17	8 - 62	QC02062
LCS	Nitrobenzene-d5 (mg/L)	1	80	53.11	66	44 - 109	QC02062
LCS	2-Fluorobiphenyl (mg/L)	1	80	57.58	72	45 - 109	QC02062
LCS	2,4,6-Tribromophenol (mg/L)	1	80	45.44	57	39 - 132	QC02062
LCS	Terphenyl-d14 (mg/L)	1	80	52.87	66	46 - 121	QC02062

LCSD	Phenol (mg/L)	<0.005	1	80	18.927	24	3	-	0 - 20	QC02062
LCSD	2-Chlorophenol (mg/L)	<0.005	1	80	50.853	64	11	-	0 - 20	QC02062
LCSD	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	49.094	61	10	-	0 - 20	QC02062
LCSD	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	64.251	80	9	-	0 - 20	QC02062
LCSD	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	61.803	77	13	-	0 - 20	QC02062
LCSD	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	50.593	63	7	-	0 - 20	QC02062
LCSD	Acenaphthene (mg/L)	<0.005	1	80	65.886	82	8	-	0 - 20	QC02062
LCSD	4-Nitrophenol (mg/L)	<0.005	1	80	13.429	17	8	-	0 - 20	QC02062
LCSD	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	49.290	62	3	-	0 - 20	QC02062
LCSD	Pentachlorophenol (mg/L)	<0.005	1	80	50.568	63	13	-	0 - 20	QC02062
LCSD	Pyrene (mg/L)	<0.005	1	80	58.976	74	6	-	0 - 20	QC02062

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	2-Fluorophenol (mg/L)	1	80	27.06	34	8 - 73	QC02062
LCSD	Phenol-d5 (mg/L)	1	80	18.60	23	8 - 62	QC02062
LCSD	Nitrobenzene-d5 (mg/L)	1	80	59.76	75	44 - 109	QC02062
LCSD	2-Fluorobiphenyl (mg/L)	1	80	64.04	80	45 - 109	QC02062
LCSD	2,4,6-Tribromophenol (mg/L)	1	80	48.41	61	39 - 132	QC02062
LCSD	Terphenyl-d14 (mg/L)	1	80	55.12	69	46 - 121	QC02062

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Dissolved Calcium (mg/L)	<0.50	1	1000	968	97		75 - 125	-	QC01950

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 16 of 20

N/A Injection Wells N/A

LCS	Dissolved Magnesium (mg/L)	<0.50	1	1000	966	97	75 - 125	-	QC01950
LCS	Dissolved Potassium (mg/L)	<0.50	1	1000	1022	102	75 - 125	-	QC01950
LCS	Dissolved Sodium (mg/L)	<0.50	1	1000	983	98	75 - 125	-	QC01950
LCSD	Dissolved Calcium (mg/L)	<0.50	1	1000	978	98	1	-	0 - 20	QC01950
LCSD	Dissolved Magnesium (mg/L)	<0.50	1	1000	972	97	1	-	0 - 20	QC01950
LCSD	Dissolved Potassium (mg/L)	<0.50	1	1000	999	100	2	-	0 - 20	QC01950
LCSD	Dissolved Sodium (mg/L)	<0.50	1	1000	987	99	0	-	0 - 20	QC01950

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Total Mercury (mg/L)	<0.0002	1	0.001	0.00090	90		80 - 120	-	QC01968
LCSD	Total Mercury (mg/L)	<0.0002	1	0.001	0.00106	106	16	-	0 - 20	QC01968

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Total Aluminum (mg/L)	<0.01	1	2	1.98	99		75 - 125	-	QC02060
LCS	Total Arsenic (mg/L)	<0.01	1	2	1.87	94		75 - 125	-	QC02060
LCS	Total Barium (mg/L)	<0.01	1	2	2.18	109		75 - 125	-	QC02060
LCS	Total Beryllium (mg/L)	<0.004	1	2	1.95	98		75 - 125	-	QC02060
LCS	Total Boron (mg/L)	<0.01	1	2	1.92	96		75 - 125	-	QC02060
LCS	Total Cadmium (mg/L)	<0.002	1	2	1.97	99		75 - 125	-	QC02060
LCS	Total Chromium (mg/L)	<0.005	1	2	2.01	100		75 - 125	-	QC02060
LCS	Total Cobalt (mg/L)	<0.01	1	2	2.05	102		75 - 125	-	QC02060
LCS	Total Copper (mg/L)	<0.01	1	2	2.08	104		75 - 125	-	QC02060
LCS	Total Iron (mg/L)	<0.01	1	2	2.06	103		75 - 125	-	QC02060
LCS	Total Lead (mg/L)	<0.01	1	2	2.04	102		75 - 125	-	QC02060
LCS	Total Manganese (mg/L)	<0.01	1	2	2.02	101		75 - 125	-	QC02060
LCS	Total Molybdenum (mg/L)	<0.01	1	2	2.03	101		75 - 125	-	QC02060
LCS	Total Nickel (mg/L)	<0.01	1	2	1.99	100		75 - 125	-	QC02060
LCS	Total Selenium (mg/L)	<0.01	1	2	1.87	94		75 - 125	-	QC02060
LCS	Total Silver (mg/L)	<0.005	1	0.4	0.415	104		75 - 125	-	QC02060
LCS	Total Uranium (mg/L)	<0.50	1	2	1.99	100		75 - 125	-	QC02060
LCS	Total Vanadium (mg/L)	<0.01	1	2	1.98	99		75 - 125	-	QC02060
LCS	Total Zinc (mg/L)	<0.01	1	2	2.02	101		75 - 125	-	QC02060
LCSD	Total Aluminum (mg/L)	<0.01	1	2	2.00	100	1	-	0 - 20	QC02060
LCSD	Total Arsenic (mg/L)	<0.01	1	2	1.89	95	1	-	0 - 20	QC02060
LCSD	Total Barium (mg/L)	<0.01	1	2	2.19	110	0	-	0 - 20	QC02060
LCSD	Total Beryllium (mg/L)	<0.004	1	2	1.96	98	1	-	0 - 20	QC02060
LCSD	Total Boron (mg/L)	<0.01	1	2	1.94	97	1	-	0 - 20	QC02060
LCSD	Total Cadmium (mg/L)	<0.002	1	2	1.98	99	1	-	0 - 20	QC02060
LCSD	Total Chromium (mg/L)	<0.005	1	2	2.02	101	0	-	0 - 20	QC02060
LCSD	Total Cobalt (mg/L)	<0.01	1	2	2.06	103	0	-	0 - 20	QC02060
LCSD	Total Copper (mg/L)	<0.01	1	2	2.09	105	0	-	0 - 20	QC02060

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 17 of 20

N/A Injection Wells N/A

LCSD	Total Iron (mg/L)	<0.01	1	2	2.07	103	0	0 - 20	QC02060
LCSD	Total Lead (mg/L)	<0.01	1	2	2.05	102	0	0 - 20	QC02060
LCSD	Total Manganese (mg/L)	<0.01	1	2	2.03	101	0	0 - 20	QC02060
LCSD	Total Molybdenum (mg/L)	<0.01	1	2	2.05	102	1	0 - 20	QC02060
LCSD	Total Nickel (mg/L)	<0.01	1	2	2.00	100	1	0 - 20	QC02060
LCSD	Total Selenium (mg/L)	<0.01	1	2	1.89	95	1	0 - 20	QC02060
LCSD	Total Silver (mg/L)	<0.005	1	0.4	0.418	105	1	0 - 20	QC02060
LCSD	Total Uranium (mg/L)	<0.50	1	2	1.97	99	1	0 - 20	QC02060
LCSD	Total Vanadium (mg/L)	<0.01	1	2	1.99	100	1	0 - 20	QC02060
LCSD	Total Zinc (mg/L)	<0.01	1	2	2.04	102	1	0 - 20	QC02060

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	Phenol (mg/L)		60	58.22	97	5 - 57	4/3/00	QC02062
CCV 1	1,4-Dichlorobenzene (mg/L)		60	58.66	98	25 - 94	4/3/00	QC02062
CCV 1	2-Nitrophenol (mg/L)		60	58.06	97	80 - 120	4/3/00	QC02062
CCV 1	Hexachlorobutadiene (mg/L)		60	61.40	102	80 - 120	4/3/00	QC02062
CCV 1	4-Chloro-3-methylphenol (mg/L)		60	55.07	92	40 - 126	4/3/00	QC02062
CCV 1	2,4,6-Trichlorophenol (mg/L)		60	58.83	98	80 - 120	4/3/00	QC02062
CCV 1	Acenaphthylene (mg/L)		60	58.23	97	80 - 120	4/3/00	QC02062
CCV 1	Diphenylamine (mg/L)		60	51.43	86	80 - 120	4/3/00	QC02062
CCV 1	Pentachlorophenol (mg/L)		60	52.25	87	21 - 131	4/3/00	QC02062
CCV 1	Fluoranthene (mg/L)		60	52.07	87	80 - 120	4/3/00	QC02062
CCV 1	Di-n-octylphthalate (mg/L)		60	56.37	94	80 - 120	4/3/00	QC02062
CCV 1	Benzo(a)pyrene (mg/L)		60	61.74	103	80 - 120	4/3/00	QC02062

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Hydroxide Alkalinity (mg/L as CaCo3)		0	5.0	0	80 - 120	4/5/00	QC01887
ICV	Carbonate Alkalinity (mg/L as CaCo3)		0	212	0	80 - 120	4/5/00	QC01887
ICV	Bicarbonate Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	4/5/00	QC01887
ICV	Total Alkalinity (mg/L as CaCo3)		236	217	92	80 - 120	4/5/00	QC01887
CCV 1	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	4/5/00	QC01887
CCV 1	Carbonate Alkalinity (mg/L as CaCo3)		0	212	0	80 - 120	4/5/00	QC01887
CCV 1	Bicarbonate Alkalinity (mg/L as CaCo3)		0	11	0	80 - 120	4/5/00	QC01887
CCV 1	Total Alkalinity (mg/L as CaCo3)		236	223	94	80 - 120	4/5/00	QC01887

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Specific Conductance (uMHOS/cm)		1413	1279	91	80 - 120	4/5/00	QC01888
CCV 1	Specific Conductance (uMHOS/cm)		1413	1288	91	80 - 120	4/5/00	QC01888

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Dissolved Calcium (mg/L)		20	20.9	105	75 - 125	4/6/00	QC01950
ICV	Dissolved Magnesium (mg/L)		20	21.9	110	75 - 125	4/6/00	QC01950
ICV	Dissolved Potassium (mg/L)		20	20.7	103	75 - 125	4/6/00	QC01950
ICV	Dissolved Sodium (mg/L)		20	21.5	108	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Calcium (mg/L)		20	20.9	105	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Magnesium (mg/L)		20	21.9	110	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Potassium (mg/L)		20	20.7	103	75 - 125	4/6/00	QC01950

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	Dissolved Sodium (mg/L)		20	21.5	108	75 - 125	4/6/00	QC01950

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Mercury (mg/L)		0.005	0.00091	18	80 - 120	4/6/00	QC01968
CCV 1	Total Mercury (mg/L)		0.005	0.00101	20	80 - 120	4/6/00	QC01968

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.39	91	80 - 120	3/30/00	QC01806
ICV	Fluoride (mg/L)		2.5	2.48	99	80 - 120	3/30/00	QC01806
ICV	Nitrate-N (mg/L)		5	4.65	93	80 - 120	3/30/00	QC01806
ICV	Sulfate (mg/L)		12.5	11.52	92	80 - 120	3/30/00	QC01806
CCV 1	CL (mg/L)		12.5	11.32	91	80 - 120	3/30/00	QC01806
CCV 1	Fluoride (mg/L)		2.5	2.47	99	80 - 120	3/30/00	QC01806
CCV 1	Nitrate-N (mg/L)		5	4.64	93	80 - 120	3/30/00	QC01806
CCV 1	Sulfate (mg/L)		12.5	11.46	92	80 - 120	3/30/00	QC01806

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	pH (s.u.)		7	7.0	100	80 - 120	3/30/00	QC01825
CCV 1	pH (s.u.)		7	7.0	100	80 - 120	3/30/00	QC01825

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Dissolved Solids (mg/L)		1000	1006	101	80 - 120	4/8/00	QC01956
CCV 1	Total Dissolved Solids (mg/L)		1000	984	98	80 - 120	4/8/00	QC01956

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Aluminum (mg/L)		20	19.6	98	75 - 125	4/6/00	QC02060
ICV	Total Arsenic (mg/L)		1	1.00	100	75 - 125	4/6/00	QC02060
ICV	Total Barium (mg/L)		20	21.0	105	75 - 125	4/6/00	QC02060
ICV	Total Beryllium (mg/L)		0.5	0.502	100	75 - 125	4/6/00	QC02060
ICV	Total Boron (mg/L)		2.5	2.53	101	75 - 125	4/6/00	QC02060
ICV	Total Cadmium (mg/L)		0.5	0.509	102	75 - 125	4/6/00	QC02060
ICV	Total Chromium (mg/L)		1	1.01	101	75 - 125	4/6/00	QC02060

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Cobalt (mg/L)		5	5.09	102	75 - 125	4/6/00	QC02060
ICV	Total Copper (mg/L)		2.5	2.49	100	75 - 125	4/6/00	QC02060
ICV	Total Iron (mg/L)		10	10.1	101	75 - 125	4/6/00	QC02060
ICV	Total Lead (mg/L)		0.5	0.510	102	75 - 125	4/6/00	QC02060
ICV	Total Manganese (mg/L)		1.5	1.52	101	75 - 125	4/6/00	QC02060
ICV	Total Molybdenum (mg/L)		2.5	2.53	101	75 - 125	4/6/00	QC02060
ICV	Total Nickel (mg/L)		4	4.01	100	75 - 125	4/6/00	QC02060
ICV	Total Selenium (mg/L)		0.5	0.503	101	75 - 125	4/6/00	QC02060
ICV	Total Silver (mg/L)		1	0.99	99	75 - 125	4/6/00	QC02060
ICV	Total Uranium (mg/L)		1	1.05	105	75 - 125	4/6/00	QC02060
ICV	Total Vanadium (mg/L)		5	5.03	101	75 - 125	4/6/00	QC02060
ICV	Total Zinc (mg/L)		2	2.04	102	75 - 125	4/6/00	QC02060
CCV 1	Total Aluminum (mg/L)		20	19.4	97	75 - 125	4/6/00	QC02060
CCV 1	Total Arsenic (mg/L)		1	0.98	98	75 - 125	4/6/00	QC02060
CCV 1	Total Barium (mg/L)		20	20.5	102	75 - 125	4/6/00	QC02060
CCV 1	Total Beryllium (mg/L)		0.5	0.493	99	75 - 125	4/6/00	QC02060
CCV 1	Total Boron (mg/L)		2.5	2.47	99	75 - 125	4/6/00	QC02060
CCV 1	Total Cadmium (mg/L)		0.5	0.494	99	75 - 125	4/6/00	QC02060
CCV 1	Total Chromium (mg/L)		1	0.99	99	75 - 125	4/6/00	QC02060
CCV 1	Total Cobalt (mg/L)		5	4.99	100	75 - 125	4/6/00	QC02060
CCV 1	Total Copper (mg/L)		2.5	2.48	99	75 - 125	4/6/00	QC02060
CCV 1	Total Iron (mg/L)		10	9.9	99	75 - 125	4/6/00	QC02060
CCV 1	Total Lead (mg/L)		0.5	0.502	100	75 - 125	4/6/00	QC02060
CCV 1	Total Manganese (mg/L)		1.5	1.49	99	75 - 125	4/6/00	QC02060
CCV 1	Total Molybdenum (mg/L)		2.5	2.48	99	75 - 125	4/6/00	QC02060
CCV 1	Total Nickel (mg/L)		4	3.98	100	75 - 125	4/6/00	QC02060
CCV 1	Total Selenium (mg/L)		0.5	0.499	100	75 - 125	4/6/00	QC02060
CCV 1	Total Silver (mg/L)		1	0.98	98	75 - 125	4/6/00	QC02060
CCV 1	Total Uranium (mg/L)		1	1.06	106	75 - 125	4/6/00	QC02060
CCV 1	Total Vanadium (mg/L)		5	4.95	99	75 - 125	4/6/00	QC02060
CCV 1	Total Zinc (mg/L)		2	1.97	99	75 - 125	4/6/00	QC02060

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143547

Page ____ of ____

6701 Aberdeen Avenue, Ste. 9
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Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # H0033024

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E. Main
Fax #: 505 748 9077
Contact Person: Darrell Moore or Charlie Phymale
Invoice to: (if different from above)
Project #:
Project Name: Injection Wells
Project Location: Artesia
Sampler Signature: Charlie Phymale

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	Na2S2O3	SAMPLING: DATE	TIME
143547	Injection Wells	2	1L	X						X	X		3/29/00	8:30
	" "	2	40ml	X							X	X	3/29/00	8:30
	" "	1	500ml	X					X	X			3/29/00	8:30

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See list

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Phymale	3/29/00	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Henely	3:30 00	10:00

LAB USE ONLY

Intact (Y) / N
Headspace Y / (N)
Temp 12° C
Log-in Review MS

REMARKS:

4117

Carrier # Fed Ex 279-3832-431

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

Page 2582 of 5828

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6701 Aberdeen Avenue, Ste. 9
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TraceAnalysis, Inc.

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El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID #_____

Company Name: NAVA 50 Phone #: 5057483311

Address: (Street, City, Zip) 501 E. Main Fax #: 505 7489077

Contact Person: Darrell Moore or Charlie Plymale

Invoice to: (If different from above)

Project #: Project Name: Inj. wells

Project Location: Artesia Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME
	Inj wells	1	1L	X						X	X	3/30/00	13:50

ANALYSIS REQUEST (Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC-MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH					Turn Around Time if different from standard	Hold
				See 1-5A																

Relinquished by: Date: 3/30/00 Time: 16:15 Received by: Date: Time:

Relinquished by: Date: Time: Received by: Date: Time:

Relinquished by: Date: Time: Received at Laboratory by: Vicki Hensley Date: 3-31-00 Time: 9:00

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp -2° °
Log-in Review

REMARKS:
RL Sample

Carrier # FedEx 279-4050 942

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

TELEPHONE
(505) 748-3311

EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

February 1, 2000

RECEIVED
FEB 0 3 2000
Environmental Bureau
Oil Conservation Division

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 1999 to December 31, 1999. We have disposed a total of 1,136,090 bbls. of fluid down the two wells. This is broken down as follows: 893,539 bbls. down WDW-1 and 242,551 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Page 2585 of 5828

Qrtly Injection Pressures, Rates

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	M Ma V
October 1999	87	328	-12.7	330	499	10.8	11314.29	17
November 1999	161	410.4	-12.4	248.9	343.8	0	8533.71	11
December 1999	155.5	322.4	-12.3	271.5	376.7	13.5	9308.57	12

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	M Ma V
October 1999	NA	NA	NA	NA	NA	NA	NA	
November 1999	140.3	337	-15.4	158.5	436.6	0	5434.286	14
December 1999	140.3	337.8	-15.4	69.7	341	0	2389.714	1'

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TRACE ANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING CO.
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

January 17, 2000
Receiving Date: 01/06/00
Sample Type: Water
Project #: N/A
Project Location: N/A

Prep Date: 01/10/00
Analysis Date: 01/10/00
Sampling Date: 01/05/00
Sample Condition: I & C
Sample Received by: VW
Project Name: Injection Wells

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T138278	Injection Wells	20	34	164	628
ICV		20.2	20.3	20.5	20.2
CCV		19.9	20.2	20.2	20.2
Reporting Limit		5.0	5.0	5.0	5.0
RPD		1	1	2	0
% Extraction Accuracy		109	101	99	108
% Instrument Accuracy		100	101	102	101

METHODS: EPA SW 846-6010B, 3005A
CHEMIST: RR
TOTAL SPIKE: 1,000 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.
TOTAL CV: 20 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich

01/17/00
Date

Released to Imaging: 7/12/2024 10:49:45 AM
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E-Mail: lab@traceanalysis.com

January 17, 2000
Receiving Date: 01/06/00
Sample Type: Water
Project #: N/A
Project Location: N/A

ANALYTICAL RESULTS FOR
NAVAJO REFINING CO.
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

Analysis Date: 01/14/00
Sampling Date: 01/05/00
Sample Condition: I & C
Sample Received by: VW
Project Name: Injection Wells

TA#	Field Code	REACTIVITY	SULFIDES (ppm)	CYANIDES (ppm)	CORROSIVITY (mm/yr)	pH (s.u.)	FLASHPOINT (F)
	EPA LIMIT =	---	500	250	>6.5 mm/yr	<2 >12.5	>140 F
T138278	Injection Wells	Non-reactive	<10	<2.5	Non 0.40 mm/yr	8.16	>150 Non-Ignitable
RPD		0	0	0	0	0	0
% Extraction Accuracy		100	100	100	100	100	100
% Instrument Accuracy		---	---	---	---	---	---

METHODS: EPA SW 846-Chapter 7 7.3, Chapter 7 7.2, Chapter 7 7.1.
CHEMIST: JM

Director, Dr. Blair Leftwich

01/17/00
Date

Released to Imaging: 7/12/2024 10:49:45 AM
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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

January 14, 2000
Receiving Date: 01/06/2000
Sample Type: Water
Project No: NA
Project Location: NA

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

Sampling Date: 01/05/2000
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Injection Wells

TOTAL METALS (mg/L)

TA#	Field Code	Ag	As	Ba	Cd	Cr	Pb	Se	Hg
T138278	Injection Wells	<0.05	0.19	<0.10	<0.02	<0.05	<0.10	0.27	<0.0002
ICV		0.21	0.98	0.94	0.94	0.94	0.94	0.98	0.00104
CCV		0.19	0.94	0.94	0.94	0.92	0.94	0.94	0.00107
Reporting Limit		0.05	0.10	0.10	0.02	0.05	0.10	0.10	0.0002
RPD		4	3	3	1	1	2	3	7
% Extraction Accuracy		73	89	86	83	86	83	88	85
% Instrument Accuracy		100	96	94	94	93	94	96	106
PREP DATE		01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/13/2000
ANALYSIS DATE		01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/13/2000

CHEMIST: As, Se, Cd, Cr, Pb, Ag, Ba: RR Hg: BP
METHODS: EPA SW 846-3010A, 6010B, 7470A.
TOTAL METALS SPIKE: 0.40 mg/L Ag; 2.0 mg/L As, Ba, Cd, Cr, Pb, Se; 0.0010 mg/L Hg.
TOTAL METALS CV: 0.20 mg/L Ag; 1.0 mg/L As, Ba, Cd, Cr, Pb, Se; 0.0010 mg/L Hg.

Director, Dr. Blair Leftwich

01/17/00
Date

TRACEANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 1/19/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00010608

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
138278	Injection Wells	Water	1/5/00	9:45	1/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 2 of 15
N/A Injection Wells N/A

Analytical Results Report

Sample Number: 138278
Description: Injection Wells

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
8260 (µg/L)										
Dichlorodifluoromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromomethane		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Chloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Trichlorofluoromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Methylene chloride		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
MTBE		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,2-Dichloroethene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,2-dichloroethene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2,2-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloroethane (EDC)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1-Trichloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Carbon Tetrachloride		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromomethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromodichloromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,3-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,3-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,2-Trichloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromochloromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dibromoethane (EDB)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Tetrachloroethene (PCE)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1,2-Tetrachloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
m,p-Xylene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromoform		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Styrene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
o-Xylene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Isopropylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2-Chlorotoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Propylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
4-Chlorotoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3,5-Trimethylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
tert-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trimethylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,4-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
sec-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
p-Isopropyltoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichlorobenzene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Naphthalene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trichlorobenzene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
1,2-Dibromo-3-chloropropane		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Hexachlorobutadiene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 3 of 15

N/A Injection Wells N/A

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
Dibromofluoromethane	50.71	1	50	101	83 - 121	JG	PB00190	QC00251	
Toluene-d8	51.32	1	50	103	91 - 108	JG	PB00190	QC00251	
4-Bromofluorobenzene	47.70	1	50	95	80 - 120	JG	PB00190	QC00251	
8270 (mg/L)									
Pyridine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosodimethylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Picoline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Methyl methanesulfonate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Ethyl methanesulfonate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Aniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroethyl) ether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Chlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,3-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,4-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzyl alcohol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroisopropyl) ether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Methylphenol/3-Methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acetophenone	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosodi-n-propylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachloroethane	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Nitrobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosopiperidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Isophorone	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Nitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dimethylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroethoxy) methane	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzoic acid	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2,4-Trichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
a,a-Dimethylphenethylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Naphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chloroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,6-Dichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorobutadiene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitroso-di-n-butylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chloro-3-methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Methylnaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Methylnaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2,4,5-Tetrachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorocyclopentadiene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4,6-Trichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4,5-Trichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Chloronaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Chloronaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dimethylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acenaphthylene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,6-Dinitrotoluene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acenaphthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005

2,4-Dinitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzofuran	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Nitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Napthylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dinitrotoluene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Napthylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,3,4,6-Tetrachlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Fluorene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diethylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chlorophenyl-phenylether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4,6-Dinitro-2-methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diphenylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diphenylhydrazine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Bromophenyl-phenylether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenacetin	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Aminobiphenyl	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachloronitrobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pronamide	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenanthrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Di-n-butylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
p-Dimethylaminoazobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Butylbenzylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(a)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3,3-Dichlorobenzidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Chrysene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Bis (2-ethylhexyl) phthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Di-n-octylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(b)fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
7,12-Dimethylbenz(a)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(k)fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(a)pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3-Methylcholanthrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzo(a,j)acridine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Indeno(1,2,3-cd)pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzo(a,h)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(g,h,i)perylene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005

Surrogate (mg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #
2-Fluorophenol	34.11	1	80	43	9 - 71	MA	PB00185	QC00333
Phenol-d5	30.32	1	80	38	4 - 64	MA	PB00185	QC00333
Nitrobenzene-d5	54.02	1	80	68	44 - 109	MA	PB00185	QC00333
2-Fluorobiphenyl	51.81	1	80	65	47 - 108	MA	PB00185	QC00333
2,4,6-Tribromophenol	44.98	1	80	56	51 - 128	MA	PB00185	QC00333
Terphenyl-d14	66.88	1	80	84	58 - 115	MA	PB00185	QC00333

Alkalinity (mg/L as CaCo3)									
Hydroxide Alkalinity	<1.0	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Carbonate Alkalinity	<1.0	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 5 of 15

N/A Injection Wells N/A

Bicarbonate Alkalinity		320	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Total Alkalinity		320	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Conductivity (uMHOS/cm)										
Specific Conductance		4982	1	SM 2510B	1/11/00	1/11/00	MF	PB00232	QC00304	
Ion Chromatography (IC) (mg/L)										
CL		920	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.5
Fluoride		27	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.1
Nitrate-N		2.6	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.2
Sulfate		700	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.5
pH (s.u.)										
pH	*	8.2	1	E 150.1	1/6/00	1/6/00	RS	PB00253	QC00327	1
TDS (mg/L)										
Total Dissolved Solids		2300	1	E 160.1	1/11/00	1/12/00	JS	PB00238	QC00311	10

* pH - Out of holding time.

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dichlorodifluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromomethane (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Chloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Trichlorofluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Methylene chloride (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
MTBE (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,2-Dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,2-dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Carbon Tetrachloride (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromomethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromodichloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,2-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromochloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Tetrachloroethene (PCE) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
m,p-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromoform (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Styrene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
o-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Isopropylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Propylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
4-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3,5-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
tert-Butylbenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2,4-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,4-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
sec-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,3-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
p-Isopropyltoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichlorobenzene (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Naphthalene (µg/L)		<2	2	1/6/00	PB00190	QC00251

1,2,4-Trichlorobenzene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
Hexachlorobutadiene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	50.11	50	100	83 - 121	QC00251
Toluene-d8 (µg/L)	52.65	50	105	91 - 108	QC00251
4-Bromofluorobenzene (µg/L)	46.07	50	92	80 - 120	QC00251

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Pyridine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosodimethylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Picoline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Methyl methanesulfonate (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Ethyl methanesulfonate (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Phenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Aniline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroethyl) ether (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Chlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,3-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,4-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Benzyl alcohol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroisopropyl) ether (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Methylphenol/3-Methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Acetophenone (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosodi-n-propylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachloroethane (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Nitrobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosopiperidine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Isophorone (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Nitrophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dimethylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroethoxy) methane (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Benzoic acid (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2,4-Trichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
a,a-Dimethylphenethylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Naphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Chloroaniline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,6-Dichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorobutadiene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitroso-di-n-butylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Chloro-3-methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1-Methylnaphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Methylnaphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2,4,5-Tetrachlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorocyclopentadiene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4,6-Trichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333

Report Date: 1/19/00	Order ID Number: A00010608				Page Number: 8 of 15
N/A	Injection Wells				N/A
2,4,5-Trichlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Chloronaphthalene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
1-Chloronaphthalene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dimethylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Acenaphthylene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,6-Dinitrotoluene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Acenaphthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dinitrophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dibenzofuran (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachlorobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Nitrophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
1-Napthylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dinitrotoluene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Napthylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,3,4,6-Tetrachlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Fluorene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diethylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Chlorophenyl-phenylether (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4,6-Dinitro-2-methylphenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diphenylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diphenylhydrazine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Bromophenyl-phenylether (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Phenacetin (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Aminobiphenyl (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachloronitrobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pronamide (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Phenanthrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Di-n-butylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzidine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
p-Dimethylaminoazobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Butylbenzylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(a)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3,3-Dichlorobenzidine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Chrysene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Bis (2-ethylhexyl) phthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Di-n-octylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(b)fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
7,12-Dimethylbenz(a)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(k)fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(a)pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3-Methylcholanthrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dibenzo(a,j)acridine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Indeno(1,2,3-cd)pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333

Dibenzo(a,h)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(g,h,i)perylene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
2-Fluorophenol (mg/L)	35.26	80	44	9 - 71	QC00333
Phenol-d5 (mg/L)	22.41	80	28	4 - 64	QC00333
Nitrobenzene-d5 (mg/L)	59.32	80	74	44 - 109	QC00333
2-Fluorobiphenyl (mg/L)	63.26	80	79	47 - 108	QC00333
2,4,6-Tribromophenol (mg/L)	58.13	80	73	51 - 128	QC00333
Terphenyl-d14 (mg/L)	67.36	80	84	58 - 115	QC00333

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Hydroxide Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Carbonate Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Bicarbonate Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Total Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Specific Conductance (uMHOS/cm)		6.7		1/11/00	PB00232	QC00304

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL (mg/L)		<0.5	0.5	1/6/00	PB00196	QC00257
Fluoride (mg/L)		<0.1	0.1	1/6/00	PB00196	QC00257
Nitrate-N (mg/L)		<0.2	0.2	1/6/00	PB00196	QC00257
Sulfate (mg/L)		<0.5	0.5	1/6/00	PB00196	QC00257

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Dissolved Solids (mg/L)		<10	10	1/12/00	PB00238	QC00311

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param		Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	*	920	1	1250	2060.31	91		80 - 120	0 - 20	QC00257
MS	Fluoride (mg/L)	*	27	1	250	253.06	90		80 - 120	0 - 20	QC00257
MS	Nitrate-N (mg/L)	*	2.6	1	500	477.41	95		80 - 120	0 - 20	QC00257
MS	Sulfate (mg/L)	*	700	1	1250	1935.14	99		80 - 120	0 - 20	QC00257

* CL - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 92.
* Fluoride - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 89.
* Nitrate-N - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 95.
* Sulfate - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 98.

Standard	Param		Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MSD	CL (mg/L)	*	920	1	1250	2061.14	91	0	80 - 120	0 - 20	QC00257
MSD	Fluoride (mg/L)	*	27	1	250	255.32	91	1	80 - 120	0 - 20	QC00257
MSD	Nitrate-N (mg/L)	*	2.6	1	500	482.88	96	1	80 - 120	0 - 20	QC00257
MSD	Sulfate (mg/L)	*	700	1	1250	1969.34	102	3	80 - 120	0 - 20	QC00257

* CL - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 92.
* Fluoride - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 89.
* Nitrate-N - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 95.
* Sulfate - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 98.

Quality Control Report
Duplicates

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydroxide Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC00275
Duplicate	Carbonate Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC00275
Duplicate	Bicarbonate Alkalinity (mg/L as CaC		330	320	1	3	0 - 20	QC00275
Duplicate	Total Alkalinity (mg/L as CaCo3)		330	320	1	3	0 - 20	QC00275

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Specific Conductance (uMHOS/cm)		966	978	1	1	0 - 20	QC00304

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	pH (s.u.)		7.4	7.4	1	0	0 - 20	QC00327

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 11 of 15

N/A Injection Wells N/A

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Total Dissolved Solids (mg/L)		1870	1800	1	4	0 - 20	QC00311

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	1,1-Dichloroethene (ug/L)		1	100	88	88		77 - 136	0 - 20	QC00251
LCS	Benzene (ug/L)		1	100	95	95		71 - 120	0 - 20	QC00251
LCS	Trichloroethene (TCE) (ug/L)		1	100	90	90		84 - 109	0 - 20	QC00251
LCS	Toluene (ug/L)		1	100	94	94		74 - 113	0 - 20	QC00251
LCS	Chlorobenzene (ug/L)		1	100	95	95		79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	Dibromofluoromethane (µg/L)	1	50	50.97	102	83 - 121	QC00251
LCS	Toluene-d8 (µg/L)	1	50	51.40	103	91 - 108	QC00251
LCS	4-Bromofluorobenzene (µg/L)	1	50	45.29	91	80 - 120	QC00251

LCSD	1,1-Dichloroethene (ug/L)		1	100	86	86	2	77 - 136	0 - 20	QC00251
LCSD	Benzene (ug/L)		1	100	95	95	0	71 - 120	0 - 20	QC00251
LCSD	Trichloroethene (TCE) (ug/L)		1	100	89	89	1	84 - 109	0 - 20	QC00251
LCSD	Toluene (ug/L)		1	100	94	94	0	74 - 113	0 - 20	QC00251
LCSD	Chlorobenzene (ug/L)		1	100	94	94	1	79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	Dibromofluoromethane (µg/L)	1	50	49.67	99	83 - 121	QC00251
LCSD	Toluene-d8 (µg/L)	1	50	51.67	103	91 - 108	QC00251
LCSD	4-Bromofluorobenzene (µg/L)	1	50	44.87	90	80 - 120	QC00251

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Phenol (mg/L)	<0.005	1	80	22.818	29		5 - 112	0 - 20	QC00333
LCS	2-Chlorophenol (mg/L)	<0.005	1	80	55.548	69		28 - 110	0 - 20	QC00333
LCS	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	50.523	63		27 - 94	0 - 20	QC00333
LCS	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	66.130	83		Det - 230	0 - 20	QC00333
LCS	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	53.798	67		31 - 109	0 - 20	QC00333
LCS	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	52.521	66		41 - 126	0 - 20	QC00333
LCS	Acenaphthene (mg/L)	<0.005	1	80	63.740	80		46 - 118	0 - 20	QC00333
LCS	4-Nitrophenol (mg/L)	<0.005	1	80	17.704	22		0 - 70	0 - 20	QC00333
LCS	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	62.222	78		50 - 132	0 - 20	QC00333
LCS	Pentachlorophenol (mg/L)	<0.005	1	80	42.948	54		1 - 150	0 - 20	QC00333
LCS	Pyrene (mg/L)	<0.005	1	80	66.491	83		49 - 122	0 - 20	QC00333

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	2-Fluorophenol (mg/L)	1	80	36.50	46	9 - 71	QC00333
LCS	Phenol-d5 (mg/L)	1	80	24.31	30	4 - 64	QC00333
LCS	Nitrobenzene-d5 (mg/L)	1	80	63.52	79	44 - 109	QC00333
LCS	2-Fluorobiphenyl (mg/L)	1	80	63.34	79	47 - 108	QC00333
LCS	2,4,6-Tribromophenol (mg/L)	1	80	63.27	79	51 - 128	QC00333
LCS	Terphenyl-d14 (mg/L)	1	80	63.55	79	58 - 115	QC00333

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 13 of 15

N/A Injection Wells N/A

LCSD	Phenol (mg/L)	<0.005	1	80	22.026	28	4	2 - 55	0 - 20	QC00333
LCSD	2-Chlorophenol (mg/L)	<0.005	1	80	52.863	66	5	28 - 110	0 - 20	QC00333
LCSD	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	48.069	60	5	27 - 94	0 - 20	QC00333
LCSD	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	64.392	80	3	Det - 230	0 - 20	QC00333
LCSD	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	52.282	65	3	31 - 109	0 - 20	QC00333
LCSD	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	54.382	68	3	41 - 126	0 - 20	QC00333
LCSD	Acenaphthene (mg/L)	<0.005	1	80	62.427	78	2	46 - 118	0 - 20	QC00333
LCSD	4-Nitrophenol (mg/L)	<0.005	1	80	18.749	23	6	0 - 70	0 - 20	QC00333
LCSD	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	64.415	81	3	50 - 132	0 - 20	QC00333
LCSD	Pentachlorophenol (mg/L)	<0.005	1	80	43.506	54	1	1 - 150	0 - 20	QC00333
LCSD	Pyrene (mg/L)	<0.005	1	80	69.022	86	4	49 - 122	0 - 20	QC00333

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	2-Fluorophenol (mg/L)	1	80	34.57	43	9 - 71	QC00333
LCSD	Phenol-d5 (mg/L)	1	80	23.20	29	4 - 64	QC00333
LCSD	Nitrobenzene-d5 (mg/L)	1	80	60.47	76	44 - 109	QC00333
LCSD	2-Fluorobiphenyl (mg/L)	1	80	62.00	78	47 - 108	QC00333
LCSD	2,4,6-Tribromophenol (mg/L)	1	80	66.43	83	51 - 128	QC00333
LCSD	Terphenyl-d14 (mg/L)	1	80	66.95	84	58 - 115	QC00333

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV (1	1,2-Dichloropropane (µg/L)		100	106	106	80 - 120	1/6/00	QC00251
CCV (1	Dibromofluoromethane (µg/L)		50	50.35	101	83 - 121	1/6/00	QC00251
CCV (1	Toluene-d8 (µg/L)		50	49.3	99	91 - 108	1/6/00	QC00251
CCV (1	4-Bromofluorobenzene (µg/L)		50	51.76	104	80 - 120	1/6/00	QC00251

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV (1	Phenol (mg/L)		60	60.31	101	80 - 120	1/11/00	QC00333
CCV (1	1,4-Dichlorobenzene (mg/L)		60	61.32	102	27 - 94	1/11/00	QC00333
CCV (1	2-Nitrophenol (mg/L)		60	58.50	98	80 - 120	1/11/00	QC00333
CCV (1	2,4-Dichlorophenol (mg/L)		60	57.94	97	80 - 120	1/11/00	QC00333
CCV (1	Hexachlorobutadiene (mg/L)		60	61.10	102	80 - 120	1/11/00	QC00333
CCV (1	4-Chloro-3-methylphenol (mg/L)		60	55.24	92	41 - 126	1/11/00	QC00333
CCV (1	2,4,6-Trichlorophenol (mg/L)		60	57.30	96	80 - 120	1/11/00	QC00333
CCV (1	Acenaphthene (mg/L)		60	59.46	99	46 - 118	1/11/00	QC00333
CCV (1	Diphenylamine (mg/L)		60	56.48	94	80 - 120	1/11/00	QC00333
CCV (1	Pentachlorophenol (mg/L)		60	54.86	91	1 - 150	1/11/00	QC00333
CCV (1	Fluoranthene (mg/L)		60	59.83	100	80 - 120	1/11/00	QC00333
CCV (1	Di-n-octylphthalate (mg/L)		60	56.06	93	80 - 120	1/11/00	QC00333
CCV (1	Benzo(a)pyrene (mg/L)		60	58.81	98	80 - 120	1/11/00	QC00333

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	1/10/00	QC00275
ICV	Carbonate Alkalinity (mg/L as CaCo3)		0	2280	0	80 - 120	1/10/00	QC00275
ICV	Bicarbonate Alkalinity (mg/L as CaCo3)		0	40	0	80 - 120	1/10/00	QC00275
ICV	Total Alkalinity (mg/L as CaCo3)		2400	2320	97	80 - 120	1/10/00	QC00275
CCV (1	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	1/10/00	QC00275
CCV (1	Carbonate Alkalinity (mg/L as CaCo3)		0	2120	0	80 - 120	1/10/00	QC00275
CCV (1	Bicarbonate Alkalinity (mg/L as CaCo3)		0	80	0	80 - 120	1/10/00	QC00275
CCV (1	Total Alkalinity (mg/L as CaCo3)		2400	2200	92	80 - 120	1/10/00	QC00275

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Specific Conductance (uMHOS/cm)		1413	1351	96	80 - 120	1/11/00	QC00304
CCV (1	Specific Conductance (uMHOS/cm)		1413	1347	95	80 - 120	1/11/00	QC00304

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.37	91	80 - 120	1/6/00	QC00257
ICV	Fluoride (mg/L)		2.5	2.28	91	80 - 120	1/6/00	QC00257
ICV	Nitrate-N (mg/L)		5	4.59	92	80 - 120	1/6/00	QC00257
ICV	Sulfate (mg/L)		12.5	12.51	100	80 - 120	1/6/00	QC00257
CCV (1	CL (mg/L)		12.5	11.37	91	80 - 120	1/6/00	QC00257
CCV (1	Fluoride (mg/L)		2.5	2.26	90	80 - 120	1/6/00	QC00257
CCV (1	Nitrate-N (mg/L)		5	4.51	90	80 - 120	1/6/00	QC00257
CCV (1	Sulfate (mg/L)		12.5	12.64	101	80 - 120	1/6/00	QC00257

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	pH (s.u.)		7	7.0	100	80 - 120	1/6/00	QC00327
CCV (1	pH (s.u.)		7	7.0	100	80 - 120	1/6/00	QC00327

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Dissolved Solids (mg/L)		1000	965	97	80 - 120	1/12/00	QC00311
CCV (1	Total Dissolved Solids (mg/L)		1000	968	97	80 - 120	1/12/00	QC00311

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A000106608

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) PO BOX 159
Fax #: 505 7489077
Contact Person: Charlie Plymale
Invoice to: (If different from above)
Project #:
Project Name: Inj Wells
Project Location:
Sampler Signature: Charlie Plymale

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME
138278	Inj WELLS	2	40ml	X				X		X		1/5/00	9:45
	"	1	1L	X					X	X		1/5/00	9:45
	"	1	1L	X							X	1/5/00	9:45
	"	1	250ml	X							X	1/5/00	9:45

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC-MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH					Turn Around Time if different from standard	Hold
			See Attachment																	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Plymale	1/5/00	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Wonda	Date: 1-6-00	Time: 10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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1-20-00

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TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 2/7/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00010608

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
138278	Injection Wells	Water	1/5/00	9:45	1/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 5 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

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Received by OCD: 5/16/2022 2:12:41 PM

TELEPHONE
(505) 748-3311

Navajo REFINING COMPANY
501 EAST MAIN STREET • P. O. DRAWER 159
ARTESIA, NEW MEXICO 88210

EASYLINK
62905278
FAX
(505) 746-6410

FAX NUMBERS:

ACCOUNTING OFFICES:	505/746-6410	MARKETING OFFICES:	505/746-6155
REFINING/ENGINEERING:	505/748-9077	PIPELINE DIVISION:	505/746-4438

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TO: Wayne Price PHONE: _____

COMPANY/DEPARTMENT: OCD

MESSAGE: Wayne, here is the volatile analysis

FROM: Darrell Moore DATE: 3/16/00

If you do not receive all pages, please call _____ at 505/748-3311, ext. _____.

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Report Date: 2/7/00 Order ID Number: A00010608 Page Number: 2 of 5
N/A Injection Wells N/A

Analytical Results Report

Sample Number: 138278
Description: Injection Wells

Param	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
8260 (µg/L)									
Dichlorodifluoromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromomethane	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Chloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Trichlorofluoromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Methylene chloride	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
MTBE	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,2-Dichloroethene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,2-dichloroethene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2,2-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloroethane (EDC)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1-Trichloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Carbon Tetrachloride	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Benzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromomethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromodichloromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,3-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,3-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,2-Trichloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromochloromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dibromoethane (EDB)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Tetrachloroethene (PCE)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1,2-Tetrachloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
m,p-Xylene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromoform	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Styrene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
o-Xylene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Isopropylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2-Chlorotoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Propylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
4-Chlorotoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3,5-Trimethylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
tert-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trimethylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,4-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
sec-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
p-Isopropyltoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichlorobenzene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Naphthalene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trichlorobenzene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
1,2-Dibromo-3-chloropropane	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

Received by OCD: 5/10/2022 2:12:41 PM

Report Date: 2/7/00	Order ID Number: A00010608	Page Number: 3 of 5
N/A	Injection Wells	N/A

Hexachlorobutadiene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #
Dibromofluoromethane	50.71	1	50	101	69 - 121	JG	PB00190	QC00251
Toluene-d8	51.32	1	50	103	91 - 108	JG	PB00190	QC00251
4-Bromofluorobenzene	47.70	1	50	95	80 - 120	JG	PB00190	QC00251

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 3/16/2022 2:12:41 PM

Report Date: 2/7/00 Order ID Number: A00010608 Page Number: 4 of 5
N/A Injection Wells N/A

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dichlorodifluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromomethane (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Chloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Trichlorofluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Methylene chloride (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
MTBE (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,2-Dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,2-dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Carbon Tetrachloride (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromomethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromodichloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,2-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromochloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Tetrachloroethene (PCE) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
m,p-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromoform (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Styrene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
o-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Isopropylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Propylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
4-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3,5-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
tert-Butylbenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2,4-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,4-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
sec-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,3-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
p-Isopropyltoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichlorobenzene (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Naphthalene (µg/L)		<2	2	1/6/00	PB00190	QC00251

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Report Date: 2/7/00	Order ID Number: A00010608				Page Number: 5 of 5
N/A	Injection Wells				N/A
1,2,4-Trichlorobenzene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
Hexachlorobutadiene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	50.11	50	100	69 - 121	QC00251
Toluene-d8 (µg/L)	52.65	50	105	91 - 108	QC00251
4-Bromofluorobenzene (µg/L)	46.07	50	92	80 - 120	QC00251

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	1,1-Dichloroethene (ug/L)		1	100	88	88		77 - 136	0 - 20	QC00251
LCS	Benzene (ug/L)		1	100	95	95		71 - 120	0 - 20	QC00251
LCS	Trichloroethene (TCE) (ug/L)		1	100	90	90		84 - 109	0 - 20	QC00251
LCS	Toluene (ug/L)		1	100	94	94		74 - 113	0 - 20	QC00251
LCS	Chlorobenzene (ug/L)		1	100	95	95		79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	Dibromofluoromethane (µg/L)	1	50	50.97	102	69 - 121	QC00251
LCS	Toluene-d8 (µg/L)	1	50	51.40	103	91 - 108	QC00251
LCS	4-Bromofluorobenzene (µg/L)	1	50	45.29	91	80 - 120	QC00251

LCSD	1,1-Dichloroethene (ug/L)		1	100	86	86	2	77 - 136	0 - 20	QC00251
LCSD	Benzene (ug/L)		1	100	95	95	0	71 - 120	0 - 20	QC00251
LCSD	Trichloroethene (TCE) (ug/L)		1	100	89	89	1	84 - 109	0 - 20	QC00251
LCSD	Toluene (ug/L)		1	100	94	94	0	74 - 113	0 - 20	QC00251
LCSD	Chlorobenzene (ug/L)		1	100	94	94	1	79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	Dibromofluoromethane (µg/L)	1	50	49.67	99	69 - 121	QC00251
LCSD	Toluene-d8 (µg/L)	1	50	51.67	103	91 - 108	QC00251
LCSD	4-Bromofluorobenzene (µg/L)	1	50	44.87	90	80 - 120	QC00251

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	1,2-Dichloropropane (µg/L)		100	106	106	80 - 120	1/6/00	QC00251
CCV 1	Dibromofluoromethane (µg/L)		50	50.35	101	83 - 121	1/6/00	QC00251
CCV 1	Toluene-d8 (µg/L)		50	49.3	99	91 - 108	1/6/00	QC00251
CCV 1	4-Bromofluorobenzene (µg/L)		50	51.76	104	80 - 120	1/6/00	QC00251

QUARTERLY INJECTION REPORTS

JUL 23 2019 PM02:25

July 18, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7018 1130 0000 9712 6572

RE: 2019 2nd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, WDW-4 HollyFrontier Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the second quarter 2019 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for each well was 1249 psig for WDW-1, 1201 psig for WDW-2, 1047 psig for WDW-3 and 81 psig for WDW-4.The average flows were 135 gpm for WDW-1, 56 gpm for WDW-2, 55 gpm for WDW-3 and 237 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from April 1, 2019 to June 30, 2019. Navajo has disposed a total of 1,507,544 barrels of fluid into the four wells during the second quarter of 2019. The volume per well is:

- 422,400 barrels into WDW-1; 30-015-27592
- 173,795 barrels into WDW-2; 30-015-20894
- 172,834 barrels into WDW-3; 30-015-26575
- 738,515 barrels into WDW-4: 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Randy Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

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2019 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1											**Previous Quar**	43,846,301
Apr-19	1,240	135	148	107	540	726	404	138,857	152,229	110,057	**138,857**	43,985,158
May-19	1,283	140	149	123	587	729	459	148,800	158,366	130,731	**148,800**	44,133,958
Jun-19	1,223	131	146	100	397	518	193	134,743	150,171	102,857	**134,743**	44,268,701
Monthly Avg	1,249	135								**TOTAL**	422,400	
30-015-20894 WDW-2											**Previous Quar**	28,026,988
Apr-19	1,141	47	76	0	510	661	282	48,343	78,171	0	**48,343**	28,075,331
May-19	1,215	59	78	34	463	629	309	62,709	82,903	36,137	**62,709**	28,138,040
Jun-19	1,247	61	78	40	372	418	300	62,743	80,229	41,143	**62,743**	28,200,783
Monthly Avg	1,201	56								**TOTAL**	173,795	
30-015-26575 WDW-3											**Previous Quar**	19,657,009
Apr-19	1,047	51	117	9	653	750	549	52,457	120,343	9,257	**52,457**	19,709,466
May-19	1,064	61	111	10	541	652	387	64,834	117,977	10,629	**64,834**	19,774,300
Jun-19	1,031	54	111	1	397	515	300	55,543	114,171	1,029	**55,543**	19,829,843
Monthly Avg	1,047	55								**TOTAL**	172,834	
30-015-44677 WDW-4											**Previous Quar**	710,571
Apr-19	70	234	309	146	184	243	126	240,686	317,829	150,171	**240,686**	951,257
May-19	75	210	317	154	167	239	101	223,200	336,926	163,680	**223,200**	1,174,457
Jun-19	98	267	296	190	172	254	100	274,629	304,457	195,429	**274,629**	1,449,086
Monthly Avg	81	237								**TOTAL**	738,515	

	Q2 Disposal bbls	Max Flow gpm
WDW-1	422,400	148
WDW-2	173,795	77
WDW-3	172,834	113
WDW-4	738,515	307

	Total BBLS	Beginning Volume	Ending Volume
WDW1	422,400	43,846,301	44,268,701
WDW2	173,795	28,026,988	28,200,783
WDW3	172,834	19,657,009	19,829,843
WDW4	738,515	710,571	1,449,086
	1,507,544	92,240,869	

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 17, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX:

RE: Quarterly WDW 1 2 3 Inj Well OrderNo.: 1907003

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/28/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1907003**
Date Reported: **7/17/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1907003-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2 & 3 Effluent
Collection Date: 6/26/2019 2:30:00 PM
Received Date: 6/28/2019 10:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C TCLP						Analyst: **DAM**	
2-Methylphenol	ND	200		mg/L	1	7/5/2019 2:00:31 PM	45933
3+4-Methylphenol	ND	200		mg/L	1	7/5/2019 2:00:31 PM	45933
2,4-Dinitrotoluene	ND	0.13		mg/L	1	7/5/2019 2:00:31 PM	45933
Hexachlorobenzene	ND	0.13		mg/L	1	7/5/2019 2:00:31 PM	45933
Hexachlorobutadiene	ND	0.50		mg/L	1	7/5/2019 2:00:31 PM	45933
Hexachloroethane	ND	3.0		mg/L	1	7/5/2019 2:00:31 PM	45933
Nitrobenzene	ND	2.0		mg/L	1	7/5/2019 2:00:31 PM	45933
Pentachlorophenol	ND	100		mg/L	1	7/5/2019 2:00:31 PM	45933
Pyridine	ND	5.0		mg/L	1	7/5/2019 2:00:31 PM	45933
2,4,5-Trichlorophenol	ND	400		mg/L	1	7/5/2019 2:00:31 PM	45933
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	7/5/2019 2:00:31 PM	45933
Cresols, Total	ND	200		mg/L	1	7/5/2019 2:00:31 PM	45933
Surr: 2-Fluorophenol	63.5	15-82.5		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: Phenol-d5	46.8	15-74.2		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: 2,4,6-Tribromophenol	83.3	18.6-118		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: Nitrobenzene-d5	87.2	30.4-106		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: 2-Fluorobiphenyl	77.3	15-104		%Rec	1	7/5/2019 2:00:31 PM	45933
Surr: 4-Terphenyl-d14	78.0	15-133		%Rec	1	7/5/2019 2:00:31 PM	45933
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.002	0			1	7/2/2019 10:32:00 AM	R61110
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Fluoride	23	2.0	*	mg/L	20	7/1/2019 3:42:01 PM	R61084
Chloride	570	50	*	mg/L	100	7/10/2019 2:28:41 PM	R61309
Bromide	0.59	0.50		mg/L	5	7/1/2019 3:29:36 PM	R61084
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	7/1/2019 3:29:36 PM	R61084
Sulfate	2300	50	*	mg/L	100	7/10/2019 2:28:41 PM	R61309
Nitrate+Nitrite as N	1.2	1.0		mg/L	5	7/1/2019 3:54:26 PM	R61084
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	6100	5.0		µmhos/c	1	7/1/2019 10:22:40 PM	R61065
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	537.6	20.00		mg/L Ca	1	7/1/2019 10:22:40 PM	R61065
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	7/1/2019 10:22:40 PM	R61065
Total Alkalinity (as CaCO3)	537.6	20.00		mg/L Ca	1	7/1/2019 10:22:40 PM	R61065
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **CJS**	
Total Dissolved Solids	4570	40.0	*D	mg/L	1	7/9/2019 2:54:00 PM	45992
SM4500-H+B / 9040C: PH						Analyst: **JRR**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1907003**
Date Reported: **7/17/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1907003-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2 & 3 Effluent
Collection Date: 6/26/2019 2:30:00 PM
Received Date: 6/28/2019 10:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.80		H	pH units	1	7/1/2019 10:22:40 PM	R61065
EPA METHOD 7470: MERCURY						Analyst: **rde**	
Mercury	ND	0.00020		mg/L	1	7/11/2019 4:43:47 PM	46125
EPA METHOD 6010B: DISSOLVED METALS						Analyst: **bcv**	
Calcium	470	5.0		mg/L	5	7/3/2019 11:45:32 AM	A61162
Magnesium	140	5.0		mg/L	5	7/3/2019 11:45:32 AM	A61162
Potassium	69	5.0		mg/L	5	7/3/2019 11:45:32 AM	A61162
Sodium	640	10		mg/L	10	7/3/2019 12:00:27 PM	A61162
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **bcv**	
Arsenic	ND	0.020		mg/L	1	7/5/2019 10:53:46 AM	46005
Barium	0.048	0.020		mg/L	1	7/5/2019 10:03:23 AM	46005
Cadmium	ND	0.0020		mg/L	1	7/5/2019 10:03:23 AM	46005
Chromium	ND	0.0060		mg/L	1	7/5/2019 10:03:23 AM	46005
Lead	ND	0.0050		mg/L	1	7/5/2019 10:03:23 AM	46005
Selenium	ND	0.050		mg/L	1	7/5/2019 10:03:23 AM	46005
Silver	0.0053	0.0050		mg/L	1	7/5/2019 10:03:23 AM	46005
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	200	7/9/2019 4:50:00 AM	T61220
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	7/9/2019 4:50:00 AM	T61220
2-Butanone	ND	200		mg/L	200	7/9/2019 4:50:00 AM	T61220
Carbon Tetrachloride	ND	0.50		mg/L	200	7/9/2019 4:50:00 AM	T61220
Chloroform	ND	6.0		mg/L	200	7/9/2019 4:50:00 AM	T61220
1,4-Dichlorobenzene	ND	7.5		mg/L	200	7/9/2019 4:50:00 AM	T61220
1,1-Dichloroethene	ND	0.70		mg/L	200	7/9/2019 4:50:00 AM	T61220
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	7/9/2019 4:50:00 AM	T61220
Trichloroethene (TCE)	ND	0.50		mg/L	200	7/9/2019 4:50:00 AM	T61220
Vinyl chloride	ND	0.20		mg/L	200	7/9/2019 4:50:00 AM	T61220
Chlorobenzene	ND	100		mg/L	200	7/9/2019 4:50:00 AM	T61220
Surr: 1,2-Dichloroethane-d4	114	70-130		%Rec	200	7/9/2019 4:50:00 AM	T61220
Surr: 4-Bromofluorobenzene	97.3	70-130		%Rec	200	7/9/2019 4:50:00 AM	T61220
Surr: Dibromofluoromethane	104	70-130		%Rec	200	7/9/2019 4:50:00 AM	T61220
Surr: Toluene-d8	93.6	70-130		%Rec	200	7/9/2019 4:50:00 AM	T61220

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1907003**
Date Reported: **7/17/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1907003-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 6/28/2019 10:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	1	7/9/2019 5:14:00 AM	T61220
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	7/9/2019 5:14:00 AM	T61220
2-Butanone	ND	200		mg/L	1	7/9/2019 5:14:00 AM	T61220
Carbon Tetrachloride	ND	0.50		mg/L	1	7/9/2019 5:14:00 AM	T61220
Chloroform	ND	6.0		mg/L	1	7/9/2019 5:14:00 AM	T61220
1,4-Dichlorobenzene	ND	7.5		mg/L	1	7/9/2019 5:14:00 AM	T61220
1,1-Dichloroethene	ND	0.70		mg/L	1	7/9/2019 5:14:00 AM	T61220
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	7/9/2019 5:14:00 AM	T61220
Trichloroethene (TCE)	ND	0.50		mg/L	1	7/9/2019 5:14:00 AM	T61220
Vinyl chloride	ND	0.20		mg/L	1	7/9/2019 5:14:00 AM	T61220
Chlorobenzene	ND	100		mg/L	1	7/9/2019 5:14:00 AM	T61220
Surr: 1,2-Dichloroethane-d4	112	70-130		%Rec	1	7/9/2019 5:14:00 AM	T61220
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	7/9/2019 5:14:00 AM	T61220
Surr: Dibromofluoromethane	105	70-130		%Rec	1	7/9/2019 5:14:00 AM	T61220
Surr: Toluene-d8	94.0	70-130		%Rec	1	7/9/2019 5:14:00 AM	T61220

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

1907003-001F WDW-1,2&3 EFFLUENT
Collected date/time: 06/26/19 14:30

SAMPLE RESULTS - 01

L1114999

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0269		0.00500	1	07/09/2019 20:24	WG1308181

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.47	T8	1	07/06/2019 11:52	WG1306715

Sample Narrative:
L1114999-01 WG1306715: 7.47 at 20.8C

Wet Chemistry by Method 9034-9030B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	ND		0.0500	1	07/03/2019 19:54	WG1305508

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	07/09/2019 12:16	WG1308093

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

1907003-001G WDW-1,2&3 EFFLUENT

Collected date/time: 06/26/19 14:30

SAMPLE RESULTS - 02

L1114999

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	mV				
ORP	50.0	T8	1	07/13/2019 10:12	WG1310279

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

WG1310279

Wet Chemistry by Method 2580

QUALITY CONTROL SUMMARY

L1114999-02

ONE LAB. NATIONWIDE.

L1114999-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1114999-02 07/13/19 10:12 • (DUP) R3430311-2 07/13/19 10:12

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mV	mV		%		%
ORP	50.0	54.0	1	7.69		20

Laboratory Control Sample (LCS)

(LCS) R3430311-1 07/13/19 10:12

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mV	mV	%	%	
ORP	228	228	100	95.7-104	

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

WG1308181

Wet Chemistry by Method 4500 CN E-2011

QUALITY CONTROL SUMMARY

L1114999-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3429064-1 07/09/19 19:47

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Reactive Cyanide	U		0.00180	0.00500

L1111966-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1111966-04 07/09/19 19:53 • (DUP) R3429064-3 07/09/19 19:54

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Reactive Cyanide	U	0.000	1	0.000		20

L1112351-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1112351-03 07/09/19 20:06 • (DUP) R3429064-6 07/09/19 20:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Reactive Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3429064-9 07/09/19 20:18

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Reactive Cyanide	0.100	0.110	110	85.0-115	

L1112351-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1112351-02 07/09/19 20:03 • (MS) R3429064-4 07/09/19 20:04 • (MSD) R3429064-5 07/09/19 20:05

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.107	0.0924	107	92.4	1	75.0-125			14.6	20

L1113239-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113239-01 07/09/19 20:15 • (MS) R3429064-7 07/09/19 20:16 • (MSD) R3429064-8 07/09/19 20:17

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.105	0.0832	105	83.2	1	75.0-125		J3	23.2	20

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

WG1306715

QUALITY CONTROL SUMMARY

L1114999-01

ONE LAB. NATIONWIDE.

Wet Chemistry by Method 4500H+ B-2011

Laboratory Control Sample (LCS)

(LCS) R3428109-1 07/06/19 11:52

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	9.95	99.5	99.0-101	

Sample Narrative:

LCS: 9.95 at 22.8C

1 Tc
2 Ss
3 Cn
4 Sr
5 Qc
6 Gl
7 Al
8 Sc

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

WG1305508

Wet Chemistry by Method 9034-9030B

QUALITY CONTROL SUMMARY

L1114999-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3427441-1 07/03/19 19:48

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Reactive Sulfide	U		0.00650	0.0500

Laboratory Control Sample (LCS)

(LCS) R3427441-2 07/03/19 19:48

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Reactive Sulfide	0.500	0.543	109	85.0-115	

L1114999-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1114999-01 07/03/19 19:54 • (MS) R3427441-5 07/03/19 19:54 • (MSD) R3427441-6 07/03/19 19:55

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Sulfide	1.00	ND	0.927	0.942	92.7	94.2	1	80.0-120			1.61	20

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

WG1308093

Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY

L1114999-01

ONE LAB. NATIONWIDE

L1149(8-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1114968-01 07/09/19 12:16 • (DUP) R3428833-2 07/09/19 12:16

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	deg F	deg F		%		%
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R3428833-1 07/09/19 12:16

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	deg F	deg F	%	%	
Flashpoint	82.0	83.8	102	96.0-104	

Ss Cn Sr Qc Gl Sc

Page 2624 of 5828

GLOSSARY OF TERMS

ONE LAB. NATIONWIDE.

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
T8	Sample(s) received past/too close to holding time expiration.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R61084**	RunNo: **61084**
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2069013** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R61084**	RunNo: **61084**
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2069014** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	99.4	90	110			
Bromide	2.4	0.10	2.500	0	95.6	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.9	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	96.8	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R61309**	RunNo: **61309**
Prep Date:	Analysis Date: **7/10/2019**	SeqNo: **2078288** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R61309**	RunNo: **61309**
Prep Date:	Analysis Date: **7/10/2019**	SeqNo: **2078289** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Sulfate	9.8	0.50	10.00	0	98.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **100ng lcs2**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T61220**	RunNo: **61220**
Prep Date:	Analysis Date: **7/9/2019**	SeqNo: **2075609** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.022	0.00017	0.02000	0	109	70	130			
1,1-Dichloroethene	0.020	0.00021	0.02000	0	98.0	70	130			
Trichloroethene (TCE)	0.020	0.00017	0.02000	0	102	70	130			
Chlorobenzene	0.020	0.00019	0.02000	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	0.012		0.01000		117	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		102	70	130			
Surr: Dibromofluoromethane	0.011		0.01000		111	70	130			
Surr: Toluene-d8	0.0095		0.01000		94.9	70	130			

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T61220**	RunNo: **61220**
Prep Date:	Analysis Date: **7/9/2019**	SeqNo: **2075612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.011		0.01000		114	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		99.7	70	130			
Surr: Dibromofluoromethane	0.011		0.01000		107	70	130			
Surr: Toluene-d8	0.0093		0.01000		93.2	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **lcs-1 99.8uS eC**	SampType: **lcs**			TestCode: **SM2510B: Specific Conductance**					
Client ID: **LCSW**	Batch ID: **R61065**			RunNo: **61065**					
Prep Date:	Analysis Date: **7/1/2019**			SeqNo: **2068823**		Units: **µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.80	0	99.6	85	115			

Sample ID: **lcs-2 99.8uS eC**	SampType: **lcs**			TestCode: **SM2510B: Specific Conductance**					
Client ID: **LCSW**	Batch ID: **R61065**			RunNo: **61065**					
Prep Date:	Analysis Date: **7/1/2019**			SeqNo: **2068863**		Units: **µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.80	0	102	85	115			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- PQL Practical Quanitative Limit
- RL Reporting Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB-46125** SampType: **MBLK** TestCode: **EPA Method 7470: Mercury**

Client ID: **PBW** Batch ID: **46125** RunNo: **61319**

Prep Date: **7/11/2019** Analysis Date: **7/11/2019** SeqNo: **2078629** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-46125** SampType: **LCS** TestCode: **EPA Method 7470: Mercury**

Client ID: **LCSW** Batch ID: **46125** RunNo: **61319**

Prep Date: **7/11/2019** Analysis Date: **7/11/2019** SeqNo: **2078630** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.6	80	120			

Sample ID: **1907003-001EMS** SampType: **MS** TestCode: **EPA Method 7470: Mercury**

Client ID: **WDW-1, 2 & 3 Efflue** Batch ID: **46125** RunNo: **61319**

Prep Date: **7/11/2019** Analysis Date: **7/11/2019** SeqNo: **2078632** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	.00005580	94.2	75	125			

Sample ID: **1907003-001EMSD** SampType: **MSD** TestCode: **EPA Method 7470: Mercury**

Client ID: **WDW-1, 2 & 3 Efflue** Batch ID: **46125** RunNo: **61319**

Prep Date: **7/11/2019** Analysis Date: **7/11/2019** SeqNo: **2078633** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0045	0.00020	0.005000	.00005580	89.7	75	125	4.84	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A61162**	RunNo: **61162**
Prep Date:	Analysis Date: **7/3/2019**	SeqNo: **2072741** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A61162**	RunNo: **61162**
Prep Date:	Analysis Date: **7/3/2019**	SeqNo: **2072742** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	97.5	80	120			
Magnesium	49	1.0	50.00	0	97.1	80	120			
Potassium	48	1.0	50.00	0	96.8	80	120			
Sodium	49	1.0	50.00	0	98.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB-46005**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **46005**	RunNo: **61169**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: **LCS-46005**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **46005**	RunNo: **61169**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.020	0.5000	0	95.9	80	120			
Cadmium	0.50	0.0020	0.5000	0	100	80	120			
Chromium	0.49	0.0060	0.5000	0	99.0	80	120			
Lead	0.49	0.0050	0.5000	0	97.9	80	120			
Selenium	0.48	0.050	0.5000	0	95.9	80	120			
Silver	0.10	0.0050	0.1000	0	101	80	120			

Sample ID: **MB-46005**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **46005**	RunNo: **61169**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073365** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								

Sample ID: **LCS-46005**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **46005**	RunNo: **61169**
Prep Date: **7/3/2019**	Analysis Date: **7/5/2019**	SeqNo: **2073366** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.51	0.020	0.5000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1907003

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R61065**	RunNo: **61065**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2068770**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R61065**	RunNo: **61065**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2068771**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.24	20.00	80.00	0	94.1	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R61065**	RunNo: **61065**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2068793**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R61065**	RunNo: **61065**							
Prep Date:	Analysis Date: **7/1/2019**	SeqNo: **2068794**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.60	20.00	80.00	0	97.0	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907003**

17-Jul-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **MB-45992**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **45992**	RunNo: **61248**
Prep Date: **7/3/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076089** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-45992**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **45992**	RunNo: **61248**
Prep Date: **7/3/2019**	Analysis Date: **7/9/2019**	SeqNo: **2076090** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	988	20.0	1000	0	98.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1907003 RcptNo: 1

Received By: Jevon Campisi 6/28/2019 10:40:00 AM Jevon Campisi

Completed By: Leah Baca 7/1/2019 6:52:49 AM Leah Baca

Reviewed By: JC 7/1/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 3 1 1>9 (<2 or >12 unless noted)

Adjusted? NO

Checked by: LB 7/1/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.2	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: -0.2 +0.0CF=0.2 (not tracer)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1907003	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
6/26/19	2:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
6-27-19	10:00	Brad Hibbard	Courier	6-28-19	10:40
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade. Field details: 7.24 pH, 41.7°C 89°F, 20% humidity Wind: SSW 15 mph

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	Contaminant	SW-846 Method	Regulatory Level (mg/l)
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

Received by OCD: 5/16/2022 2:12:41 PM

D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallow ~200 - 250 ft bgs

Need All

Released to Imaging: 7/12/2024 10:49:45 AM

Page 2638 of 5828

APR 30 2019 AM10:53

HOLLYFRONTIER.

April 24, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 5314

RE: 2019 1st Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3 and WDW-4, Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the first quarter 2019 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all four wells was 912 psig and the average flows were 187 gpm for WDW-1, 59 gpm for WDW-2, 63 gpm for WDW-3 and 223 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2019 to March 31, 2019. Navajo has disposed a total of 1,703,452 barrels of fluid into the four wells during the first quarter of 2019. The volume per well is:

- 584,606 barrels into WDW-1; 30-015-27592
- 190,046 barrels into WDW-2; 30-015-20894
- 218,229 barrels into WDW-3; 30-015-26575
- 710,571 barrels into WDW-4; 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

2019 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	43,261,695
Jan-19	1,272	1,400	897	248	301	80	576	734	219	263,589	319,920	85,029	**263,589**	43,525,284
Feb-19	1,270	1,400	885	196	293	97	364	576	170	188,160	281,280	103,097	**188,160**	43,713,444
Mar-19	1,184	1,356	1,100	125	150	106	456	701	323	132,857	159,429	112,663	**132,857**	43,846,301
Monthly Avg	1,242			190								**TOTAL**	584,606	
30-015-20894 WDW-2													**Previous Quarter**	27,836,942
Jan-19	1,262	1,400	932	71	94	8	390	543	230	75,463	99,909	8,503	**75,463**	27,912,405
Feb-19	1,252	1,381	1,057	64	81	29	410	588	284	61,440	77,760	27,840	**61,440**	27,973,845
Mar-19	1,157	1,300	1,044	50	77	26	432	659	304	53,143	81,840	27,634	**53,143**	28,026,988
Monthly Avg	1,224			62								**TOTAL**	190,046	
30-015-26575 WDW-3													**Previous Quarter**	19,438,780
Jan-19	1,177	1,400	906	87	144	0	741	938	598	92,469	153,051	0	**92,469**	19,531,249
Feb-19	1,116	1,258	899	69	109	0	700	930	561	66,240	104,640	0	**66,240**	19,597,489
Mar-19	1,064	1,151	999	56	86	25	659	839	592	59,520	91,406	26,571	**59,520**	19,657,009
Monthly Avg	1,119			71								**TOTAL**	218,229	
30-015-44677 WDW-4													**Previous Quarter**	0
Jan-19	58	89	37	422	683	178	152	227	107	202,560	327,840	72,960	**202,560**	202,560
Feb-19	50	98	36	238	729	82	159	226	111	228,480	699,840	78,720	**228,480**	431,040
Mar-19	80	337	51	263	351	192	167	253	96	279,531	373,063	204,069	**279,531**	710,571
Monthly Avg	63			308								**TOTAL**	710,571	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	584,606	43,261,695	43,846,301
WDW2	190,046	27,836,942	28,026,988
WDW3	218,229	19,438,780	19,657,009
WDW4	710,571	0	710,571
	1,703,452	90,537,417	92,240,869

District I
1625 North French, Hobbs, NM 88241
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos, Aztec, NM 84710

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South Saint Francis Drive
Santa Fe, NM 87505
OPERATOR'S MONTHLY REPORT

Form C-115 First Page
Revised January 22, 2004
Instruction on Reverse Side
1 ☐ Amended Report

2 Operator NAVAJO REFINERY CO. | 3 OGRID: 15694 | 1/2019
5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210 | 6 Page 1 of 4

		INJECTION			PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 CODE 1	9 Volume	10 Pressure	11 CODE 2	12 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 CODE 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	263,589	1,272	W												
30-015-20894 WDW - 2	D	75,463	1,262	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	92,469	1,177	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	202560	58	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

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7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 CODE 1	9 Volume	10 Pressure	11 CODE 2	12 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 CODE 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	188,160	1,270	W												
30-015-20894 WDW - 2	D	61,440	1,252	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	66,240	1,116	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	228480	50	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
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Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

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		INJECTION			PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 CODE 1	9 Volume	10 Pressure	11 CODE 2	12 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 CODE 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	132,857	1,184	W												
30-015-20894 WDW - 2	D	53,143	1,157	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	59,520	1,064	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	279531	80	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

Page 2643 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 18, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX:

RE: Quarterly WDW 1 2 3 Inj Well OrderNo.: 1903D14

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/27/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

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Released to Imaging: 7/12/2024 10:49:45 AM

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Analytical Report
Lab Order **1903D14**
Date Reported: **4/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1903D14-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 3/26/2019 8:15:00 AM
Received Date: 3/27/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **JME**	
Chlordane	ND	0.030		mg/L	1	4/16/2019 12:06:41 PM	43999
Surr: Decachlorobiphenyl	26.3	29.4-99.8	S	%Rec	1	4/16/2019 12:06:41 PM	43999
Surr: Tetrachloro-m-xylene	25.0	20.7-100		%Rec	1	4/16/2019 12:06:41 PM	43999
EPA METHOD 8270C TCLP						Analyst: **JDC**	
2-Methylphenol	ND	200		mg/L	1	4/13/2019 10:55:55 PM	44003
3+4-Methylphenol	ND	200		mg/L	1	4/13/2019 10:55:55 PM	44003
2,4-Dinitrotoluene	ND	0.13		mg/L	1	4/13/2019 10:55:55 PM	44003
Hexachlorobenzene	ND	0.13		mg/L	1	4/13/2019 10:55:55 PM	44003
Hexachlorobutadiene	ND	0.50		mg/L	1	4/13/2019 10:55:55 PM	44003
Hexachloroethane	ND	3.0		mg/L	1	4/13/2019 10:55:55 PM	44003
Nitrobenzene	ND	2.0		mg/L	1	4/13/2019 10:55:55 PM	44003
Pentachlorophenol	ND	100		mg/L	1	4/13/2019 10:55:55 PM	44003
Pyridine	ND	5.0		mg/L	1	4/13/2019 10:55:55 PM	44003
2,4,5-Trichlorophenol	ND	400		mg/L	1	4/13/2019 10:55:55 PM	44003
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	4/13/2019 10:55:55 PM	44003
Cresols, Total	ND	200		mg/L	1	4/13/2019 10:55:55 PM	44003
Surr: 2-Fluorophenol	45.0	15-82.5		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: Phenol-d5	35.3	15-74.2		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: 2,4,6-Tribromophenol	73.2	18.6-118		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: Nitrobenzene-d5	67.3	30.4-106		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: 2-Fluorobiphenyl	48.9	15-104		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: 4-Terphenyl-d14	51.6	15-133		%Rec	1	4/13/2019 10:55:55 PM	44003
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.001	0			1	4/3/2019 10:28:00 AM	R58847
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Fluoride	9.6	0.50	*	mg/L	5	4/1/2019 10:44:34 PM	R58816
Chloride	420	25	*	mg/L	50	4/8/2019 2:18:56 PM	R58998
Bromide	0.94	0.50		mg/L	5	4/1/2019 10:44:34 PM	R58816
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	4/1/2019 10:44:34 PM	R58816
Sulfate	1500	25	*	mg/L	50	4/8/2019 2:18:56 PM	R58998
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/1/2019 11:09:23 PM	R58816
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	4100	5.0		µmhos/c	1	4/3/2019 1:19:58 PM	R58867
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	488.6	20.00		mg/L Ca	1	4/3/2019 1:19:58 PM	R58867
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	4/3/2019 1:19:58 PM	R58867
Total Alkalinity (as CaCO3)	488.6	20.00		mg/L Ca	1	4/3/2019 1:19:58 PM	R58867

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Page 2644 of 5828

Page 2645 of 5828

Analytical Report
Lab Order **1903D14**
Date Reported: **4/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1903D14-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 3/26/2019 8:15:00 AM
Received Date: 3/27/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**CJS**
Total Dissolved Solids	3130	100	*D	mg/L	1	4/3/2019 5:30:00 PM	44042
EPA METHOD 7470: MERCURY						Analyst:	**pmf**
Mercury	ND	0.00020		mg/L	1	4/5/2019 12:09:40 PM	44137
EPA METHOD 6010B: DISSOLVED METALS						Analyst:	**ELS**
Calcium	330	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
Magnesium	100	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
Potassium	64	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
Sodium	360	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst:	**ELS**
Arsenic	ND	0.020		mg/L	1	4/3/2019 9:09:22 AM	44006
Barium	0.045	0.020		mg/L	1	4/3/2019 9:09:22 AM	44006
Cadmium	ND	0.0020		mg/L	1	4/3/2019 9:09:22 AM	44006
Chromium	ND	0.0060		mg/L	1	4/3/2019 9:09:22 AM	44006
Lead	ND	0.0050		mg/L	1	4/5/2019 10:10:57 AM	44006
Selenium	ND	0.050		mg/L	1	4/3/2019 9:09:22 AM	44006
Silver	ND	0.0050		mg/L	1	4/3/2019 9:09:22 AM	44006
TCLP VOLATILES BY 8260B						Analyst:	**RAA**
Benzene	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
2-Butanone	ND	200		mg/L	200	4/3/2019 12:15:00 AM	R58834
Carbon Tetrachloride	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
Chloroform	ND	6.0		mg/L	200	4/3/2019 12:15:00 AM	R58834
1,4-Dichlorobenzene	ND	7.5		mg/L	200	4/3/2019 12:15:00 AM	R58834
1,1-Dichloroethene	ND	0.70		mg/L	200	4/3/2019 12:15:00 AM	R58834
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	4/3/2019 12:15:00 AM	R58834
Trichloroethene (TCE)	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
Vinyl chloride	ND	0.20		mg/L	200	4/3/2019 12:15:00 AM	R58834
Chlorobenzene	ND	100		mg/L	200	4/3/2019 12:15:00 AM	R58834
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834
Surr: Dibromofluoromethane	101	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834
Surr: Toluene-d8	96.7	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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Analytical Report
Lab Order **1903D14**
Date Reported: **4/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1903D14-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 3/27/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
2-Butanone	ND	200		mg/L	1	4/3/2019 1:27:00 AM	R58834
Carbon Tetrachloride	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
Chloroform	ND	6.0		mg/L	1	4/3/2019 1:27:00 AM	R58834
1,4-Dichlorobenzene	ND	7.5		mg/L	1	4/3/2019 1:27:00 AM	R58834
1,1-Dichloroethene	ND	0.70		mg/L	1	4/3/2019 1:27:00 AM	R58834
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	4/3/2019 1:27:00 AM	R58834
Trichloroethene (TCE)	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
Vinyl chloride	ND	0.20		mg/L	1	4/3/2019 1:27:00 AM	R58834
Chlorobenzene	ND	100		mg/L	1	4/3/2019 1:27:00 AM	R58834
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834
Surr: Dibromofluoromethane	97.9	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834
Surr: Toluene-d8	97.5	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
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E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 2647 of 5828

1903D14-001F WDW-1,2,&3 EFFLUENT
Collected date/time: 03/26/19 08:15

SAMPLE RESULTS - 01
L1084745

ONE LAB. NATIONWIDE

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0141		0.00500	1	04/06/2019 17:13	WG1261156

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.56	T8	1	04/02/2019 17:45	WG1259617

Sample Narrative:
L1084745-01 WG1259617: 7.56 at 14.8C

Wet Chemistry by Method 9034-9030B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	0.123		0.0500	1	04/02/2019 18:35	WG1259688

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	04/05/2019 22:16	WG1261310

Cp | Tc | Ss | Cn | Sr | Qc | Gl | Al | Sc

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WG1261158

Wet Chemistry by Method 4500 CN E-2011

QUALITY CONTROL SUMMARY

L1084745-01

ONE LAB. NATIONWIDE

Method Blank (MB)

(MB) R3399162-1 04/06/19 16:41

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Reactive Cyanide	U		0.00180	0.00500

L1084328-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1084328-06 04/06/19 16:48 • (DUP) R3399162-3 04/06/19 16:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Reactive Cyanide	ND	0.000	1	0.000		20

L1084328-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1084328-14 04/06/19 17:07 • (DUP) R3399162-8 04/06/19 17:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Reactive Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3399162-2 04/06/19 16:42

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Reactive Cyanide	0.100	0.0978	97.8	85.0-115	

L1084328-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1084328-07 04/06/19 16:50 • (MS) R3399162-4 04/06/19 16:54 • (MSD) R3399162-5 04/06/19 16:55

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.0790	0.0859	79.0	85.9	1	75.0-125			8.37	20

L1084328-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1084328-13 04/06/19 17:02 • (MS) R3399162-6 04/06/19 17:05 • (MSD) R3399162-7 04/06/19 17:06

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.0801	0.0703	80.1	70.3	1	75.0-125		J6	13.0	20

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:
Hall Environmental Analysis Laboratory		L1084745	04/09/19 09:12

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WG1259617

Wet Chemistry by Method 4500H+ B-2011

QUALITY CONTROL SUMMARY

L1084745-01

ONE LAB. NATIONWIDE.

Laboratory Control Sample (LCS)

(LCS) R3397714-1 04/02/19 17:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	9.97	99.7	99.0-101	

Sample Narrative:

LCS: 9.97 at 17.6C

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:
Hall Environmental Analysis Laboratory		L1084745	04/09/19 09:12

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WG1259688

Wet Chemistry by Method 9034-9030B

QUALITY CONTROL SUMMARY

L1084745-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3397727-1 04/02/19 18:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Reactive Sulfide	U		0.00650	0.0500

Laboratory Control Sample (LCS)

(LCS) R3397727-2 04/02/19 18:19

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Reactive Sulfide	0.500	0.476	95.2	85 0-115	

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WG1261310
Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY
L1084745-01

ONE LAB. NATIONWIDE.

L1084808-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1084808-02 04/05/19 22:16 • (DUP) R3399058-2 04/05/19 22:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	deg F	deg F		%		%
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

L1085800-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1085800-01 04/05/19 22:16 • (DUP) R3399058-3 04/05/19 22:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	deg F	deg F		%		%
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R3399058-1 04/05/19 22:16

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	deg F	deg F	%	%	
Flashpoint	82.0	81.6	99.5	96.0-104	

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Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
TB	Sample(s) received past/too close to holding time expiration.

Page 2653 of 5828

1903D14-001G WDW-1,2,&3 EFFLUENT
Collected date/time: 03/26/19 08:15

SAMPLE RESULTS - 01
L1084668

ONE LAB. NATIONWIDE

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	mV				
ORP	192	TB	1	04/06/2019 11:25	WG1261694

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

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WG1261694

Wet Chemistry by Method 2580

QUALITY CONTROL SUMMARY

L1084668-01

ONE LAB. NATIONWIDE

L1084668-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1084668-01 04/06/19 11:25 • (DUP) R3399096-2 04/06/19 11:25

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mV	mV		%		%
ORP	192	191	1	0.522		20

Laboratory Control Sample (LCS)

(LCS) R3399096-1 04/06/19 11:25

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mV	mV	%	%	
ORP	228	228	100	95.7-104	

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Page 2655 of 5828

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
T8	Sample(s) received past/too close to holding time expiration.

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R58816	RunNo: 58816							
Prep Date:	Analysis Date: 4/1/2019	SeqNo: 1976714	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R58816	RunNo: 58816							
Prep Date:	Analysis Date: 4/1/2019	SeqNo: 1976715	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	101	90	110			
Bromide	2.4	0.10	2.500	0	95.1	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.6	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	98.1	90	110			

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R58998	RunNo: 58998							
Prep Date:	Analysis Date: 4/8/2019	SeqNo: 1985185	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R58998	RunNo: 58998							
Prep Date:	Analysis Date: 4/8/2019	SeqNo: 1985187	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.9	90	110			
Sulfate	10	0.50	10.00	0	100	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified at testcode

Page 2656 of 5828

Page 2657 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903D14-001BMS	SampType: MS	TestCode: EPA Method 8081: Pesticides TCLP
Client ID: WDW-1,2,&3 Effluen	Batch ID: 43999	RunNo: 59212
Prep Date: 4/1/2019	Analysis Date: 4/16/2019	SeqNo: 1993657 Units: %Rec

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.00088		0.002500		35.2	29.4	99.8			
Surr: Tetrachloro-m-xylene	0.00076		0.002500		30.6	20.7	100			

Sample ID: 1903D14-001BMSD	SampType: MSD	TestCode: EPA Method 8081: Pesticides TCLP
Client ID: WDW-1,2,&3 Effluen	Batch ID: 43999	RunNo: 59212
Prep Date: 4/1/2019	Analysis Date: 4/16/2019	SeqNo: 1993658 Units: %Rec

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0017		0.002500		66.0	29.4	99.8	0	0	
Surr: Tetrachloro-m-xylene	0.0015		0.002500		59.0	20.7	100	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 100ng lcs2	SampType: LCS	TestCode: TCLP Volatiles by 8260B							
Client ID: LCSW	Batch ID: R58834	RunNo: 58834							
Prep Date:	Analysis Date: 4/2/2019	SeqNo: 1978496	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50	0.02000	0	100	70	130			
1,1-Dichloroethene	ND	0.70	0.02000	0	95.1	70	130			
Trichloroethene (TCE)	ND	0.50	0.02000	0	90.3	70	130			
Chlorobenzene	ND	100	0.02000	0	95.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.011		0.01000		109	70	130			
Surr: 4-Bromofluorobenzene	0.0099		0.01000		99.2	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		103	70	130			
Surr: Toluene-d8	0.0097		0.01000		97.3	70	130			

Sample ID: rb2	SampType: MBLK	TestCode: TCLP Volatiles by 8260B							
Client ID: PBW	Batch ID: R58834	RunNo: 58834							
Prep Date:	Analysis Date: 4/2/2019	SeqNo: 1978497	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		104	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		100	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		99.5	70	130			
Surr: Toluene-d8	0.0099		0.01000		98.6	70	130			

Sample ID: 1903d14-001ams	SampType: MS	TestCode: TCLP Volatiles by 8260B							
Client ID: WDW-1,2,&3 Effluen	Batch ID: R58834	RunNo: 58834							
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978503	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.1	0.00017	4.000	0.02440	102	70	130			
1,1-Dichloroethene	4.1	0.00021	4.000	0	102	67.6	130			
Trichloroethene (TCE)	3.9	0.00017	4.000	0	97.2	70	130			
Chlorobenzene	4.2	0.00019	4.000	0.03160	105	70	130			
Surr: 1,2-Dichloroethane-d4	2.1		2.000		104	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Page 2658 of 5828

Page 2659 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903d14-001ams	SampType: MS	TestCode: TCLP Volatiles by 8260B
Client ID: WDW-1,2,&3 Effluen	Batch ID: R58834	RunNo: 58834
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978503 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.9		2.000		96.7	70	130			
Surr: Dibromofluoromethane	1.9		2.000		96.5	70	130			
Surr: Toluene-d8	2.0		2.000		97.7	70	130			

Sample ID: 1903d14-001amsd	SampType: MSD	TestCode: TCLP Volatiles by 8260B
Client ID: WDW-1,2,&3 Effluen	Batch ID: R58834	RunNo: 58834
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978504 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.1	0.00017	4.000	0.02440	101	70	130	1.10	20	
1,1-Dichloroethene	4.0	0.00021	4.000	0	99.0	67.6	130	3.29	20	
Trichloroethene (TCE)	3.8	0.00017	4.000	0	95.6	70	130	1.68	20	
Chlorobenzene	4.0	0.00019	4.000	0.03160	99.7	70	130	5.04	20	
Surr: 1,2-Dichloroethane-d4	2.1		2.000		106	70	130	0	0	
Surr: 4-Bromofluorobenzene	2.0		2.000		102	70	130	0	0	
Surr: Dibromofluoromethane	2.0		2.000		100	70	130	0	0	
Surr: Toluene-d8	2.0		2.000		98.2	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **1903D14-001Bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **44003** RunNo: **59132**

Prep Date: **4/1/2019** Analysis Date: **4/13/2019** SeqNo: **1990636** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.056	0.0063	0.1000	0	56.5	23.9	129			
3+4-Methylphenol	0.10	0.0054	0.2000	0	51.9	15	167			
2,4-Dinitrotoluene	0.064	0.0058	0.1000	0	64.4	15	147			
Hexachlorobenzene	0.073	0.0062	0.1000	0	73.0	41.4	136			
Hexachlorobutadiene	0.023	0.0064	0.1000	0	23.4	16.2	134			
Hexachloroethane	0.024	0.0060	0.1000	0	23.9	20.6	124			
Nitrobenzene	0.059	0.0060	0.1000	0	59.0	39.5	134			
Pentachlorophenol	0.033	0.0053	0.1000	0	33.5	15	137			
Pyridine	0.016	0.0060	0.1000	0	16.0	15	129			
2,4,5-Trichlorophenol	0.070	0.0054	0.1000	0	70.4	15	158			
2,4,6-Trichlorophenol	0.069	0.0058	0.1000	0	68.7	15	153			
Cresols, Total	0.16	0.012	0.3000	0	53.4	10.6	179			
Surr: 2-Fluorophenol	0.085		0.2000		42.3	15	82.5			
Surr: Phenol-d5	0.067		0.2000		33.3	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		72.0	18.6	118			
Surr: Nitrobenzene-d5	0.068		0.1000		67.8	30.4	106			
Surr: 2-Fluorobiphenyl	0.046		0.1000		46.3	15	104			
Surr: 4-Terphenyl-d14	0.058		0.1000		57.7	15	133			

Sample ID: **1903D14-001Bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **44003** RunNo: **59132**

Prep Date: **4/1/2019** Analysis Date: **4/13/2019** SeqNo: **1990637** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.049	0.0063	0.1000	0	48.9	23.9	129	14.3	20	
3+4-Methylphenol	0.094	0.0054	0.2000	0	47.0	15	167	9.96	20	
2,4-Dinitrotoluene	0.055	0.0058	0.1000	0	54.9	15	147	16.0	23.2	
Hexachlorobenzene	0.063	0.0062	0.1000	0	62.5	41.4	136	15.5	20	
Hexachlorobutadiene	0.023	0.0064	0.1000	0	23.1	16.2	134	1.38	20	
Hexachloroethane	0.022	0.0060	0.1000	0	21.7	20.6	124	9.57	31.3	
Nitrobenzene	0.054	0.0060	0.1000	0	54.2	39.5	134	8.44	26.6	
Pentachlorophenol	0.028	0.0053	0.1000	0	28.2	15	137	16.9	27.9	
Pyridine	0.021	0.0060	0.1000	0	21.0	15	129	26.8	47.4	
2,4,5-Trichlorophenol	0.058	0.0054	0.1000	0	57.7	15	158	19.7	36.9	
2,4,6-Trichlorophenol	0.062	0.0058	0.1000	0	61.9	15	153	10.4	37.2	
Cresols, Total	0.14	0.012	0.3000	0	47.6	10.6	179	11.5	27.4	
Surr: 2-Fluorophenol	0.072		0.2000		36.0	15	82.5	0	0	
Surr: Phenol-d5	0.057		0.2000		28.6	15	74.2	0	0	
Surr: 2,4,6-Tribromophenol	0.13		0.2000		63.4	18.6	118	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 2661 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903D14-001Bmsd SampType: MSD TestCode: EPA Method 8270C TCLP

Client ID: WDW-1,2,&3 Effluen Batch ID: 44003 RunNo: 59132

Prep Date: 4/1/2019 Analysis Date: 4/13/2019 SeqNo: 1990637 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.062		0.1000		61.7	30.4	106	0	0	
Surr: 2-Fluorobiphenyl	0.041		0.1000		40.8	15	104	0	0	
Surr: 4-Terphenyl-d14	0.049		0.1000		49.1	15	133	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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Received by OCD: 5/16/2022 2:12:41 PM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **lcs-1 99.0uS eC**	SampType: **LCS**			TestCode: **SM2510B: Specific Conductance**						
Client ID: **LCSW**	Batch ID: **R58867**			RunNo: **58867**						
Prep Date:	Analysis Date: **4/3/2019**			SeqNo: **1978677**		Units: **µmhos/cm**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.00	0	100	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 2663 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-44137	SampType: MBLK	TestCode: EPA Method 7470: Mercury							
Client ID: PBW	Batch ID: 44137	RunNo: 58933							
Prep Date: 4/4/2019	Analysis Date: 4/5/2019	SeqNo: 1981797	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LCS-44137	SampType: LCS	TestCode: EPA Method 7470: Mercury							
Client ID: LCSW	Batch ID: 44137	RunNo: 58933							
Prep Date: 4/4/2019	Analysis Date: 4/5/2019	SeqNo: 1981798	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0043	0.00020	0.005000	0	85.5	80	120			

Sample ID: LCSD-44137	SampType: LCSD	TestCode: EPA Method 7470: Mercury							
Client ID: LCSS02	Batch ID: 44137	RunNo: 58933							
Prep Date: 4/4/2019	Analysis Date: 4/5/2019	SeqNo: 1981844	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.7	80	120	15.3	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-A	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: PBW	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978089 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: LCS-A	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: LCSW	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978091 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.2	80	120			
Magnesium	50	1.0	50.00	0	99.5	80	120			
Potassium	49	1.0	50.00	0	98.4	80	120			
Sodium	48	1.0	50.00	0	96.3	80	120			

Sample ID: LCSD-A	SampType: LCSD	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: LCSS02	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978092 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	100	80	120	1.07	20	
Magnesium	50	1.0	50.00	0	101	80	120	1.09	20	
Potassium	50	1.0	50.00	0	99.4	80	120	1.05	20	
Sodium	49	1.0	50.00	0	98.6	80	120	2.32	20	

Sample ID: 1903D14-001DMS	SampType: MS	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978153 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	350	5.0	250.0	100.9	101	75	125			
Potassium	310	5.0	250.0	63.59	100	75	125			

Sample ID: 1903D14-001DMSD	SampType: MSD	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978154 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	360	5.0	250.0	100.9	102	75	125	0.849	20	
Potassium	320	5.0	250.0	63.59	101	75	125	0.298	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 2664 of 5828

Page 2665 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-44006	SampType: MBLK	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: PBW	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978079 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: LCS-44006	SampType: LCS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: LCSW	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978084 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.47	0.020	0.5000	0	94.0	80	120			
Barium	0.48	0.020	0.5000	0	96.7	80	120			
Cadmium	0.49	0.0020	0.5000	0	98.3	80	120			
Chromium	0.48	0.0060	0.5000	0	96.7	80	120			
Selenium	0.50	0.050	0.5000	0	99.3	80	120			
Silver	0.10	0.0050	0.1000	0	100	80	120			

Sample ID: 1903D14-001EMS	SampType: MS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978105 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0.01859	93.7	75	125			
Barium	0.50	0.020	0.5000	0.04539	90.9	75	125			
Cadmium	0.48	0.0020	0.5000	0	95.6	75	125			
Chromium	0.46	0.0060	0.5000	0	91.6	75	125			
Selenium	0.52	0.050	0.5000	0.04001	95.3	75	125			
Silver	0.11	0.0050	0.1000	0.003795	101	75	125			

Sample ID: 1903D14-001EMSD	SampType: MSD	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978106 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0.01859	94.3	75	125	0.602	20	
Barium	0.50	0.020	0.5000	0.04539	91.6	75	125	0.717	20	
Cadmium	0.48	0.0020	0.5000	0	95.7	75	125	0.0812	20	
Chromium	0.46	0.0060	0.5000	0	91.2	75	125	0.359	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quantitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903D14-001EMSD SampType: MSD TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen Batch ID: 44006 RunNo: 58849
Prep Date: 4/1/2019 Analysis Date: 4/3/2019 SeqNo: 1978106 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.53	0.050	0.5000	0.04001	97.3	75	125	1.89	20	
Silver	0.11	0.0050	0.1000	0.003795	103	75	125	1.41	20	

Sample ID: MB-44006 SampType: MBLK TestCode: EPA 6010B: Total Recoverable Metals
Client ID: PBW Batch ID: 44006 RunNo: 58923
Prep Date: 4/1/2019 Analysis Date: 4/5/2019 SeqNo: 1981494 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								

Sample ID: LCS-44006 SampType: LCS TestCode: EPA 6010B: Total Recoverable Metals
Client ID: LCSW Batch ID: 44006 RunNo: 58923
Prep Date: 4/1/2019 Analysis Date: 4/5/2019 SeqNo: 1981495 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.51	0.0050	0.5000	0	101	80	120			

Sample ID: 1903D14-001EMS SampType: MS TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen Batch ID: 44006 RunNo: 58923
Prep Date: 4/1/2019 Analysis Date: 4/5/2019 SeqNo: 1981515 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.48	0.0050	0.5000	0	95.7	75	125			

Sample ID: 1903D14-001EMSD SampType: MSD TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen Batch ID: 44006 RunNo: 58923
Prep Date: 4/1/2019 Analysis Date: 4/5/2019 SeqNo: 1981516 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.48	0.0050	0.5000	0	96.9	75	125	1.26	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 2667 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: mb-1 alk	SampType: MBLK	TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R58867	RunNo: 58867							
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978652	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-1 alk	SampType: LCS	TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R58867	RunNo: 58867							
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978653	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.56	20.00	80.00	0	95.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-44042	SampType: MBLK			TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID: PBW	Batch ID: 44042			RunNo: 58866					
Prep Date: 4/2/2019	Analysis Date: 4/3/2019			SeqNo: 1978621		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: LCS-44042	SampType: LCS			TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID: LCSW	Batch ID: 44042			RunNo: 58866					
Prep Date: 4/2/2019	Analysis Date: 4/3/2019			SeqNo: 1978622		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified at testcode

Page 2669 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1903D14 RcptNo: 1

Received By: Yazmine Garduno 3/27/2019 8:40:00 AM

Completed By: Leah Baca 3/27/2019 1:57:18 PM

Reviewed By: ENH 3/29/19

Labeled by YG 3/29/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 4 (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? NO
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: YG 3/29/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.1	Good	Yes			

Received by OCD: 5/16/2022 2:12:41 PM

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☐ Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1903D14	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	~~-002~~					X	X		
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	~~-003~~		X						
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
3.26.19	1:00	Brady Hubbard	courier		5:41
Date:	Time:	Relinquished by:	Received by:	Date	Time
				3/27	11:19

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade. 7.32 pH, 31.0°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Received by OCD: 5/16/2022 2:12:41 PM

HOLLYFRONTIER

January 23, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 7357

RE: 2018 4th Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3
HollyFrontier Navajo Refining LLC.

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for all three wells was 1245 psig and the average flows were 261 gpm for WDW-1, 79 gpm for WDW-2 and 115 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from October 1, 2018 to December 31, 2018. Navajo has disposed a total of 1,433,520 barrels of fluid into the three wells during the fourth quarter of 2018. The volume per well is:

- 822,549 barrels into WDW-1; 30-015-27592
- 248,228 barrels into WDW-2; 30-015-20894
- 362,743 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager

Electronic cc (w/enc.): R. Combs, L. Dade
Environmental File: NRC/ENV/INJ WELLS/REPORTS C-115/2018

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

Page 2672 of 5828

2018 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	42,439,146
Oct-18	1,291	1,400	1,200	290	328	157	517	930	203	308,229	348,617	215,760	308,229	42,747,375
Nov-18	1,237	1,400	1,066	251	299	161	423	609	221	258,171	307,543	165,600	258,171	43,005,546
Dec-18	1,240	1,400	903	241	297	84	347	538	200	256,149	315,669	89,280	256,149	43,261,695
Monthly Avg	1,256			261										
30-015-20894 WDW-2													**Previous Quarter**	27,588,714
Oct-18	1,276	1,400	1,169	89	180	58	435	565	316	94,594	191,314	61,645	94,954	27,683,308
Nov-18	1,240	1,400	1,174	76	90	62	434	571	274	78,171	92,571	63,771	78,171	27,761,479
Dec-18	1,225	1,400	908	71	84	1	478	585	273	75,463	89,280	1,063	75,463	27,836,942
Monthly Avg	1,247			79										
30-015-26575 WDW-3													**Previous Quarter**	19,076,037
Oct-18	1,251	1,400	1,136	125	146	80	738	932	490	132,857	155,177	85,029	132,857	19,208,894
Nov-18	1,230	1,400	1,133	115	140	76	736	822	599	118,286	144,000	78,171	118,286	19,327,180
Dec-18	1,217	1,400	914	105	124	2	713	812	607	111,600	131,794	2,126	111,600	19,438,780
Monthly Avg	1,233			115										
AVG:	1,245			152										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	43,261,695	42,439,146	822,549
WDW2	27,836,942	27,588,714	248,228
WDW3	19,438,780	19,076,037	362,743
	90,537,417	89,103,897	1,433,520

G:\Environmental\Injection Wells\Reports C-115 and Quarterly\2018\
4Q INJECTION 2018.xlsx

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 18, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 3 Inj Well OrderNo.: 1812E95

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/29/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **JME**
Chlordane	ND	0.030		mg/L	1	1/9/2019 9:47:37 AM
Surr: Decachlorobiphenyl	42.3	47.2-117	S	%Rec	1	1/9/2019 9:47:37 AM
Surr: Tetrachloro-m-xylene	42.3	26.4-126		%Rec	1	1/9/2019 9:47:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Fluoride	20	0.50	*	mg/L	5	1/4/2019 1:02:43 PM
Chloride	660	25	*	mg/L	50	1/15/2019 12:03:59 AM
Bromide	1.5	0.50		mg/L	5	1/4/2019 1:02:43 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	1/4/2019 1:02:43 PM
Sulfate	1900	25	*	mg/L	50	1/15/2019 12:03:59 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/4/2019 6:24:12 PM
EPA METHOD 7470: MERCURY						Analyst: **pmf**
Mercury	ND	0.00020		mg/L	1	1/10/2019 1:48:58 PM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: **rde**
Calcium	66	1.0		mg/L	1	1/4/2019 1:29:10 PM
Magnesium	21	1.0		mg/L	1	1/4/2019 1:29:10 PM
Potassium	94	1.0		mg/L	1	1/4/2019 1:29:10 PM
Sodium	950	10		mg/L	10	1/4/2019 1:35:13 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **rde**
Arsenic	0.085	0.020		mg/L	1	1/9/2019 4:36:22 PM
Barium	0.020	0.020		mg/L	1	1/9/2019 4:36:22 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2019 4:36:22 PM
Chromium	0.0061	0.0060		mg/L	1	1/9/2019 4:36:22 PM
Lead	ND	0.0050		mg/L	1	1/9/2019 4:36:22 PM
Selenium	ND	0.050		mg/L	1	1/9/2019 4:36:22 PM
Silver	ND	0.0050		mg/L	1	1/9/2019 4:36:22 PM
EPA METHOD 8270C TCLP						Analyst: **DAM**
2-Methylphenol	ND	200		mg/L	1	1/9/2019 12:34:44 PM
3+4-Methylphenol	ND	200		mg/L	1	1/9/2019 12:34:44 PM
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/9/2019 12:34:44 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/9/2019 12:34:44 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/9/2019 12:34:44 PM
Hexachloroethane	ND	3.0		mg/L	1	1/9/2019 12:34:44 PM
Nitrobenzene	ND	2.0		mg/L	1	1/9/2019 12:34:44 PM
Pentachlorophenol	ND	100		mg/L	1	1/9/2019 12:34:44 PM
Pyridine	ND	5.0		mg/L	1	1/9/2019 12:34:44 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/9/2019 12:34:44 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/9/2019 12:34:44 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C TCLP						Analyst: **DAM**
Cresols, Total	ND	200		mg/L	1	1/9/2019 12:34:44 PM
Surr: 2-Fluorophenol	58.1	15-73.6		%Rec	1	1/9/2019 12:34:44 PM
Surr: Phenol-d5	41.9	15-63.4		%Rec	1	1/9/2019 12:34:44 PM
Surr: 2,4,6-Tribromophenol	75.6	15-119		%Rec	1	1/9/2019 12:34:44 PM
Surr: Nitrobenzene-d5	78.7	33.5-111		%Rec	1	1/9/2019 12:34:44 PM
Surr: 2-Fluorobiphenyl	57.5	31.8-101		%Rec	1	1/9/2019 12:34:44 PM
Surr: 4-Terphenyl-d14	66.2	17.2-84.7		%Rec	1	1/9/2019 12:34:44 PM
TCLP VOLATILES BY 8260B						Analyst: **DJF**
Benzene	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
2-Butanone	ND	200		mg/L	200	1/3/2019 12:42:43 AM
Carbon Tetrachloride	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
Chloroform	ND	6.0		mg/L	200	1/3/2019 12:42:43 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	200	1/3/2019 12:42:43 AM
1,1-Dichloroethene	ND	0.70		mg/L	200	1/3/2019 12:42:43 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	1/3/2019 12:42:43 AM
Trichloroethene (TCE)	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
Vinyl chloride	ND	0.20		mg/L	200	1/3/2019 12:42:43 AM
Chlorobenzene	ND	100		mg/L	200	1/3/2019 12:42:43 AM
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: 4-Bromofluorobenzene	94.4	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: Dibromofluoromethane	107	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: Toluene-d8	102	70-130		%Rec	200	1/3/2019 12:42:43 AM
CORROSIVITY						Analyst: **SUB**
pH	6.93			su	1	1/4/2019
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>170			°F	1	1/5/2019
OXIDATION REDUCTION POTENTIAL						Analyst: **SUB**
Oxidation-Reduction Potential	200			mV	1	1/4/2019
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	0.0196	0.00500		mg/L	1	1/7/2019
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	0.093	0.0050		mg/L	1	1/9/2019
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5600	5.0		µmhos/c	1	1/2/2019 3:11:27 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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Analytical Report
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Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	149.5	20.00		mg/L Ca	1	1/2/2019 3:11:27 PM
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	1/2/2019 3:11:27 PM
Total Alkalinity (as CaCO3)	149.5	20.00		mg/L Ca	1	1/2/2019 3:11:27 PM
SPECIFIC GRAVITY						Analyst: **JRR**
Specific Gravity	1.001	0			1	1/8/2019 10:12:00 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3880	100	*D	mg/L	1	1/7/2019 10:44:00 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**
18-Jan-19

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R56793**	RunNo: **56793**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900898** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R56793**	RunNo: **56793**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900899** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			
Bromide	2.4	0.10	2.500	0	94.6	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.1	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.5	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R56999**	RunNo: **56999**
Prep Date:	Analysis Date: **1/14/2019**	SeqNo: **1906790** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R56999**	RunNo: **56999**
Prep Date:	Analysis Date: **1/14/2019**	SeqNo: **1906791** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.2	90	110			
Sulfate	10	0.50	10.00	0	99.5	90	110			

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID MB-42425	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: PBW	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902962	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0015		0.002500		59.2	47.2	117			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		54.6	26.4	126			

Sample ID LCS-42425	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902963	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0017		0.002500		69.4	47.2	117			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		61.6	26.4	126			

Sample ID LCSD-42425	SampType: LCSD	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSS02	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902964	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0014		0.002500		54.4	47.2	117	0	0	
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.6	26.4	126	0	0	

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **rb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T56703**	RunNo: **56703**
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898710** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		100	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		99.8	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		104	70	130			
Surr: Toluene-d8	0.010		0.01000		105	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T56703**	RunNo: **56703**
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898711** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.017	0.0050	0.02000	0	84.3	70	130			
1,1-Dichloroethene	0.019	0.0050	0.02000	0	96.7	70	130			
Trichloroethene (TCE)	0.016	0.0050	0.02000	0	81.2	70	130			
Chlorobenzene	0.019	0.0050	0.02000	0	93.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.0093		0.01000		92.6	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		105	70	130			
Surr: Dibromofluoromethane	0.0099		0.01000		99.1	70	130			
Surr: Toluene-d8	0.010		0.01000		99.5	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **1812e95-001bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903284** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.052	0.0010	0.1000	0	51.5	23.9	129			
3+4-Methylphenol	0.11	0.0010	0.2000	0	52.6	15	167			
2,4-Dinitrotoluene	0.045	0.0010	0.1000	0	45.0	15	147			
Hexachlorobenzene	0.050	0.0010	0.1000	0	49.6	41.4	136			
Hexachlorobutadiene	0.024	0.0010	0.1000	0	24.5	16.2	134			
Hexachloroethane	0.018	0.0010	0.1000	0	18.1	20.6	124			S
Nitrobenzene	0.054	0.0010	0.1000	0	53.7	39.5	134			
Pentachlorophenol	0.048	0.0010	0.1000	0	47.7	15	137			
Pyridine	0.0025	0.0010	0.1000	0	2.46	15	129			S
2,4,5-Trichlorophenol	0.058	0.0010	0.1000	0	58.2	15	158			
2,4,6-Trichlorophenol	0.068	0.0010	0.1000	0	68.5	15	153			
Cresols, Total	0.16	0.0010	0.3000	0	52.2	10.6	179			
Surr: 2-Fluorophenol	0.080		0.2000		40.1	15	73.6			
Surr: Phenol-d5	0.066		0.2000		33.1	15	63.4			
Surr: 2,4,6-Tribromophenol	0.12		0.2000		58.2	15	119			
Surr: Nitrobenzene-d5	0.054		0.1000		53.9	33.5	111			
Surr: 2-Fluorobiphenyl	0.038		0.1000		37.7	31.8	101			
Surr: 4-Terphenyl-d14	0.051		0.1000		50.9	17.2	84.7			

Sample ID **1812e95-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903285** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.068	0.0010	0.1000	0	68.2	23.9	129	27.9	20	R
3+4-Methylphenol	0.14	0.0010	0.2000	0	70.7	15	167	29.3	20	R
2,4-Dinitrotoluene	0.063	0.0010	0.1000	0	63.0	15	147	33.3	23.2	R
Hexachlorobenzene	0.073	0.0010	0.1000	0	73.2	41.4	136	38.5	20	R
Hexachlorobutadiene	0.042	0.0010	0.1000	0	42.3	16.2	134	53.2	20	R
Hexachloroethane	0.032	0.0010	0.1000	0	32.2	20.6	124	56.1	31.3	R
Nitrobenzene	0.073	0.0010	0.1000	0	73.2	39.5	134	30.7	26.6	R
Pentachlorophenol	0.070	0.0010	0.1000	0	69.8	15	137	37.7	27.9	R
Pyridine	0.0043	0.0010	0.1000	0	4.26	15	129	53.6	47.4	RS
2,4,5-Trichlorophenol	0.075	0.0010	0.1000	0	75.3	15	158	25.6	36.9	
2,4,6-Trichlorophenol	0.096	0.0010	0.1000	0	95.8	15	153	33.2	37.2	
Cresols, Total	0.21	0.0010	0.3000	0	69.9	10.6	179	28.8	27.4	R
Surr: 2-Fluorophenol	0.10		0.2000		52.4	15	73.6	0	0	
Surr: Phenol-d5	0.082		0.2000		41.2	15	63.4	0	0	
Surr: 2,4,6-Tribromophenol	0.16		0.2000		81.4	15	119	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **1812e95-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903285** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.077		0.1000		76.9	33.5	111	0	0	
Surr: 2-Fluorobiphenyl	0.062		0.1000		62.0	31.8	101	0	0	
Surr: 4-Terphenyl-d14	0.078		0.1000		78.4	17.2	84.7	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID	lcs-1 99.0uS eC	SampType:	LCS		TestCode:	SM2510B: Specific Conductance				
Client ID:	LCSW	Batch ID:	R56730		RunNo:	56730				
Prep Date:		Analysis Date:	1/2/2019		SeqNo:	1898774	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.00	0	100	80	120			

Sample ID	lcs-2 99.0uS eC	SampType:	LCS		TestCode:	SM2510B: Specific Conductance				
Client ID:	LCSW	Batch ID:	R56730		RunNo:	56730				
Prep Date:		Analysis Date:	1/2/2019		SeqNo:	1898798	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-42524**	SampType: **MBLK**			TestCode: **EPA Method 7470: Mercury**						
Client ID: **PBW**	Batch ID: **42524**			RunNo: **56898**						
Prep Date: **1/9/2019**	Analysis Date: **1/10/2019**			SeqNo: **1903938**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-42524**	SampType: **LCS**			TestCode: **EPA Method 7470: Mercury**						
Client ID: **LCSW**	Batch ID: **42524**			RunNo: **56898**						
Prep Date: **1/9/2019**	Analysis Date: **1/10/2019**			SeqNo: **1903939**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.7	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID MB-A	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: PBW	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900123	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID LCS-A	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: LCSW	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900124	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	51	1.0	50.00	0	103	80	120			
Potassium	51	1.0	50.00	0	102	80	120			
Sodium	51	1.0	50.00	0	101	80	120			

Sample ID 1812E95-001DMS	SampType: MS	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: WDW-1,2,&3 Effluen	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900141	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	73	1.0	50.00	20.95	104	75	125			

Sample ID 1812E95-001DMSD	SampType: MSD	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: WDW-1,2,&3 Effluen	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900142	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	72	1.0	50.00	20.95	101	75	125	1.57	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID	MB-42405	SampType:	MBLK	TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW	Batch ID:	42405	RunNo:	56870				
Prep Date:	1/2/2019	Analysis Date:	1/9/2019	SeqNo:	1903095	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-42405	SampType:	LCS	TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSW	Batch ID:	42405	RunNo:	56870				
Prep Date:	1/2/2019	Analysis Date:	1/9/2019	SeqNo:	1903096	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0	97.5	80	120			
Barium	0.48	0.020	0.5000	0	96.3	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.1	80	120			
Chromium	0.49	0.0060	0.5000	0	98.0	80	120			
Lead	0.48	0.0050	0.5000	0	95.0	80	120			
Selenium	0.45	0.050	0.5000	0	90.8	80	120			
Silver	0.097	0.0050	0.1000	0	97.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID	MB-R56892	SampType:	MBLK		TestCode:	CYANIDE, Reactive				
Client ID:	PBW	Batch ID:	R56892		RunNo:	56892				
Prep Date:		Analysis Date:	1/7/2019		SeqNo:	1903741	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID	LCS-R56892	SampType:	LCS		TestCode:	CYANIDE, Reactive				
Client ID:	LCSW	Batch ID:	R56892		RunNo:	56892				
Prep Date:		Analysis Date:	1/7/2019		SeqNo:	1903742	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.101		0.1000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-R56892**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/9/2019**	SeqNo: **1903744**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID **LCS-R56892**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/9/2019**	SeqNo: **1903745**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.45		0.5000	0	90.6	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R56730**	RunNo: **56730**							
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898751**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R56730**	RunNo: **56730**							
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898752**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.96	20.00	80.00	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-42426**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **42426**	RunNo: **56796**
Prep Date: **1/3/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901042** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-42426**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **42426**	RunNo: **56796**
Prep Date: **1/3/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901043** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1812E95 RcptNo: 1

Received By: Andy Freeman 12/29/2018 11:00:00 AM

Completed By: Erin Melendrez 12/31/2018 9:08:51 AM

Reviewed By: DAD 12/31/18

Labeled by: JAB 12/31/18

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Courier		

Log In

3.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4.	Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
6.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7.	Are samples (except VOA and ONG) properly preserved?	Yes ☐	No ☑	
8.	Was preservative added to bottles?	Yes ☑	No ☐	NA ☐
9.	VOA vials have zero headspace?	Yes ☑	No ☐	HNO3 See remarks No VOA Vials ☐
10.	Were any sample containers received broken?	Yes ☐	No ☑	2 JAB 12/31/18
11.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 1; 2 (<2 or >12 unless noted)
12.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? Yes
13.	Is it clear what analyses were requested?	Yes ☑	No ☐	
14.	Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: JAB 12/31/18

Special Handling (if applicable)

15.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks.

For dissolved metals analysis: Poured off and filter approx. 125mLs into separate container from extra bottle and preserved with 0.4mLs HNO3 for preffered pH. Held 24 hours prior to analysis

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P O Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251641

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.7 °

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1812E95	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals. only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A									
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X										
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X											
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X															
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X														
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X													

Date:	Time:	Relinquished by:	Received by:	Date Time
12-27-18	12:00	Brad Hilliard		12/27/18 1100
Date:	Time:	Relinquished by:	Received by:	Date Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade. Field pH: 7.28 Field temp: 31.5°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Page 2691 of 5828

Received by OCD: 5/16/2022 2:12:41 PM

The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	**Contaminant**	**SW-846 Method**	**Regulatory Level (mg/l)**
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallower 200 - 250 ft bgs

Need All

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NOV 01 2018 PM02:22

HOLLYFRONTIER.

October 29, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 7012

RE: 2018 3rd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, HollyFrontier Navajo Refining LLC.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1285 psig and the average flows were 220 gpm for WDW-1, 92 gpm for WDW-2 and 118 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2018 to September 30, 2018. We have disposed a total of 1,510,625 barrels of fluid into the three wells during the third quarter of 2018. The volume per well is:

- 693,900 barrels into WDW-1; 30-015-27592
- 357,879 barrels into WDW-2; 30-015-20894
- 458,846 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

Page 2695 of 5828

2018 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												**Previous Quarter**		41,745,246
Jul-18	1,378	1,400	1,315	248	341	73	385	491	195	8,503	10,526	4,320	263,593	42,008,839
Aug-18	1,304	1,400	936	221	657	41	443	836	136	7,577	10,629	5,726	234,887	42,243,726
Sep-18	1,224	1,400	920	190	535	49	397	705	93	6,514	11,623	7,954	195,420	42,439,146
Monthly Avg	1,302			220										
30-015-20894 WDW-2												**Previous Quarter**		27,230,835
Jul-18	1,349	1,400	960	101	114	0	440	1,102	260	3,463	3,909	0	107,349	27,338,184
Aug-18	1,305	1,400	942	96	118	0	415	646	316	3,291	4,046	0	138,222	27,476,406
Sep-18	1,211	1,400	926	78	135	1	419	549	330	2,674	4,629	34	112,308	27,588,714
Monthly Avg	1,286			80										
30-015-26575 WDW-3												**Previous Quarter**		18,617,191
Jul-18	1,338	1,400	1,298	135	142	117	363	454	174	4,629	4,869	4,011	143,486	18,760,677
Aug-18	1,258	1,400	948	116	156	0	570	931	239	3,977	5,349	0	167,040	18,927,717
Sep-18	1,195	1,400	931	103	138	2	639	849	325	3,531	4,731	69	148,320	19,076,037
Monthly Avg	1,264			112								**Total Injected fluids:**		
AVG:	1,285			158										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	42,439,146	41,745,246	693,900
WDW2	27,588,714	27,230,835	357,879
WDW3	19,076,037	18,617,191	458,846
	89,103,897	87,593,272	1,510,625

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 15, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 and 3 Inj Well OrderNo.: 1809619

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/12/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1809619**
Date Reported: **10/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1809619-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2018 9:24:00 AM
Received Date: 9/12/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JDC**	
Specific Gravity	0.9997	0			1	9/14/2018 2:05:00 PM	R54162
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	25	2.0	*	mg/L	20	9/13/2018 3:30:00 AM	R54103
Chloride	420	50		mg/L	100	10/2/2018 7:04:14 PM	R54600
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Bromide	0.90	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	9/13/2018 3:30:00 AM	R54103
Sulfate	2400	50		mg/L	100	10/2/2018 7:04:14 PM	R54600
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5500	5.0		µmhos/c	1	9/18/2018 12:32:37 PM	R54265
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	119.6	20.00		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
Total Alkalinity (as CaCO3)	119.6	20.00		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4180	40.0	*D	mg/L	1	8/18/2019 7:19:00 PM	40386
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.07		H	pH units	1	9/18/2018 12:32:37 PM	R54265
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	9/13/2018 12:27:55 PM	40321
MERCURY, TCLP						Analyst: **rde**	
Mercury	ND	0.020		mg/L	1	10/3/2018 3:45:28 PM	40779
EPA METHOD 6010B: TCLP METALS						Analyst: **pmf**	
Arsenic	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Barium	ND	100		mg/L	1	10/2/2018 3:33:44 PM	40718
Cadmium	ND	1.0		mg/L	1	10/2/2018 3:33:44 PM	40718
Chromium	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Lead	ND	5.0		mg/L	1	10/2/2018 3:33:44 PM	40718
Selenium	ND	1.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Silver	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
EPA 6010B: METALS						Analyst: **ELS**	
Aluminum	5.3	0.10		mg/L	5	10/11/2018 8:56:07 AM	40718
Antimony	ND	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Arsenic	0.050	0.020		mg/L	1	10/11/2018 8:04:22 AM	40718

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1809619**
Date Reported: **10/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1809619-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2018 9:24:00 AM
Received Date: 9/12/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: METALS						Analyst: **ELS**	
Barium	0.022	0.020		mg/L	1	10/10/2018 11:36:58 AM	40718
Beryllium	ND	0.0030		mg/L	1	10/10/2018 11:36:58 AM	40718
Cadmium	ND	0.0020		mg/L	1	10/10/2018 11:36:58 AM	40718
Calcium	63	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Chromium	ND	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Cobalt	ND	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Copper	0.013	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Iron	3.6	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Lead	ND	0.0050		mg/L	1	10/10/2018 11:36:58 AM	40718
Magnesium	21	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Manganese	0.13	0.0020		mg/L	1	10/10/2018 11:36:58 AM	40718
Nickel	0.023	0.010		mg/L	1	10/10/2018 11:36:58 AM	40718
Potassium	75	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Selenium	ND	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Silver	ND	0.0050		mg/L	1	10/10/2018 11:36:58 AM	40718
Sodium	1300	50		mg/L	50	10/10/2018 11:42:09 AM	40718
Thallium	ND	0.050		mg/L	1	10/10/2018 12:31:48 PM	40718
Vanadium	0.052	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Zinc	0.066	0.020		mg/L	1	10/10/2018 11:36:58 AM	40718

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-001	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001D / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1,1,2-Tetrachloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,1-Trichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,2-Trichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-Dichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-Dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2,3-Trichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dibromo-3-chloropropane(DBCP)	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dibromoethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichlorobenzene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,3-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,4-Dichlorobenzene	ND	ug/L	0.5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2,2-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2-Butanone	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2-hexanone	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acetone	886	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acetonitrile	130	ug/L	100	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acrolein	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acrylonitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Allyl Chloride	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Benzene	161	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromochloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromodichloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromoform	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0026; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Sample Number 180919003-001 **Sampling Date** 9/11/2018 **Date/Time Received** 9/14/201811:23 AM
Client Sample ID 1809619-001D / WDW-1,2,&3 EFFLUENT **Sampling Time** 9:24 AM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Bromomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Carbon disulfide	11.8	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Carbon Tetrachloride	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chlorobenzene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroform	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroprene	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
cis-1,2-dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
cis-1,3-Dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dibromochloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dibromomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dichlorodifluoromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Ethyl methacrylate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Ethylbenzene	89.9	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Iodomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Isobutanol	ND	ug/L	1000	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
m+p-Xylene	197	ug/L	10	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methacrylonitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl ethyl ketone (MEK)	35.8	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl isobutyl ketone (MIBK)	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl Methacrylate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methylene chloride	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
o-Xylene	114	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Propionitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Styrene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Tetrachloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Toluene	378	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C586; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1809619
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-001	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001D / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
trans-1,2-Dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
trans-1,3-Dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
trans-1-4-Dichloro-2-butene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Trichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Trichlorofiouromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Vinyl acetate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Vinyl Chloride	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Epichlorohydrin	ND	ug/L	50	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Surrogate Data

Sample Number 180919003-001

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260C	108.2	70-130
1,2-Dichlorobenzene-d4	EPA 8260C	99.6	70-130
4-Bromofluorobenzene	EPA 8260C	98.0	70-130
4-Bromofluorobenzene	EPA 8260C	104.0	70-130
Toluene-d8	EPA 8260C	98.4	70-130
Toluene-d8	EPA 8260C	99.6	70-130

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Trichloroethene	9.40	ug/L	10	94.0	80-120	9/25/2018	9/25/2018
Toluene	9.79	ug/L	10	97.9	80-120	9/25/2018	9/25/2018
Tetrachloroethene	9.13	ug/L	10	91.3	80-120	9/25/2018	9/25/2018
o-Xylene	9.64	ug/L	10	96.4	80-120	9/25/2018	9/25/2018
Ethylbenzene	9.92	ug/L	10	99.2	80-120	9/25/2018	9/25/2018
Chlorobenzene	9.78	ug/L	10	97.8	80-120	9/25/2018	9/25/2018
Benzene	9.79	ug/L	10	97.9	80-120	9/25/2018	9/25/2018
1,1-Dichloroethene	9.57	ug/L	10	95.7	80-120	9/25/2018	9/25/2018

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Trichloroethene	9.69	ug/L	10	96.9	3.0	0-25	9/25/2018	9/25/2018
Toluene	10.1	ug/L	10	101.0	3.1	0-25	9/25/2018	9/25/2018
Tetrachloroethene	9.48	ug/L	10	94.8	3.8	0-25	9/25/2018	9/25/2018
o-Xylene	10.3	ug/L	10	103.0	6.6	0-25	9/25/2018	9/25/2018
Ethylbenzene	10.2	ug/L	10	102.0	2.8	0-25	9/25/2018	9/25/2018
Chlorobenzene	10.4	ug/L	10	104.0	6.1	0-25	9/25/2018	9/25/2018
Benzene	10.4	ug/L	10	104.0	6.0	0-25	9/25/2018	9/25/2018
1,1-Dichloroethene	9.87	ug/L	10	98.7	3.1	0-25	9/25/2018	9/25/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,1,1,2-Tetrachloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,1-Trichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,2,2-Tetrachloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,2-Trichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-Dichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-Dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2,3-Trichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dibromo-3-chloropropane(DBCP)	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dibromoethane	ND	ug/L	0.5	9/25/2018	9/25/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87693; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2-Dichlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,3-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,4-Dichlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
2,2-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
2-Butanone	ND	ug/L	2.5	9/25/2018	9/25/2018
2-hexanone	ND	ug/L	0.5	9/25/2018	9/25/2018
Acetone	ND	ug/L	2.5	9/25/2018	9/25/2018
Acetonitrile	ND	ug/L	0.5	9/25/2018	9/25/2018
Acrolein	ND	ug/L	2.5	9/25/2018	9/25/2018
Acrylonitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Allyl Chloride	ND	ug/L	0.5	9/25/2018	9/25/2018
Benzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromochloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromodichloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromoform	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Carbon disulfide	ND	ug/L	0.5	9/25/2018	9/25/2018
Carbon Tetrachloride	ND	ug/L	0.5	9/25/2018	9/25/2018
Chlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroform	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroprene	ND	ug/L	0.5	9/25/2018	9/25/2018
cis-1,2-dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
cis-1,3-Dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
Dibromochloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Dibromomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Dichlorodifluoromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Ethyl methacrylate	ND	ug/L	2.5	9/25/2018	9/25/2018
Ethylbenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Iodomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Isobutanol	ND	ug/L	10	9/25/2018	9/25/2018
m+p-Xylene	ND	ug/L	1	9/25/2018	9/25/2018
Methacrylonitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Methyl ethyl ketone (MEK)	ND	ug/L	2.5	9/25/2018	9/25/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1809619
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Methyl isobutyl ketone (MIBK)	ND	ug/L	2.5	9/25/2018	9/25/2018
Methyl Methacrylate	ND	ug/L	2.5	9/25/2018	9/25/2018
Methylene chloride	ND	ug/L	2.5	9/25/2018	9/25/2018
o-Xylene	ND	ug/L	0.5	9/25/2018	9/25/2018
Propionitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Styrene	ND	ug/L	0.5	9/25/2018	9/25/2018
Tetrachloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
Toluene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1,2-Dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1,3-Dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1-4-Dichloro-2-butene	ND	ug/L	0.5	9/25/2018	9/25/2018
Trichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
Trichlorofluoromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Vinyl acetate	ND	ug/L	0.5	9/25/2018	9/25/2018
Vinyl Chloride	ND	ug/L	0.5	9/25/2018	9/25/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Sample Number 180919003-002 **Sampling Date** 9/11/2018 **Date/Time Received** 9/14/201811:23 AM
Client Sample ID 1809619-001E / WDW-1,2,&3 EFFLUENT **Extraction Date** 9/18/2018
Matrix Water **Sampling Time** 9:24 AM
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2,4-Trichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2-Diphenyl hydrazine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3,5-TNB	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3-DNB	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Dioxane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Naphthoquinone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1-Methylnaphthalene	56.5	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1-Naphthylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,2-Oxybis(1-chloropropane)	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dimethylphenol	123	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
2,4-Dinitrotoluene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,6-Dichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Acetylaminofluorene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Chlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Methylnaphthalene	59.6	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Methylphenol	585	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Naphthylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Nitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Picoline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3,3-Dimethylbenzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3+4-Methylphenol	1060	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3-Methylcholanthrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Aminobiphenyl	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
4-Chloro-3-methylphenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Chloroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitroquinoline-1-oxide	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
5-Nitro-o-toluidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
7,12-Dimethylbenz(a)anthracene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
a,a-Dimethylphenethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acenaphthene	ND	ug/L	5	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acenaphthylene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acetophenone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Aniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Anthracene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Aramite	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo(ghi)perylene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Benzo[k]fluoranthene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzyl alcohol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Chloroethyl)ether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Butylbenzylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Carbazole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Chlorobenzilate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Chrysene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Diallate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Diethylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dimethoate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dimethylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
diphenylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Disulfoton	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ethyl methanesulfonate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Ethyl parathion	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Famphur	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Fluoranthene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Fluorene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorobenzene	ND	ug/L	10	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachloroethane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachloropropene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachorophene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isodrin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isophorone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isosafrole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Kepone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methapyrilene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methyl methanesulfonate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methyl parathion	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Naphthalene	123	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Nitrosodimethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-nitrosodibutylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosodiethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitroso-di-n-propylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosodiphenylamine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosomethylethylamine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosomorpholine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosopiperadine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosopyrrolidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
o,o,o-Triethyl phosphorothioate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
o-Toluidine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
p-(Dimethylamino)azobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachloroethane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachloronitrobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenacetin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenanthrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenol	5330	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Sample Number 180919003-002 **Sampling Date** 9/11/2018 **Date/Time Received** 9/14/201811:23 AM
Client Sample ID 1809619-001E / WDW-1,2,&3 EFFLUENT **Extraction Date** 9/18/2018
Matrix Water **Sampling Time** 9:24 AM
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Phorate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
p-Phenylenediamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pronamide	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pyrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pyridine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Safrole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Sulfotep	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Thionazin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

Surrogate Data

Sample Number 180919003-002

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	100.4	63-122
2-Fluorobiphenyl	EPA 8270D	82.8	58-127
2-Fluorophenol	EPA 8270D	85.6	44-119
Nitrobenzene-d5	EPA 8270D	77.6	58-120
Phenol-d5	EPA 8270D	71.6	52-115
Terphenyl-d14	EPA 8270D	58.8	22-133

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Pyrene	4.75	ug/L	5	95.0	45-138	9/18/2018	9/26/2018
Phenol	4.17	ug/L	5	83.4	45-134	9/18/2018	9/26/2018
Pentachlorophenol	4.06	ug/L	5	81.2	22-138	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	4.57	ug/L	5	91.4	46-140	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	5.26	ug/L	5	105.2	43-142	9/18/2018	9/26/2018
Acenaphthene	4.50	ug/L	5	90.0	36-122	9/18/2018	9/26/2018
4-Nitrophenol	4.96	ug/L	5	99.2	19-137	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	4.78	ug/L	5	95.6	42-139	9/18/2018	9/26/2018
2-Chlorophenol	4.39	ug/L	5	87.8	50-131	9/18/2018	9/26/2018
2,4-Dinitrotoluene	4.75	ug/L	5	95.0	49-134	9/18/2018	9/26/2018
1,4-Dichlorobenzene	3.74	ug/L	5	74.8	28-108	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	3.84	ug/L	5	76.8	33-109	9/18/2018	9/26/2018

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Pyrene	4.84	ug/L	5	96.8	1.9	0-36	9/18/2018	9/26/2018
Phenol	4.39	ug/L	5	87.8	5.1	0-35	9/18/2018	9/26/2018
Pentachlorophenol	4.09	ug/L	5	81.8	0.7	0-47	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	4.96	ug/L	5	99.2	8.2	0-38	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	5.37	ug/L	5	107.4	2.1	0-50	9/18/2018	9/26/2018
Acenaphthene	4.71	ug/L	5	94.2	4.6	0-23	9/18/2018	9/26/2018
4-Nitrophenol	5.25	ug/L	5	105.0	5.7	0-50	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	4.90	ug/L	5	98.0	2.5	0-33	9/18/2018	9/26/2018
2-Chlorophenol	4.74	ug/L	5	94.8	7.7	0-50	9/18/2018	9/26/2018
2,4-Dinitrotoluene	4.98	ug/L	5	99.6	4.7	0-47	9/18/2018	9/26/2018
1,4-Dichlorobenzene	4.07	ug/L	5	81.4	8.5	0-27	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	3.99	ug/L	5	79.8	3.8	0-27	9/18/2018	9/26/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2,4,5-Tetrachlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,2-Diphenyl hydrazine	ND	ug/L	5	9/18/2018	9/26/2018
1,3,5-TNB	ND	ug/L	5	9/18/2018	9/26/2018
1,3-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,3-DNB	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Dioxane	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Naphthoquinone	ND	ug/L	5	9/18/2018	9/26/2018
1-Methylnaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
1-Naphthylamine	ND	ug/L	5	9/18/2018	9/26/2018
2,2-Oxybis(1-chloropropane)	ND	ug/L	5	9/18/2018	9/26/2018
2,3,4,6-Tetrachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,3,5,6-Tetrachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4,5-Trichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4,6-Trichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dimethylphenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dinitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dinitrotoluene	ND	ug/L	5	9/18/2018	9/26/2018
2,6-Dichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,6-Dinitrotoluene	ND	ug/L	5	9/18/2018	9/26/2018
2-Acetylaminofluorene	ND	ug/L	5	9/18/2018	9/26/2018
2-Chloronaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
2-Chlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Methylnaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
2-Methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Naphthylamine	ND	ug/L	5	9/18/2018	9/26/2018
2-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
2-Nitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Picoline	ND	ug/L	5	9/18/2018	9/26/2018
3,3'-Dichlorobenzidine	ND	ug/L	5	9/18/2018	9/26/2018
3,3-Dimethylbenzidine	ND	ug/L	5	9/18/2018	9/26/2018
3+4-Methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
3-Methylcholanthrene	ND	ug/L	5	9/18/2018	9/26/2018
3-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4,6-Dinitro-2-methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Aminobiphenyl	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87693; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1809619
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
4-Bromophenyl-phenylether	ND	ug/L	5	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Chloroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4-Chlorophenyl-phenylether	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitroquinoline-1-oxide	ND	ug/L	5	9/18/2018	9/26/2018
5-Nitro-o-toluidine	ND	ug/L	5	9/18/2018	9/26/2018
7,12-Dimethylbenz(a)anthracene	ND	ug/L	5	9/18/2018	9/26/2018
a,a-Dimethylphenethylamine	ND	ug/L	5	9/18/2018	9/26/2018
Acenaphthene	ND	ug/L	5	9/18/2018	9/26/2018
Acenaphthylene	ND	ug/L	5	9/18/2018	9/26/2018
Acetophenone	ND	ug/L	5	9/18/2018	9/26/2018
Aniline	ND	ug/L	5	9/18/2018	9/26/2018
Anthracene	ND	ug/L	5	9/18/2018	9/26/2018
Aramite	ND	ug/L	5	9/18/2018	9/26/2018
Benzidine	ND	ug/L	5	9/18/2018	9/26/2018
Benzo(ghi)perylene	ND	ug/L	5	9/18/2018	9/26/2018
Benzo[a]anthracene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[a]pyrene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[b]fluoranthene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[k]fluoranthene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzyl alcohol	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Chloroethoxy)methane	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Chloroethyl)ether	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-chloroisopropyl)ether	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	ND	ug/L	5	9/18/2018	9/26/2018
Butylbenzylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Carbazole	ND	ug/L	5	9/18/2018	9/26/2018
Chlorobenzilate	ND	ug/L	5	9/18/2018	9/26/2018
Chrysene	ND	ug/L	0.1	9/18/2018	9/26/2018
Diallate	ND	ug/L	5	9/18/2018	9/26/2018
Dibenz[a,h]anthracene	ND	ug/L	0.1	9/18/2018	9/26/2018
Dibenzofuran	ND	ug/L	5	9/18/2018	9/26/2018
Diethylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Dimethoate	ND	ug/L	5	9/18/2018	9/26/2018
Dimethylphthalate	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Di-n-butylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Di-n-octylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
diphenylamine	ND	ug/L	5	9/18/2018	9/26/2018
Disulfoton	ND	ug/L	5	9/18/2018	9/26/2018
Ethyl methanesulfonate	ND	ug/L	5	9/18/2018	9/26/2018
Ethyl parathion	ND	ug/L	5	9/18/2018	9/26/2018
Famphur	ND	ug/L	5	9/18/2018	9/26/2018
Fluoranthene	ND	ug/L	5	9/18/2018	9/26/2018
Fluorene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachlorobenzene	ND	ug/L	1	9/18/2018	9/26/2018
Hexachlorobutadiene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachlorocyclopentadiene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachloroethane	ND	ug/L	5	9/18/2018	9/26/2018
Hexachloropropene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachorophene	ND	ug/L	5	9/18/2018	9/26/2018
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.1	9/18/2018	9/26/2018
Isodrin	ND	ug/L	5	9/18/2018	9/26/2018
Isophorone	ND	ug/L	5	9/18/2018	9/26/2018
Isosafrole	ND	ug/L	5	9/18/2018	9/26/2018
Kepone	ND	ug/L	5	9/18/2018	9/26/2018
Methapyrilene	ND	ug/L	5	9/18/2018	9/26/2018
Methyl methanesulfonate	ND	ug/L	5	9/18/2018	9/26/2018
Methyl parathion	ND	ug/L	5	9/18/2018	9/26/2018
Naphthalene	ND	ug/L	5	9/18/2018	9/26/2018
Nitrobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Nitrosodimethylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-nitrosodibutylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosodiethylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosodiphenylamine	ND	ug/L	2	9/18/2018	9/26/2018
n-Nitrosomethylethylamine	ND	ug/L	2	9/18/2018	9/26/2018
n-Nitrosomorpholine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosopiperadine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosopyrrolidine	ND	ug/L	5	9/18/2018	9/26/2018
o,o,o-Triethyl phosphorothioate	ND	ug/L	5	9/18/2018	9/26/2018
o-Toluidine	ND	ug/L	2	9/18/2018	9/26/2018
p-(Dimethylamino)azobenzene	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Pentachlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Pentachloroethane	ND	ug/L	5	9/18/2018	9/26/2018
Pentachloronitrobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Pentachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
Phenacetin	ND	ug/L	5	9/18/2018	9/26/2018
Phenanthrene	ND	ug/L	1	9/18/2018	9/26/2018
Phenol	ND	ug/L	5	9/18/2018	9/26/2018
Phorate	ND	ug/L	5	9/18/2018	9/26/2018
p-Phenylenediamine	ND	ug/L	5	9/18/2018	9/26/2018
Pronamide	ND	ug/L	5	9/18/2018	9/26/2018
Pyrene	ND	ug/L	5	9/18/2018	9/26/2018
Pyridine	ND	ug/L	5	9/18/2018	9/26/2018
Safrole	ND	ug/L	5	9/18/2018	9/26/2018
Sulfotep	ND	ug/L	5	9/18/2018	9/26/2018
Thionazin	ND	ug/L	5	9/18/2018	9/26/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-003	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/2018 11:23 AM
Client Sample ID	1809619-001F / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/L	0.1	9/21/2018 1:00:00 PM	BKP	SW846 CH7	
Flashpoint	>200	°F		9/26/2018 4:45:00 PM	GPB	EPA 1010	
pH	7.28	ph Units		9/26/2018 1:40:00 PM	LAC	SM 4500pH-B	
Reactive sulfide	2.00	mg/L	0.19	10/1/2018 2:00:00 PM	ETL	SW846 CH7	

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Reactive sulfide	0.180	mg/L	0.2	90.0	70-130	10/1/2018	10/1/2018
Cyanide (reactive)	0.520	mg/L	0.5	104.0	80-120	9/20/2018	9/25/2018

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
180925019-001	Reactive sulfide	0.385	0.693	mg/L	0.385	80.0	70-130	10/1/2018	10/1/2018
180919003-003	Cyanide (reactive)	ND	4.91	mg/L	5	98.2	80-120	9/20/2018	9/25/2018

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide (reactive)	4.76	mg/L	5	95.2	3.1	0-25	9/20/2018	9/25/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide (reactive)	ND	mg/L	1	9/20/2018	9/25/2018
Reactive sulfide	ND	mg/L	0.1	10/1/2018	10/1/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0026; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R54103**	RunNo: **54103**
Prep Date:	Analysis Date: **9/13/2018**	SeqNo: **1788975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R54103**	RunNo: **54103**
Prep Date:	Analysis Date: **9/13/2018**	SeqNo: **1788976** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	99.5	90	110			
Bromide	2.5	0.10	2.500	0	98.9	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	101	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R54600**	RunNo: **54600**
Prep Date:	Analysis Date: **10/2/2018**	SeqNo: **1811003** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R54600**	RunNo: **54600**
Prep Date:	Analysis Date: **10/2/2018**	SeqNo: **1811004** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.8	90	110			
Sulfate	9.3	0.50	10.00	0	93.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **lcs-1 98.6uS eC**	SampType: **LCS**	TestCode: **SM2510B: Specific Conductance**	
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**	
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795469**	Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	98.30	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40321**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789572** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-40321**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789573** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	80	120			

Sample ID **1809619-001BMS**	SampType: **MS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789583** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0055	0.00020	0.005000	.00006886	110	75	125			

Sample ID **1809619-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789584** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0057	0.00020	0.005000	.00006886	112	75	125	2.54	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-40779**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**				
Client ID:	**PBW**	Batch ID:	**40779**	RunNo:	**54613**				
Prep Date:	**10/3/2018**	Analysis Date:	**10/3/2018**	SeqNo:	**1811409**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-40779**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**				
Client ID:	**LCSW**	Batch ID:	**40779**	RunNo:	**54613**				
Prep Date:	**10/3/2018**	Analysis Date:	**10/3/2018**	SeqNo:	**1811410**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	96.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1809619

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID MB-40718	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810218 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Chromium	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID LCS-40718	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810220 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	96.8	80	120			
Chromium	ND	5.0	0.5000	0	101	80	120			
Selenium	ND	1.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	106	80	120			

Sample ID 1809619-001CMS	SampType: MS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810226 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02964	98.4	75	125			
Chromium	ND	5.0	0.5000	0.0009400	97.2	75	125			
Selenium	ND	1.0	0.5000	0	107	75	125			
Silver	ND	5.0	0.1000	0.001420	109	75	125			

Sample ID 1809619-001CMSD	SampType: MSD	TestCode: EPA Method 6010B: TCLP Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810227 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02964	98.8	75	125	0	20	
Chromium	ND	5.0	0.5000	0.0009400	97.1	75	125	0	20	
Selenium	ND	1.0	0.5000	0	108	75	125	0	20	
Silver	ND	5.0	0.1000	0.001420	109	75	125	0	20	

Sample ID MB-40718	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810246 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40718**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **40718**	RunNo: **54590**
Prep Date: **10/1/2018**	Analysis Date: **10/2/2018**	SeqNo: **1810246** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Cadmium	ND	1.0								
Lead	ND	5.0								

Sample ID **LCS-40718**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **40718**	RunNo: **54590**
Prep Date: **10/1/2018**	Analysis Date: **10/2/2018**	SeqNo: **1810248** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	96.7	80	120			
Cadmium	ND	1.0	0.5000	0	103	80	120			
Lead	ND	5.0	0.5000	0	100	80	120			

Sample ID **1809619-001CMS**	SampType: **MS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40718**	RunNo: **54590**
Prep Date: **10/1/2018**	Analysis Date: **10/2/2018**	SeqNo: **1810254** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.09061	93.5	75	125			
Cadmium	ND	1.0	0.5000	0	103	75	125			
Lead	ND	5.0	0.5000	0	98.2	75	125			

Sample ID **1809619-001CMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40718**	RunNo: **54590**
Prep Date: **10/1/2018**	Analysis Date: **10/2/2018**	SeqNo: **1810255** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.09061	93.0	75	125	0	20	
Cadmium	ND	1.0	0.5000	0	99.7	75	125	0	20	
Lead	ND	5.0	0.5000	0	93.1	75	125	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40718** SampType: **MBLK** TestCode: **EPA 6010B: Metals**

Client ID: **PBW** Batch ID: **40718** RunNo: **54775**

Prep Date: **10/1/2018** Analysis Date: **10/10/2018** SeqNo: **1818830** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-40718** SampType: **LCS** TestCode: **EPA 6010B: Metals**

Client ID: **LCSW** Batch ID: **40718** RunNo: **54775**

Prep Date: **10/1/2018** Analysis Date: **10/10/2018** SeqNo: **1818832** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.50	0.050	0.5000	0	100	80	120			
Barium	0.52	0.020	0.5000	0	104	80	120			
Beryllium	0.52	0.0030	0.5000	0	105	80	120			
Cadmium	0.52	0.0020	0.5000	0	104	80	120			
Calcium	48	1.0	50.00	0	95.2	80	120			
Chromium	0.51	0.0060	0.5000	0	102	80	120			
Cobalt	0.51	0.0060	0.5000	0	101	80	120			
Copper	0.51	0.0060	0.5000	0	103	80	120			
Iron	0.50	0.050	0.5000	0	99.6	80	120			
Lead	0.51	0.0050	0.5000	0	101	80	120			
Magnesium	50	1.0	50.00	0	99.4	80	120			
Manganese	0.47	0.0020	0.5000	0	95.0	80	120			
Nickel	0.51	0.010	0.5000	0	102	80	120			
Potassium	49	1.0	50.00	0	97.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	LCS-40718	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	40718		RunNo:	54775				
Prep Date:	10/1/2018	Analysis Date:	10/10/2018		SeqNo:	1818832	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.50	0.050	0.5000	0	99.2	80	120			
Silver	0.11	0.0050	0.1000	0	110	80	120			
Sodium	51	1.0	50.00	0	102	80	120			
Vanadium	0.49	0.050	0.5000	0	98.2	80	120			
Zinc	0.49	0.020	0.5000	0	98.7	80	120			

Sample ID	MB-40718	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	40718		RunNo:	54775				
Prep Date:	10/1/2018	Analysis Date:	10/10/2018		SeqNo:	1818855	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	ND	0.050								

Sample ID	LCS-40718	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	40718		RunNo:	54775				
Prep Date:	10/1/2018	Analysis Date:	10/10/2018		SeqNo:	1818857	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.52	0.050	0.5000	0	103	80	120			

Sample ID	MB-40718	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	40718		RunNo:	54800				
Prep Date:	10/1/2018	Analysis Date:	10/11/2018		SeqNo:	1820075	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Arsenic	ND	0.020								

Sample ID	LCS-40718	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	40718		RunNo:	54800				
Prep Date:	10/1/2018	Analysis Date:	10/11/2018		SeqNo:	1820077	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.54	0.020	0.5000	0	108	80	120			
Arsenic	0.48	0.020	0.5000	0	96.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795420**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795421**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.20	20.00	80.00	0	97.7	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795444**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795445**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.92	20.00	80.00	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **1809619-001A** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R54162** RunNo: **54162**

Prep Date: Analysis Date: **9/14/2018** SeqNo: **1790677** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9995	0						0.0200	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40386**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **40386**	RunNo: **54232**
Prep Date: **9/17/2018**	Analysis Date: **8/18/2019**	SeqNo: **1793445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-40386**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **40386**	RunNo: **54232**
Prep Date: **9/17/2018**	Analysis Date: **8/18/2019**	SeqNo: **1793446** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	999	20.0	1000	0	99.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1809619 RcptNo: 1

Received By: Jazzmine Burkhead 9/12/2018 8:40:00 AM

Completed By: Ashley Gallegos 9/12/2018 12:31:07 PM

Reviewed By: 9/12/18

Labeled by: JAB 09/12/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1;2 (<2 or >12 unless noted)

Adjusted?

Checked by: JAB 09/12/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
X Standard ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler: ✓

On Ice: ☑ Yes ☐ No

Sample Temperature: 0.1+0.2(r) = 4.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1809019	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A									
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X										
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X											
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X															
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X														
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X													

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/11/18	5:30	Brady Hibbard			
				09/12/18	08:40
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH=7.03
37.3°C

Courier

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

JUL 12 2018 PM01:17

HOLLYFRONTIER.

July 10, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 6664

RE: 2018 2nd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1265 psig and the average flows were 281 gpm for WDW-1, 80 gpm for WDW-2 and 112 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2018 to June 30, 2018. We have disposed a total of 1,870,028 barrels of fluid into the three wells during the second quarter of 2018. The volume per well is:

- 1,108,783 barrels into WDW-1; 30-015-27592
- 320,640 barrels into WDW-2; 30-015-20894
- 440,605 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Lewis R. (Randy) Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Released to Imaging: 7/12/2024 10:49:45 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 28, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 and 3 Inj Well OrderNo.: 1806778

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/13/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JRR**
Fluoride	9.5	0.50	*	mg/L	5	6/13/2018 7:04:58 PM
Chloride	570	25		mg/L	50	6/18/2018 9:58:46 PM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	6/13/2018 7:04:58 PM
Bromide	1.6	0.50		mg/L	5	6/13/2018 7:04:58 PM
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	6/13/2018 7:04:58 PM
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	6/13/2018 7:04:58 PM
Sulfate	2100	25		mg/L	50	6/18/2018 9:58:46 PM
EPA METHOD 7470: MERCURY						Analyst: **rde**
Mercury	ND	0.00020		mg/L	1	6/22/2018 4:48:51 PM
MERCURY, TCLP						Analyst: **rde**
Mercury	ND	0.020		mg/L	1	6/22/2018 3:44:25 PM
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**
Arsenic	ND	5.0		mg/L	1	6/24/2018 6:29:55 PM
Barium	ND	100		mg/L	1	6/21/2018 9:34:34 AM
Cadmium	ND	1.0		mg/L	1	6/21/2018 9:34:34 AM
Chromium	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
Lead	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
Selenium	ND	1.0		mg/L	1	6/21/2018 12:16:01 PM
Silver	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
EPA 6010B: METALS						Analyst: **MED**
Aluminum	0.27	0.020		mg/L	1	6/24/2018 6:58:28 PM
Antimony	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Arsenic	ND	0.020		mg/L	1	6/24/2018 6:58:28 PM
Barium	0.028	0.020		mg/L	1	6/24/2018 6:58:28 PM
Beryllium	ND	0.0030		mg/L	1	6/24/2018 6:58:28 PM
Cadmium	ND	0.0020		mg/L	1	6/24/2018 6:58:28 PM
Calcium	110	5.0		mg/L	5	6/25/2018 1:17:11 PM
Chromium	ND	0.0060		mg/L	1	6/24/2018 6:58:28 PM
Cobalt	ND	0.0060		mg/L	1	6/24/2018 6:58:28 PM
Copper	ND	0.0060		mg/L	1	6/25/2018 12:25:43 PM
Iron	0.30	0.050		mg/L	1	6/24/2018 6:58:28 PM
Lead	ND	0.0050		mg/L	1	6/24/2018 6:58:28 PM
Magnesium	34	1.0		mg/L	1	6/25/2018 1:18:27 PM
Manganese	0.047	0.0020		mg/L	1	6/24/2018 6:58:28 PM
Nickel	ND	0.010		mg/L	1	6/24/2018 6:58:28 PM
Potassium	41	1.0		mg/L	1	6/25/2018 1:18:27 PM
Selenium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: METALS						Analyst: **MED**
Silver	ND	0.0050		mg/L	1	6/24/2018 6:58:28 PM
Sodium	1000	50		mg/L	50	6/25/2018 1:15:55 PM
Thallium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Vanadium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Zinc	ND	0.020		mg/L	1	6/24/2018 6:58:28 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
Benzene	ND	0.50		µg/L	1	6/19/2018
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/19/2018
2-Butanone	ND	5.0		µg/L	1	6/19/2018
Carbon Tetrachloride	ND	0.50		µg/L	1	6/19/2018
Chlorobenzene	ND	0.50		µg/L	1	6/19/2018
Chloroform	ND	0.50		µg/L	1	6/19/2018
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/19/2018
1,1-Dichloroethene	ND	0.50		µg/L	1	6/19/2018
Hexachlorobutadiene	ND	0.50		µg/L	1	6/19/2018
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/19/2018
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/19/2018
Vinyl chloride	ND	0.50		µg/L	1	6/19/2018
Surr: 1,2-Dichlorobenzene-d4	103	70-130		%Rec	1	6/19/2018
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	6/19/2018
Surr: Toluene-d8	102	70-130		%Rec	1	6/19/2018
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
2,4,5-Trichlorophenol	ND	50		µg/L	1	6/20/2018
2,4,6-Trichlorophenol	ND	50		µg/L	1	6/20/2018
2,4-Dinitrotoluene	ND	50		µg/L	1	6/20/2018
2-Methylphenol	ND	50		µg/L	1	6/20/2018
Hexachlorobenzene	ND	10		µg/L	1	6/20/2018
Hexachlorobutadiene	ND	50		µg/L	1	6/20/2018
Hexachloroethane	ND	50		µg/L	1	6/20/2018
Nitrobenzene	ND	50		µg/L	1	6/20/2018
Pentachlorophenol	ND	50		µg/L	1	6/20/2018
Phenol	ND	50		µg/L	1	6/20/2018
Pyridine	ND	50		µg/L	1	6/20/2018
Surr: 2,4,6-Tribromophenol	93.4	63-122		%Rec	1	6/20/2018
Surr: 2-Fluorobiphenyl	86.0	58-127		%Rec	1	6/20/2018
Surr: 2-Fluorophenol	81.8	44-119		%Rec	1	6/20/2018
Surr: Nitrobenzene-d5	88.8	58-120		%Rec	1	6/20/2018
Surr: Phenol-d5	101	52-115		%Rec	1	6/20/2018

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Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
Surr: Terphenyl-d14	106	20-133		%Rec	1	6/20/2018
CORROSIVITY						Analyst: **SUB**
pH	8.05			pH Units	1	6/19/2018
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>200			°F	1	6/18/2018
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	ND	0.100		mg/L	1	6/20/2018
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	ND	0.20		mg/L	1	6/19/2018
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5900	5.0		µmhos/c	1	6/18/2018 5:39:09 PM
SM4500-H+B / 9040C: PH						Analyst: **JRR**
pH	7.96		H	pH units	1	6/18/2018 5:39:09 PM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	237.5	20.00		mg/L Ca	1	6/18/2018 5:39:09 PM
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	6/18/2018 5:39:09 PM
Total Alkalinity (as CaCO3)	237.5	20.00		mg/L Ca	1	6/18/2018 5:39:09 PM
SPECIFIC GRAVITY						Analyst: **SRM**
Specific Gravity	1.006	0			1	6/18/2018 7:15:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **sat**
Total Dissolved Solids	4100	100	*D	mg/L	1	6/15/2018 1:01:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R51968**	RunNo: **51968**
Prep Date:	Analysis Date: **6/13/2018**	SeqNo: **1699258** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R51968**	RunNo: **51968**
Prep Date:	Analysis Date: **6/13/2018**	SeqNo: **1699259** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.7	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.9	90	110			
Bromide	2.3	0.10	2.500	0	90.2	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.4	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	92.0	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A52074**	RunNo: **52074**
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1704016** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.500								
Sulfate	ND	0.500								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A52074**	RunNo: **52074**
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1704017** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.89	0.500	5.000	0	97.9	90	110			
Sulfate	9.64	0.500	10.00	0	96.4	90	110			

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711983** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
2-Butanone	ND	2.5								
Benzene	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroform	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.50								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711984** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	9.9	0	10.00	0	98.6	80	120			
Benzene	9.7	0	10.00	0	96.6	80	120			
Chlorobenzene	9.5	0	10.00	0	94.8	80	120			
Tetrachloroethene (PCE)	9.3	0	10.00	0	93.0	80	120			
Trichloroethene (TCE)	9.7	0	10.00	0	96.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711986** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2-Methylphenol	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenol	ND	5.0								
Pyridine	ND	5.0								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711987** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	3.6	0	5.000	0	71.4	22	138			
Phenol	4.6	0	5.000	0	92.8	45	134			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**lcs-1 ~20uS eC**	SampType: **LCS**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**LCSW**	Batch ID: **R52062**		RunNo: **52062**						
Prep Date:		Analysis Date: **6/18/2018**		SeqNo: **1703214**		Units: **µmhos/cm**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		22	5.0	19.98	0	113	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-38840**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**38840**	RunNo:	**52177**					
Prep Date:	**6/22/2018**	Analysis Date:	**6/22/2018**	SeqNo:	**1709180**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-38840**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**38840**	RunNo:	**52177**					
Prep Date:	**6/22/2018**	Analysis Date:	**6/22/2018**	SeqNo:	**1709181**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.7	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38837**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **38837**	RunNo: **52174**
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709087** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-38837**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **38837**	RunNo: **52174**
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709088** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	103	80	120			

Sample ID **TCLP#1-3752**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **38837**	RunNo: **52174**
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709107** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38797**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707267** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Silver	ND	5.0								

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707268** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	104	80	120			
Cadmium	ND	1.0	0.5000	0	103	80	120			
Chromium	ND	5.0	0.5000	0	101	80	120			
Lead	ND	5.0	0.5000	0	103	80	120			
Silver	ND	5.0	0.1000	0	110	80	120			

Sample ID **LCSD-38797**	SampType: **LCSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707269** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	104	80	120	0	20	
Cadmium	ND	1.0	0.5000	0	103	80	120	0	20	
Chromium	ND	5.0	0.5000	0	101	80	120	0	20	
Lead	ND	5.0	0.5000	0	104	80	120	0	20	
Silver	ND	5.0	0.1000	0	111	80	120	0	20	

Sample ID **MB-38797**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707278** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0								

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707279** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707279** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0	0.5000	0	97.2	80	120			

Sample ID **LCSD-38797**	SampType: **LCSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707280** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0	0.5000	0	105	80	120	0	20	

Sample ID **MB-38797**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709602** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709603** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	93.7	80	120			

Sample ID **LCSD-38797**	SampType: **LCSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.3	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38830**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**
Client ID: **PBW**	Batch ID: **38830**	RunNo: **52182**
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709613** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-38830**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSW**	Batch ID: **38830**	RunNo: **52182**
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709614** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	110	80	120			
Antimony	0.46	0.050	0.5000	0	92.9	80	120			
Arsenic	0.47	0.020	0.5000	0	95.0	80	120			
Barium	0.50	0.020	0.5000	0	101	80	120			
Beryllium	0.53	0.0030	0.5000	0	106	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.4	80	120			
Chromium	0.47	0.0060	0.5000	0	94.5	80	120			
Cobalt	0.47	0.0060	0.5000	0	94.6	80	120			
Iron	0.51	0.050	0.5000	0	102	80	120			
Lead	0.47	0.0050	0.5000	0	94.5	80	120			
Manganese	0.49	0.0020	0.5000	0	97.7	80	120			
Nickel	0.49	0.010	0.5000	0	98.2	80	120			
Selenium	0.45	0.050	0.5000	0	89.1	80	120			
Silver	0.11	0.0050	0.1000	0	111	80	120			
Thallium	0.50	0.050	0.5000	0	99.6	80	120			
Vanadium	0.50	0.050	0.5000	0	99.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **LCS-38830**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSW**	Batch ID: **38830**	RunNo: **52182**
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709614** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.46	0.020	0.5000	0	91.6	80	120			

Sample ID **1806778-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **38830**	RunNo: **52182**
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709617** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.86	0.020	0.5000	0.2671	119	75	125			
Antimony	0.46	0.050	0.5000	0	91.6	75	125			
Arsenic	0.47	0.020	0.5000	0	94.1	75	125			
Barium	0.52	0.020	0.5000	0.02756	97.7	75	125			
Beryllium	0.49	0.0030	0.5000	0	98.7	75	125			
Cadmium	0.49	0.0020	0.5000	0	97.2	75	125			
Chromium	0.46	0.0060	0.5000	0	92.0	75	125			
Cobalt	0.45	0.0060	0.5000	0.001940	89.7	75	125			
Iron	0.78	0.050	0.5000	0.3011	96.1	75	125			
Lead	0.47	0.0050	0.5000	0	93.4	75	125			
Manganese	0.51	0.0020	0.5000	0.04674	92.9	75	125			
Nickel	0.48	0.010	0.5000	0.009450	94.8	75	125			
Selenium	0.50	0.050	0.5000	0.03875	92.8	75	125			
Silver	0.12	0.0050	0.1000	0.001780	116	75	125			
Thallium	0.47	0.050	0.5000	0	94.3	75	125			
Vanadium	0.53	0.050	0.5000	0.03973	97.1	75	125			
Zinc	0.46	0.020	0.5000	0.01812	89.2	75	125			

Sample ID **1806778-001BMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **38830**	RunNo: **52182**
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.87	0.020	0.5000	0.2671	120	75	125	0.456	20	
Antimony	0.44	0.050	0.5000	0	88.1	75	125	3.91	20	
Arsenic	0.47	0.020	0.5000	0	93.5	75	125	0.578	20	
Barium	0.51	0.020	0.5000	0.02756	96.9	75	125	0.792	20	
Beryllium	0.49	0.0030	0.5000	0	97.5	75	125	1.14	20	
Cadmium	0.48	0.0020	0.5000	0	95.5	75	125	1.78	20	
Chromium	0.45	0.0060	0.5000	0	91.0	75	125	1.12	20	
Cobalt	0.44	0.0060	0.5000	0.001940	88.0	75	125	1.87	20	
Iron	0.79	0.050	0.5000	0.3011	97.2	75	125	0.718	20	
Lead	0.46	0.0050	0.5000	0	91.2	75	125	2.36	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **1806778-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **38830** RunNo: **52182**
Prep Date: **6/21/2018** Analysis Date: **6/24/2018** SeqNo: **1709618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.51	0.0020	0.5000	0.04674	93.2	75	125	0.328	20	
Nickel	0.47	0.010	0.5000	0.009450	93.0	75	125	1.82	20	
Selenium	0.50	0.050	0.5000	0.03875	92.2	75	125	0.590	20	
Silver	0.12	0.0050	0.1000	0.001780	116	75	125	0.356	20	
Thallium	0.47	0.050	0.5000	0	94.9	75	125	0.636	20	
Vanadium	0.53	0.050	0.5000	0.03973	97.6	75	125	0.477	20	
Zinc	0.46	0.020	0.5000	0.01812	87.8	75	125	1.53	20	

Sample ID **MB-38830** SampType: **MBLK** TestCode: **EPA 6010B: Metals**
Client ID: **PBW** Batch ID: **38830** RunNo: **52203**
Prep Date: **6/21/2018** Analysis Date: **6/25/2018** SeqNo: **1710333** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.0060								

Sample ID **LCS-38830** SampType: **LCS** TestCode: **EPA 6010B: Metals**
Client ID: **LCSW** Batch ID: **38830** RunNo: **52203**
Prep Date: **6/21/2018** Analysis Date: **6/25/2018** SeqNo: **1710334** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.47	0.0060	0.5000	0	94.0	80	120			

Sample ID **1806778-001BMS** SampType: **MS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **38830** RunNo: **52203**
Prep Date: **6/21/2018** Analysis Date: **6/25/2018** SeqNo: **1710337** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.50	0.0060	0.5000	0	101	75	125			

Sample ID **1806778-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **38830** RunNo: **52203**
Prep Date: **6/21/2018** Analysis Date: **6/25/2018** SeqNo: **1710338** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.50	0.0060	0.5000	0	101	75	125	0.300	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	MB-38830	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710647	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	LCS-38830	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710648	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.9	80	120			
Magnesium	48	1.0	50.00	0	97.0	80	120			
Potassium	48	1.0	50.00	0	96.4	80	120			
Sodium	49	1.0	50.00	0	97.4	80	120			

Sample ID	1806778-001BMS	SampType:	MS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710653	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	82	1.0	50.00	34.10	95.8	75	125			
Potassium	89	1.0	50.00	40.69	96.0	75	125			

Sample ID	1806778-001BMSD	SampType:	MSD	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710654	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	84	1.0	50.00	34.10	98.9	75	125	1.93	20	
Potassium	90	1.0	50.00	40.69	98.4	75	125	1.36	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711993** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711994** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.505		0.5000	0	101	80	20			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**							
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711996**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.10								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**							
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711997**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703175**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703176**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.04	20.00	80.00	0	96.3	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703199**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703200**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.28	20.00	80.00	0	99.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specifed

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **1806778-001ADUP**	SampType: **DUP**			TestCode: **Specific Gravity**						
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R52078**			RunNo: **52078**						
Prep Date:	Analysis Date: **6/18/2018**			SeqNo: **1704219**		Units:				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.508	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38675**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **PBW**	Batch ID: **38675**	RunNo: **52038**							
Prep Date: **6/14/2018**	Analysis Date: **6/15/2018**	SeqNo: **1702120**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-38675**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **LCSW**	Batch ID: **38675**	RunNo: **52038**							
Prep Date: **6/14/2018**	Analysis Date: **6/15/2018**	SeqNo: **1702121**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1806778 RcptNo: 1

Received By: Jazzmine Burkhead 6/13/2018 9:45:00 AM
Completed By: Ashley Gallegos 6/13/2018 11:22:33 AM
Reviewed By: ENM 6/13/18 labeled by: JB 06/13/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 2;3 (<2 or >12 unless noted)
Adjusted? No
Checked by: JB

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standar X Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.3 + 0.0(CF) = 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1800178	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6-12-18	4:00	Brady Hubbard		Courier JB	06/13/18	09:45
Date:	Time:	Relinquished by:	Received by:		Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH= 7.55, 45.4°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	Contaminant	SW-846 Method	Regulatory Level (mg/l)
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallow to 200 - 250 ft bgs

Need All

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2018 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												**Previous Quarter**		40,636,463
Apr-18	1,215	1,400	1,160	266	307	126	386	687	244	9,120	10,526	4,320	273,463	40,909,926
May-18	1,224	1,400	1,195	270	310	167	400	892	174	9,257	10,629	5,726	388,800	41,298,726
Jun-18	1,342	1,400	1,374	308	339	232	528	696	297	10,560	11,623	7,954	446,520	41,745,246
Monthly Avg	1,260			281										
30-015-20894 WDW-2												**Previous Quarter**		26,910,195
Apr-18	1,221	1,400	1,160	61	92	1	315	411	211	2,091	3,154	34	62,880	26,973,075
May-18	1,260	1,400	1,177	77	91	61	310	467	219	2,640	3,120	2,091	110,880	27,083,955
Jun-18	1,359	1,400	1,081	102	111	78	341	548	241	3,497	3,806	2,674	146,880	27,230,835
Monthly Avg	1,280			80										
30-015-26575 WDW-3												**Previous Quarter**		18,176,586
Apr-18	1,210	1,400	1,160	102	132	84	451	596	273	3,497	4,526	2,880	105,085	18,281,671
May-18	1,255	1,400	1,155	108	125	89	374	544	275	3,703	4,286	3,051	155,520	18,437,191
Jun-18	1,302	1,400	1,082	125	141	66	527	701	187	4,286	4,834	2,263	180,000	18,617,191
Monthly Avg	1,256			112								**Total Injected fluids:**		
AVG:	1266			158										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	1,108,783	40,636,463	41,745,246
WDW2	320,640	26,910,195	27,230,835
WDW3	440,605	18,176,586	18,617,191
	1,870,028	85,723,244	87,593,272

HOLLYFRONTIER.

May 8, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 6510

RE: 2018 1st Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1298 psig and the average flows were 133 gpm for WDW-1, 112 gpm for WDW-2 and 99 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits. The Mewbourne WDW-1; 30-015-27592, did have repairs due to well issues starting 01/08/2018. Repairs were made and C-103 submitted, MIT was witnessed on 3/7/2018 and well returned to service on 3/8/2018.

This report covers the period from January 1, 2018 to March 31, 2018. We have disposed a total of 1,424,202 barrels of fluid into the three wells during the first quarter of 2018. The volume per well is:

- 540,144 barrels into WDW-1; 30-015-27592
- 317,136 barrels into WDW-2; 30-015-20894
- 566,922 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

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Received by OCD: 5/16/2022 2:12:41 PM

2018 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												**Previous Quarter**		40,096,319
Jan-18	1,361	1,400	1,364	134	144	80	1,142	1,393	213	4,152	4,937	2,743	174,384	40,270,703
Feb-18	1,305	1,400	1,195	128	142	96	1,297	1,393	1,192	4,389	4,869	3,291	184,320	40,455,023
Mar-18	1,183	1,400	1,374	126	454	96	504	1,270	331	3,160	15,566	3,291	181,440	40,636,463
Monthly Avg	1,363			133										
30-015-20894 WDW-2												**Previous Quarter**		26,593,059
Jan-18	1,389	1,400	1,344	114	351	107	479	730	308	3,548	12,034	3,669	140,016	26,733,075
Feb-18	1,312	1,400	1,177	75	118	69	361	447	279	2,571	4,046	2,366	108,000	26,841,075
Mar-18	1,263	1,400	1,081	48	111	54	335	468	232	1,477	3,806	1,851	69,120	26,910,195
Monthly Avg	1,300			112										
30-015-26575 WDW-3												**Previous Quarter**		17,609,664
Jan-18	1,340	1,400	1,248	152	162	119	555	663	430	4,721	5,554	4,080	198,282	17,807,946
Feb-18	1,282	1,400	1,155	133	159	100	535	593	441	4,560	5,451	3,429	191,520	17,999,466
Mar-18	1,251	1,400	1,082	123	157	53	467	587	380	3,808	5,383	1,817	177,120	18,176,586
Monthly Avg	1232			99								**Total Injected fluids:**		85,723,244

	Total BBLS	Beginning Volume	Ending Volume
WDW1	540,144	40,096,319	40,636,463
WDW2	317,136	26,593,059	26,910,195
WDW3	566,922	17,609,664	18,176,586
	1,424,202		
		84,299,042	85,723,244

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 15, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1, 2 and 3 Inj Well OrderNo.: 1802968

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/16/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **MAB**	
Chlordane	ND	0.30		mg/L	10	2/22/2018 10:33:17 AM	36636
Surr: Decachlorobiphenyl	63.2	41.2-177		%Rec	10	2/22/2018 10:33:17 AM	36636
Surr: Tetrachloro-m-xylene	64.4	29-171		%Rec	10	2/22/2018 10:33:17 AM	36636
EPA METHOD 8270C TCLP						Analyst: **DAM**	
2-Methylphenol	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
3+4-Methylphenol	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
Phenol	ND	200		mg/L	10	3/13/2018 8:51:59 PM	36637
2,4-Dinitrotoluene	ND	0.13		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachlorobenzene	ND	0.13		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachlorobutadiene	ND	0.50		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachloroethane	ND	3.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Nitrobenzene	ND	2.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Pentachlorophenol	ND	100		mg/L	1	3/5/2018 11:38:07 AM	36637
Pyridine	ND	5.0		mg/L	1	3/5/2018 11:38:07 AM	36637
2,4,5-Trichlorophenol	ND	400		mg/L	1	3/5/2018 11:38:07 AM	36637
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Cresols, Total	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
Surr: 2-Fluorophenol	62.3	15-73.6		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: Phenol-d5	51.2	15-63.4		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 2,4,6-Tribromophenol	91.6	15-119		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: Nitrobenzene-d5	88.7	33.5-111		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 2-Fluorobiphenyl	85.5	31.8-101		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 4-Terphenyl-d14	53.0	17.2-84.7		%Rec	1	3/5/2018 11:38:07 AM	36637
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>170			°F	1	2/20/2018	R49787
OXIDATION REDUCTION POTENTIAL						Analyst: **SUB**	
Oxidation-Reduction Potential	140			mV	1	2/21/2018	R49787
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	0.38	0.050		mg/L	1	2/20/2018	R49787
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9980	0			1	2/20/2018 12:44:00 PM	R49250
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.50	0.50		mg/L	5	2/27/2018 4:16:33 PM	R49460
Chloride	420	25		mg/L	50	3/4/2018 3:17:41 PM	R49545
Bromide	1.2	0.50		mg/L	5	2/27/2018 4:16:33 PM	R49460
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	2/27/2018 4:16:33 PM	R49460

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Sulfate	1200	25		mg/L	50	3/2/2018 9:09:19 PM	R49522
Nitrate+Nitrite as N	ND	1.0		mg/L	5	2/28/2018 12:07:17 PM	R49476
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	4600	5.0		µmhos/cm	1	2/22/2018 12:59:56 PM	R49344
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	286.5	20.00		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
Carbonate (As CaCO3)	36.16	2.000		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
Total Alkalinity (as CaCO3)	322.6	20.00		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3040	20.0	*	mg/L	1	2/21/2018 7:01:00 PM	36630
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	0.0493	0.00500		mg/L	1	2/23/2018	R49787
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	8.59		*H	pH units	1	2/22/2018 12:59:56 PM	R49344
EPA METHOD 7470: MERCURY						Analyst: **rde**	
Mercury	ND	0.00020		mg/L	1	2/21/2018 10:33:26 AM	36616
MERCURY, TCLP						Analyst: **rde**	
Mercury	ND	0.020		mg/L	1	3/8/2018 3:33:51 PM	36908
EPA METHOD 6010B: TCLP METALS						Analyst: **JLF**	
Arsenic	ND	5.0		mg/L	1	3/13/2018 11:04:59 AM	36855
Barium	ND	100		mg/L	1	3/7/2018 7:32:52 PM	36855
Cadmium	ND	1.0		mg/L	1	3/7/2018 7:32:52 PM	36855
Chromium	ND	5.0		mg/L	1	3/12/2018 2:53:01 PM	36855
Lead	ND	5.0		mg/L	1	3/7/2018 7:32:52 PM	36855
Selenium	ND	1.0		mg/L	1	3/13/2018 1:28:45 PM	36855
Silver	ND	5.0		mg/L	1	3/7/2018 7:32:52 PM	36855
EPA 6010B: METALS						Analyst: **JLF**	
Aluminum	1.3	0.020		mg/L	1	3/7/2018 7:34:50 PM	36855
Antimony	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Arsenic	ND	0.020		mg/L	1	3/13/2018 11:03:41 AM	36855
Barium	ND	0.020		mg/L	1	3/7/2018 7:34:50 PM	36855
Beryllium	ND	0.0030		mg/L	1	3/7/2018 7:34:50 PM	36855
Cadmium	ND	0.0020		mg/L	1	3/7/2018 7:34:50 PM	36855
Calcium	67	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Chromium	ND	0.0060		mg/L	1	3/12/2018 2:50:53 PM	36855

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: METALS						Analyst: **JLF**	
Cobalt	ND	0.0060		mg/L	1	3/12/2018 2:50:53 PM	36855
Copper	ND	0.0060		mg/L	1	3/7/2018 7:34:50 PM	36855
Iron	0.59	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Lead	ND	0.0050		mg/L	1	3/7/2018 7:34:50 PM	36855
Magnesium	21	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Manganese	0.041	0.0020		mg/L	1	3/7/2018 7:34:50 PM	36855
Nickel	ND	0.010		mg/L	1	3/7/2018 7:34:50 PM	36855
Potassium	84	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Selenium	0.10	0.050		mg/L	1	3/13/2018 1:27:28 PM	36855
Silver	ND	0.0050		mg/L	1	3/7/2018 7:34:50 PM	36855
Sodium	820	20		mg/L	20	3/7/2018 7:38:57 PM	36855
Thallium	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Vanadium	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Zinc	ND	0.020		mg/L	1	3/13/2018 11:03:41 AM	36855
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
2-Butanone	ND	200		mg/L	200	2/21/2018 9:53:00 PM	T49300
Carbon Tetrachloride	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Chloroform	ND	6.0		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,4-Dichlorobenzene	ND	7.5		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,1-Dichloroethene	ND	0.70		mg/L	200	2/21/2018 9:53:00 PM	T49300
Hexachlorobutadiene	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	2/21/2018 9:53:00 PM	T49300
Trichloroethene (TCE)	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Vinyl chloride	ND	0.20		mg/L	200	2/21/2018 9:53:00 PM	T49300
Chlorobenzene	ND	100		mg/L	200	2/21/2018 9:53:00 PM	T49300
Surr: 1,2-Dichloroethane-d4	84.8	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: 4-Bromofluorobenzene	78.7	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: Dibromofluoromethane	88.2	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: Toluene-d8	77.3	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R49460**	RunNo: **49460**
Prep Date:	Analysis Date: **2/27/2018**	SeqNo: **1597256** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R49460**	RunNo: **49460**
Prep Date:	Analysis Date: **2/27/2018**	SeqNo: **1597257** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.1	90	110			
Bromide	2.4	0.10	2.500	0	95.9	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.3	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R49476**	RunNo: **49476**
Prep Date:	Analysis Date: **2/28/2018**	SeqNo: **1598370** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R49476**	RunNo: **49476**
Prep Date:	Analysis Date: **2/28/2018**	SeqNo: **1598371** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.2	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R49522**	RunNo: **49522**
Prep Date:	Analysis Date: **3/2/2018**	SeqNo: **1600511** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS-b**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R49522**	RunNo: **49522**
Prep Date:	Analysis Date: **3/2/2018**	SeqNo: **1600513** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.2	0.50	10.00	0	91.9	90	110			

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R49545**	RunNo: **49545**							
Prep Date:	Analysis Date: **3/4/2018**	SeqNo: **1601219**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R49545**	RunNo: **49545**							
Prep Date:	Analysis Date: **3/4/2018**	SeqNo: **1601220**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.3	90	110			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT

WO#: **1802968**

Hall Environmental Analysis Laboratory, Inc.

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36636**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592030** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0013		0.002500		52.0	41.2	177			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.9	29	171			

Sample ID **LCS-36636**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592031** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0019		0.002500		74.9	41.2	177			
Surr: Tetrachloro-m-xylene	0.0019		0.002500		77.6	29	171			

Sample ID **LCSD-36636**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592036** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0019		0.002500		77.8	41.2	177	0	0	
Surr: Tetrachloro-m-xylene	0.0019		0.002500		77.2	29	171	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T49300**	RunNo: **49300**
Prep Date:	Analysis Date: **2/21/2018**	SeqNo: **1590903** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.024	0.010	0.02000	0	118	70	130			
1,1-Dichloroethene	0.026	0.010	0.02000	0	128	70	130			
Trichloroethene (TCE)	0.022	0.010	0.02000	0	110	70	130			
Chlorobenzene	0.020	0.010	0.02000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	0.0088		0.01000		88.4	70	130			
Surr: 4-Bromofluorobenzene	0.0080		0.01000		79.5	70	130			
Surr: Dibromofluoromethane	0.0091		0.01000		90.8	70	130			
Surr: Toluene-d8	0.0078		0.01000		78.2	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T49300**	RunNo: **49300**
Prep Date:	Analysis Date: **2/21/2018**	SeqNo: **1590905** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0089		0.01000		88.9	70	130			
Surr: 4-Bromofluorobenzene	0.0076		0.01000		76.1	70	130			
Surr: Dibromofluoromethane	0.0092		0.01000		91.7	70	130			
Surr: Toluene-d8	0.0077		0.01000		77.3	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001ems** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611310** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.14	0.0010	0.1000	0	142	23.9	129			S
3+4-Methylphenol	0.34	0.0010	0.2000	0.01344	165	15	167			
2,4-Dinitrotoluene	0.081	0.0010	0.1000	0	81.2	15	147			
Hexachlorobenzene	0.089	0.0010	0.1000	0	89.1	41.4	136			
Hexachlorobutadiene	0.085	0.0010	0.1000	0	84.9	16.2	134			
Hexachloroethane	0.068	0.0010	0.1000	0	67.6	20.6	124			
Nitrobenzene	0.084	0.0010	0.1000	0	84.4	39.5	134			
Pentachlorophenol	0.084	0.0010	0.1000	0	83.6	15	137			
Pyridine	0.022	0.0010	0.1000	0	21.5	15	129			
2,4,5-Trichlorophenol	0.095	0.0010	0.1000	0	95.2	15	158			
2,4,6-Trichlorophenol	0.096	0.0010	0.1000	0	96.0	15	153			
Cresols, Total	0.93	0.0010	0.3000	0.05632	291	10.6	179			S
Surr: 2-Fluorophenol	0.12		0.2000		57.8	15	73.6			
Surr: Phenol-d5	0.097		0.2000		48.7	15	63.4			
Surr: 2,4,6-Tribromophenol	0.18		0.2000		91.0	15	119			
Surr: Nitrobenzene-d5	0.085		0.1000		84.8	33.5	111			
Surr: 2-Fluorobiphenyl	0.084		0.1000		84.3	31.8	101			
Surr: 4-Terphenyl-d14	0.052		0.1000		52.0	17.2	84.7			

Sample ID **1802968-001emsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611311** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.12	0.0010	0.1000	0	119	23.9	129	17.4	20	
3+4-Methylphenol	0.29	0.0010	0.2000	0.01344	138	15	167	17.1	20	
2,4-Dinitrotoluene	0.069	0.0010	0.1000	0	69.1	15	147	16.1	23.2	
Hexachlorobenzene	0.077	0.0010	0.1000	0	76.6	41.4	136	15.1	20	
Hexachlorobutadiene	0.075	0.0010	0.1000	0	74.8	16.2	134	12.6	20	
Hexachloroethane	0.058	0.0010	0.1000	0	58.4	20.6	124	14.7	31.3	
Nitrobenzene	0.073	0.0010	0.1000	0	72.8	39.5	134	14.7	26.6	
Pentachlorophenol	0.071	0.0010	0.1000	0	71.4	15	137	15.7	27.9	
Pyridine	0.022	0.0010	0.1000	0	21.7	15	129	1.02	47.4	
2,4,5-Trichlorophenol	0.074	0.0010	0.1000	0	74.5	15	158	24.4	36.9	
2,4,6-Trichlorophenol	0.079	0.0010	0.1000	0	78.9	15	153	19.6	37.2	
Cresols, Total	0.79	0.0010	0.3000	0.05632	246	10.6	179	15.6	27.4	S
Surr: 2-Fluorophenol	0.098		0.2000		48.8	15	73.6	0	0	
Surr: Phenol-d5	0.079		0.2000		39.7	15	63.4	0	0	
Surr: 2,4,6-Tribromophenol	0.16		0.2000		77.7	15	119	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- PQL Practical Quanitative Limit
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001emsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611311** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.070		0.1000		70.4	33.5	111	0	0	
Surr: 2-Fluorobiphenyl	0.065		0.1000		64.8	31.8	101	0	0	
Surr: 4-Terphenyl-d14	0.043		0.1000		43.1	17.2	84.7	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	**lcs-1 ~20uS eC**	SampType: **LCS**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**LCSW**	Batch ID: **R49344**		RunNo: **49344**						
Prep Date:		Analysis Date: **2/22/2018**		SeqNo: **1592912**		Units: **µmhos/cm**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		22	5.0	19.96	0	112	80	120			

Sample ID	**1802968-001a dup**	SampType: **DUP**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **R49344**		RunNo: **49344**						
Prep Date:		Analysis Date: **2/22/2018**		SeqNo: **1592915**		Units: **µmhos/cm**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		4600	5.0						0.0261	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	**MB-36616**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**36616**	RunNo:	**49292**					
Prep Date:	**2/20/2018**	Analysis Date:	**2/21/2018**	SeqNo:	**1590635**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-36616**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**36616**	RunNo:	**49292**					
Prep Date:	**2/20/2018**	Analysis Date:	**2/21/2018**	SeqNo:	**1590636**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36908**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **36908**	RunNo: **49646**							
Prep Date: **3/8/2018**	Analysis Date: **3/8/2018**	SeqNo: **1605458**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-36908**	SampType: **LCS**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSW**	Batch ID: **36908**	RunNo: **49646**							
Prep Date: **3/8/2018**	Analysis Date: **3/8/2018**	SeqNo: **1605459**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.6	80	120			

Sample ID **LCSD-36908**	SampType: **LCSD**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSS02**	Batch ID: **36908**	RunNo: **49646**							
Prep Date: **3/8/2018**	Analysis Date: **3/8/2018**	SeqNo: **1605460**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.7	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604968 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0								
Selenium	ND	1.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604970 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0	0.5000	0	106	80	120			
Selenium	ND	1.0	0.5000	0	97.7	80	120			

Sample ID LCSD-36855	SampType: LCSD	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSS02	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604971 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0	0.5000	0	104	80	120	0	20	
Selenium	ND	1.0	0.5000	0	106	80	120	0	20	

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604981 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Lead	ND	5.0								
Silver	ND	5.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604983 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	102	80	120			
Lead	ND	5.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID LCSD-36855	SampType: LCSD	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSS02	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604984 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	102	80	120	0	20	
Lead	ND	5.0	0.5000	0	101	80	120	0	20	
Silver	ND	5.0	0.1000	0	102	80	120	0	20	

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 36855	RunNo: 49727
Prep Date: 3/6/2018	Analysis Date: 3/12/2018	SeqNo: 1608232 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 36855	RunNo: 49727
Prep Date: 3/6/2018	Analysis Date: 3/12/2018	SeqNo: 1608237 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0	0.5000	0	97.3	80	120			

Sample ID LCSD-36855	SampType: LCSD	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSS02	Batch ID: 36855	RunNo: 49727
Prep Date: 3/6/2018	Analysis Date: 3/12/2018	SeqNo: 1608238 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0	0.5000	0	99.4	80	120	0	20	

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 36855	RunNo: 49740
Prep Date: 3/6/2018	Analysis Date: 3/13/2018	SeqNo: 1608916 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 36855	RunNo: 49740
Prep Date: 3/6/2018	Analysis Date: 3/13/2018	SeqNo: 1608918 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **LCSD-36855**	SampType: **LCSD**			TestCode: **EPA Method 6010B: TCLP Metals**						
Client ID: **LCSS02**	Batch ID: **36855**			RunNo: **49740**						
Prep Date: **3/6/2018**	Analysis Date: **3/13/2018**			SeqNo: **1608919**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	102	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36855**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**
Client ID: **PBW**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605015** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605017** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	111	80	120			
Beryllium	0.52	0.0030	0.5000	0	105	80	120			
Cadmium	0.53	0.0020	0.5000	0	106	80	120			
Calcium	47	1.0	50.00	0	94.2	80	120			
Cobalt	0.49	0.0060	0.5000	0	98.0	80	120			
Copper	0.52	0.0060	0.5000	0	104	80	120			
Iron	0.49	0.050	0.5000	0	98.5	80	120			
Magnesium	48	1.0	50.00	0	96.3	80	120			
Manganese	0.50	0.0020	0.5000	0	99.8	80	120			
Nickel	0.51	0.010	0.5000	0	101	80	120			
Potassium	47	1.0	50.00	0	94.7	80	120			
Selenium	0.49	0.050	0.5000	0	97.7	80	120			
Vanadium	0.52	0.050	0.5000	0	103	80	120			
Zinc	0.49	0.020	0.5000	0	98.5	80	120			

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605018** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605018**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	110	80	120	0.806	20	
Beryllium	0.52	0.0030	0.5000	0	105	80	120	0.0553	20	
Cadmium	0.52	0.0020	0.5000	0	104	80	120	1.39	20	
Calcium	47	1.0	50.00	0	94.4	80	120	0.153	20	
Cobalt	0.49	0.0060	0.5000	0	97.0	80	120	1.02	20	
Copper	0.52	0.0060	0.5000	0	103	80	120	1.22	20	
Iron	0.49	0.050	0.5000	0	98.7	80	120	0.110	20	
Magnesium	48	1.0	50.00	0	95.3	80	120	0.952	20	
Manganese	0.50	0.0020	0.5000	0	99.8	80	120	0.00601	20	
Nickel	0.51	0.010	0.5000	0	101	80	120	0.00395	20	
Potassium	47	1.0	50.00	0	93.4	80	120	1.31	20	
Selenium	0.53	0.050	0.5000	0	106	80	120	8.29	20	
Vanadium	0.52	0.050	0.5000	0	103	80	120	0.240	20	
Zinc	0.49	0.020	0.5000	0	98.7	80	120	0.254	20	

Sample ID **MB-36855**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**							
Client ID: **PBW**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605019**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Barium	ND	0.020								
Lead	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605021**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.50	0.050	0.5000	0	101	80	120			
Barium	0.51	0.020	0.5000	0	102	80	120			
Lead	0.50	0.0050	0.5000	0	101	80	120			
Silver	0.10	0.0050	0.1000	0	101	80	120			
Sodium	47	1.0	50.00	0	94.6	80	120			
Thallium	0.49	0.050	0.5000	0	98.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	LCSD-36855	SampType:	LCSD		TestCode:	EPA 6010B: Metals				
Client ID:	LCSS02	Batch ID:	36855		RunNo:	49620				
Prep Date:	3/6/2018	Analysis Date:	3/7/2018		SeqNo:	1605022	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.51	0.050	0.5000	0	102	80	120	1.00	20	
Barium	0.51	0.020	0.5000	0	102	80	120	0.114	20	
Lead	0.51	0.0050	0.5000	0	101	80	120	0.131	20	
Silver	0.10	0.0050	0.1000	0	102	80	120	0.913	20	
Sodium	46	1.0	50.00	0	92.7	80	120	2.00	20	
Thallium	0.51	0.050	0.5000	0	102	80	120	3.95	20	

Sample ID	MB-36855	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	36855		RunNo:	49727				
Prep Date:	3/6/2018	Analysis Date:	3/12/2018		SeqNo:	1608906	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060								

Sample ID	LCS-36855	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	36855		RunNo:	49727				
Prep Date:	3/6/2018	Analysis Date:	3/12/2018		SeqNo:	1608908	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.49	0.0060	0.5000	0	97.3	80	120			

Sample ID	LCSD-36855	SampType:	LCSD		TestCode:	EPA 6010B: Metals				
Client ID:	LCSS02	Batch ID:	36855		RunNo:	49727				
Prep Date:	3/6/2018	Analysis Date:	3/12/2018		SeqNo:	1608909	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.50	0.0060	0.5000	0	99.4	80	120	2.07	20	

Sample ID	MB-36855	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	36855		RunNo:	49740				
Prep Date:	3/6/2018	Analysis Date:	3/13/2018		SeqNo:	1608962	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								

Sample ID	LCS-36855	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	36855		RunNo:	49740				
Prep Date:	3/6/2018	Analysis Date:	3/13/2018		SeqNo:	1608964	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49740**							
Prep Date: **3/6/2018**	Analysis Date: **3/13/2018**	SeqNo: **1608964**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.52	0.020	0.5000	0	105	80	120			

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49740**							
Prep Date: **3/6/2018**	Analysis Date: **3/13/2018**	SeqNo: **1608965**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.51	0.020	0.5000	0	102	80	120	2.38	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001a dup** SampType: **DUP** TestCode: **SM4500-H+B / 9040C: pH**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R49344** RunNo: **49344**

Prep Date: Analysis Date: **2/22/2018** SeqNo: **1592953** Units: **pH units**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.57									*H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-R49787**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R49787**	RunNo: **49787**							
Prep Date:	Analysis Date: **2/23/2018**	SeqNo: **1610825**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID **LCS-R49787**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R49787**	RunNo: **49787**							
Prep Date:	Analysis Date: **2/23/2018**	SeqNo: **1610826**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.107		0.1000	0	107	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-R49787**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R49787**	RunNo: **49787**
Prep Date:	Analysis Date: **2/20/2018**	SeqNo: **1610828** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID **LCS-R49787**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R49787**	RunNo: **49787**
Prep Date:	Analysis Date: **2/20/2018**	SeqNo: **1610829** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.50		0.5000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592876**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592877**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.16	20.00	80.00	0	99.0	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592900**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592901**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.04	20.00	80.00	0	100	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36630**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **36630**	RunNo: **49297**
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**	SeqNo: **1590748** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-36630**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **36630**	RunNo: **49297**
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**	SeqNo: **1590749** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1802968 RcptNo: 1

Received By: Sophia Campuzano 2/16/2018 9:30:00 AM Sophia Campuzano
Completed By: Anne Thorne 2/19/2018 7:17:43 AM Anne Thorne
Reviewed By:

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 4 2 (<2 or >12 unless noted)
Adjusted? _____
Checked by: AT 02/19/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks: Custody seals intact on sample bottles / AT 02/19/18

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turnaround Time: X Standard Rush

Project Name: Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager: Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1802968	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
2/14/18	1:11	Liquid	WDW-1, 2, & 3 Effluent	15	H2SO4/HNO3/HCL	001	X	X	X	X	X	X	X	X

Date	Time	Relinquished by	Received by	Date	Time
2.15.18	10:00	Brady Hibbard	courier	02/16/18	0930
		Brady Hibbard			

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH: 8.15
Temp: 42.7°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	Contaminant	SW-846 Method	Regulatory Level (mg/l)
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D006	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallower 200 - 250 ftbgs

Need All

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HOLLYFRONTIER.

April 20, 2017

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 6274

RE: 2017 1st Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2017 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1315 psig and the average flows were 129 gpm for WDW-1, 107 gpm for WDW-2 and 140 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2017 to March 31, 2017. We have disposed a total of 1,162,526 barrels of fluid into the three wells during the first quarter of 2017. The volume per well is:

- 398,023 barrels into WDW-1
- 332,126 barrels into WDW-2
- 432,377 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-748-5487.

Respectfully,

Scott Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R. O'Brien, R Orosco, R Combs, M. Holder, L Dade
Environmental File: Injection Wells/Reports C-115 & Quarterly/2017/1st quarter/2017-4-20 1st QTR Inj. Rpt. for Wells WDW-1,2,3

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2017 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	38,368,242
Jan-17	1,390	1,400	1,364	130	144	80	414	690	175	4,028	4,937	2,743	138,103	38,506,345
Feb-17	1,318	1,400	1,195	120	142	96	247	446	134	3,370	4,869	3,291	115,543	38,621,888
Mar-17	1,272	1,400	1,374	136	454	96	419	639	123	4,211	15,566	3,291	144,377	38,766,265
30-015-20894 WDW-2													**Previous Quarter**	25,195,125
Jan-17	1,383	1,400	1,344	132	351	107	249	394	103	4,101	12,034	3,669	140,606	25,335,731
Feb-17	1,313	1,400	1,177	100	118	69	274	407	175	2,801	4,046	2,366	96,034	25,431,765
Mar-17	1,267	1,400	1,081	90	111	54	330	561	192	2,785	3,806	1,851	95,486	25,527,251
30-015-26575 WDW-3													**Previous Quarter**	15,743,225
Jan-17	1,344	1,400	1,248	151	162	119	712	800	629	4,684	5,554	4,080	160,594	15,903,819
Feb-17	1,301	1,400	1,155	142	159	100	714	804	600	3,970	5,451	3,429	136,114	16,039,933
Mar-17	1,246	1,400	1,082	128	157	53	679	859	568	3,957	5,383	1,817	135,669	16,175,602
													Total Injected fluids:	80,469,118

	Monthly Avg.	Monthly Avg.
WDW-1	1,327	129
WDW-2	1,321	107
WDW-3	1,297	140

	Total BBLS	Beginning Volume	Ending Volume
WDW1	398,023	38,368,242	38,766,265
WDW2	332,126	25,195,125	25,527,251
WDW3	432,377	15,743,225	16,175,602
	1,162,526	79,306,592	80,469,118

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 28, 2017

Micki Schultz

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1701255

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/9/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **LGT**
Fluoride	4.2	0.50	*	mg/L	5	1/9/2017 10:45:27 PM
Chloride	800	25		mg/L	50	1/11/2017 1:20:45 AM
Bromide	2.7	0.50		mg/L	5	1/9/2017 10:45:27 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	1/9/2017 10:45:27 PM
Sulfate	1300	25		mg/L	50	1/11/2017 1:20:45 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/10/2017 12:24:43 AM
EPA METHOD 7470: MERCURY						Analyst: **MED**
Mercury	ND	0.00020		mg/L	1	1/10/2017 12:31:08 PM
MERCURY, TCLP						Analyst: **pmf**
Mercury	ND	0.10		mg/L	5	1/11/2017 5:09:34 PM
EPA METHOD 6010B: TCLP METALS						Analyst: **pmf**
Arsenic	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Barium	ND	100		mg/L	1	1/20/2017 12:57:03 PM
Cadmium	ND	1.0		mg/L	1	1/20/2017 12:57:03 PM
Chromium	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Lead	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Selenium	ND	1.0		mg/L	1	1/20/2017 12:57:03 PM
Silver	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
EPA 6010B: METALS						Analyst: **pmf**
Aluminum	0.62	0.020		mg/L	1	1/18/2017 2:20:24 PM
Antimony	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Arsenic	0.026	0.020		mg/L	1	1/18/2017 2:20:24 PM
Barium	0.025	0.020		mg/L	1	1/18/2017 2:20:24 PM
Beryllium	ND	0.0030		mg/L	1	1/18/2017 2:20:24 PM
Cadmium	ND	0.0020		mg/L	1	1/18/2017 2:20:24 PM
Calcium	99	5.0		mg/L	5	1/18/2017 3:52:07 PM
Chromium	ND	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Cobalt	ND	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Copper	0.011	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Iron	1.3	0.050		mg/L	1	1/18/2017 2:20:24 PM
Lead	ND	0.0050		mg/L	1	1/18/2017 2:20:24 PM
Magnesium	31	1.0		mg/L	1	1/18/2017 2:20:24 PM
Manganese	0.13	0.0020		mg/L	1	1/18/2017 2:20:24 PM
Nickel	0.011	0.010		mg/L	1	1/18/2017 2:20:24 PM
Potassium	31	1.0		mg/L	1	1/18/2017 2:20:24 PM
Selenium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Silver	ND	0.0050		mg/L	1	1/18/2017 2:20:24 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

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Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: METALS						Analyst: **pmf**
Sodium	950	20		mg/L	20	1/20/2017 1:05:10 PM
Thallium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Vanadium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Zinc	ND	0.020		mg/L	1	1/18/2017 2:20:24 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
2-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Acetonitrile	ND	2.5		µg/L	1	1/16/2017
Allyl chloride	ND	0.50		µg/L	1	1/16/2017
Chloroprene	ND	0.50		µg/L	1	1/16/2017
Cyclohexane	ND	2.0		µg/L	1	1/16/2017
Diethyl ether	ND	2.0		µg/L	1	1/16/2017
Diisopropyl ether	ND	2.0		µg/L	1	1/16/2017
Epichlorohydrin	ND	5.0		µg/L	1	1/16/2017
Ethyl acetate	ND	2.0		µg/L	1	1/16/2017
Ethyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Ethyl tert-butyl ether	ND	2.0		µg/L	1	1/16/2017
Freon-113	ND	2.0		µg/L	1	1/16/2017
Isobutanol	ND	10		µg/L	1	1/16/2017
Isopropyl acetate	ND	2.0		µg/L	1	1/16/2017
Methacrylonitrile	ND	2.5		µg/L	1	1/16/2017
Methyl acetate	ND	2.0		µg/L	1	1/16/2017
Methyl ethyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl isobutyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Methylcyclohexane	ND	2.0		µg/L	1	1/16/2017
n-Amyl acetate	ND	2.0		µg/L	1	1/16/2017
n-Hexane	ND	2.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
Pentachloroethane	ND	5.0		µg/L	1	1/16/2017
p-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Propionitrile	ND	2.5		µg/L	1	1/16/2017
Tetrahydrofuran	ND	0.50		µg/L	1	1/16/2017
Benzene	ND	0.50		µg/L	1	1/16/2017
Toluene	ND	0.50		µg/L	1	1/16/2017
Ethylbenzene	ND	0.50		µg/L	1	1/16/2017
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	1/16/2017
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	1/16/2017

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EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	1/16/2017
Naphthalene	ND	0.50		µg/L	1	1/16/2017
Acetone	8.4	2.5		µg/L	1	1/16/2017
Bromobenzene	ND	0.50		µg/L	1	1/16/2017
Bromodichloromethane	ND	0.50		µg/L	1	1/16/2017
Bromoform	ND	0.50		µg/L	1	1/16/2017
Bromomethane	ND	0.50		µg/L	1	1/16/2017
2-Butanone	ND	2.5		µg/L	1	1/16/2017
Carbon disulfide	0.56	0.50		µg/L	1	1/16/2017
Carbon Tetrachloride	ND	0.50		µg/L	1	1/16/2017
Chlorobenzene	ND	0.50		µg/L	1	1/16/2017
Chloroethane	5.9	0.50		µg/L	1	1/16/2017
Chloroform	ND	0.50		µg/L	1	1/16/2017
Chloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
4-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
cis-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	1/16/2017
Dibromochloromethane	ND	0.50		µg/L	1	1/16/2017
Dibromomethane	ND	0.50		µg/L	1	1/16/2017
1,2-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,3-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,4-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
Dichlorodifluoromethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,3-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
2,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	0.50		µg/L	1	1/16/2017
2-Hexanone	ND	0.50		µg/L	1	1/16/2017
Isopropylbenzene	ND	0.50		µg/L	1	1/16/2017
Methylene Chloride	ND	2.5		µg/L	1	1/16/2017
n-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
n-Propylbenzene	ND	0.50		µg/L	1	1/16/2017
sec-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
Styrene	ND	0.50		µg/L	1	1/16/2017

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Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
tert-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	1/16/2017
trans-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
Trichloroethene (TCE)	ND	0.50		µg/L	1	1/16/2017
Trichlorofluoromethane	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichloropropane	ND	0.50		µg/L	1	1/16/2017
Vinyl chloride	ND	0.50		µg/L	1	1/16/2017
mp-Xylenes	ND	1.0		µg/L	1	1/16/2017
o-Xylene	ND	0.50		µg/L	1	1/16/2017
tert-Amyl methyl ether	ND	2.0		µg/L	1	1/16/2017
tert-Butyl alcohol	ND	10		µg/L	1	1/16/2017
Acrolein	ND	2.5		µg/L	1	1/16/2017
Acrylonitrile	ND	2.5		µg/L	1	1/16/2017
Bromochloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chloroethyl vinyl ether	ND	4.0		µg/L	1	1/16/2017
Iodomethane	ND	0.50		µg/L	1	1/16/2017
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	1/16/2017
Vinyl acetate	ND	0.50		µg/L	1	1/16/2017
1,4-Dioxane	ND	20		µg/L	1	1/16/2017
Surr: 1,2-Dichlorobenzene-d4	103	70-130		%Rec	1	1/16/2017
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	1/16/2017
Surr: Toluene-d8	106	70-130		%Rec	1	1/16/2017
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
1,1-Biphenyl	ND	0.50		µg/L	1	1/16/2017
Atrazine	ND	0.50		µg/L	1	1/16/2017
Benzaldehyde	1.4	0.50		µg/L	1	1/16/2017
Caprolactam	ND	0.50		µg/L	1	1/16/2017
N-Nitroso-di-n-butylamine	ND	0.50		µg/L	1	1/16/2017
Acetophenone	ND	5.0		µg/L	1	1/16/2017
1-Methylnaphthalene	ND	5.0		µg/L	1	1/16/2017
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	1/16/2017

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Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dichlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dimethylphenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dinitrophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dinitrotoluene	ND	5.0		µg/L	1	1/16/2017
2,6-Dinitrotoluene	ND	5.0		µg/L	1	1/16/2017
2-Chloronaphthalene	ND	5.0		µg/L	1	1/16/2017
2-Chlorophenol	ND	5.0		µg/L	1	1/16/2017
2-Methylnaphthalene	ND	5.0		µg/L	1	1/16/2017
2-Methylphenol	ND	5.0		µg/L	1	1/16/2017
2-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
2-Nitrophenol	ND	5.0		µg/L	1	1/16/2017
3,3´-Dichlorobenzidine	ND	5.0		µg/L	1	1/16/2017
3-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	1/16/2017
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	1/16/2017
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	1/16/2017
4-Chloroaniline	ND	5.0		µg/L	1	1/16/2017
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	1/16/2017
4-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
4-Nitrophenol	ND	5.0		µg/L	1	1/16/2017
Acenaphthene	ND	5.0		µg/L	1	1/16/2017
Acenaphthylene	ND	5.0		µg/L	1	1/16/2017
Anthracene	ND	5.0		µg/L	1	1/16/2017
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	1/16/2017
Benz(a)anthracene	ND	0.50		µg/L	1	1/16/2017
Benzo(a)pyrene	ND	0.50		µg/L	1	1/16/2017
Benzo(b)fluoranthene	ND	0.50		µg/L	1	1/16/2017
Benzo(k)fluoranthene	ND	0.50		µg/L	1	1/16/2017
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	1/16/2017
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	1/16/2017
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	1/16/2017
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	1/16/2017
Butyl benzyl phthalate	ND	5.0		µg/L	1	1/16/2017
Carbazole	ND	5.0		µg/L	1	1/16/2017
Chrysene	ND	0.50		µg/L	1	1/16/2017
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	1/16/2017
Dibenzofuran	ND	5.0		µg/L	1	1/16/2017
Diethyl phthalate	ND	5.0		µg/L	1	1/16/2017

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EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
Dimethyl phthalate	ND	5.0		µg/L	1	1/16/2017
Di-n-butyl phthalate	ND	5.0		µg/L	1	1/16/2017
Di-n-octyl phthalate	ND	5.0		µg/L	1	1/16/2017
Fluoranthene	ND	5.0		µg/L	1	1/16/2017
Fluorene	ND	5.0		µg/L	1	1/16/2017
Hexachlorobenzene	ND	1.0		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	5.0		µg/L	1	1/16/2017
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	1/16/2017
Hexachloroethane	ND	5.0		µg/L	1	1/16/2017
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	1/16/2017
Isophorone	ND	5.0		µg/L	1	1/16/2017
Naphthalene	ND	5.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	1/16/2017
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	1/16/2017
Pentachlorophenol	ND	5.0		µg/L	1	1/16/2017
Phenanthrene	ND	5.0		µg/L	1	1/16/2017
Phenol	ND	5.0		µg/L	1	1/16/2017
Pyrene	ND	5.0		µg/L	1	1/16/2017
o-Toluidine	ND	2.0		µg/L	1	1/16/2017
Pyridine	ND	5.0		µg/L	1	1/16/2017
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	1/16/2017
Surr: 2,4,6-Tribromophenol	134	63-110	S	%Rec	1	1/16/2017
Surr: 2-Fluorobiphenyl	88.4	58-112		%Rec	1	1/16/2017
Surr: 2-Fluorophenol	88.2	47-109		%Rec	1	1/16/2017
Surr: Nitrobenzene-d5	99.6	58-110		%Rec	1	1/16/2017
Surr: Phenol-d5	97.0	52-105		%Rec	1	1/16/2017
Surr: Terphenyl-d14	23.9	22-133		%Rec	1	1/16/2017
CORROSIVITY						Analyst: **SUB**
pH	7.47			pH Units	1	1/12/2017
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>200			°F	1	1/12/2017
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	0.0802	0.0100		mg/L	1	1/18/2017
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	0.50	0.50		mg/L	1	1/16/2017
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5300	1.0		µmhos/cm	1	1/9/2017 3:38:00 PM
SM4500-H+B: PH						Analyst: **JRR**
pH	7.51	1.68	H	pH units	1	1/9/2017 3:38:00 PM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	165.9	20.00		mg/L CaCO3	1	1/11/2017 4:55:22 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	1/11/2017 4:55:22 PM
Total Alkalinity (as CaCO3)	165.9	20.00		mg/L CaCO3	1	1/11/2017 4:55:22 PM
SPECIFIC GRAVITY						Analyst: **LGT**
Specific Gravity	1.000	0			1	1/10/2017 12:21:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3310	40.0	*D	mg/L	1	1/11/2017 5:59:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
2-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Acetonitrile	ND	2.5		µg/L	1	1/16/2017
Allyl chloride	ND	0.50		µg/L	1	1/16/2017
Chloroprene	ND	0.50		µg/L	1	1/16/2017
Cyclohexane	ND	2.0		µg/L	1	1/16/2017
Diethyl ether	ND	2.0		µg/L	1	1/16/2017
Diisopropyl ether	ND	2.0		µg/L	1	1/16/2017
Epichlorohydrin	ND	5.0		µg/L	1	1/16/2017
Ethyl acetate	ND	2.0		µg/L	1	1/16/2017
Ethyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Ethyl tert-butyl ether	ND	2.0		µg/L	1	1/16/2017
Freon-113	ND	2.0		µg/L	1	1/16/2017
Isobutanol	ND	10		µg/L	1	1/16/2017
Isopropyl acetate	ND	2.0		µg/L	1	1/16/2017
Methacrylonitrile	ND	2.5		µg/L	1	1/16/2017
Methyl acetate	ND	2.0		µg/L	1	1/16/2017
Methyl ethyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl isobutyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Methylcyclohexane	ND	2.0		µg/L	1	1/16/2017
n-Amyl acetate	ND	2.0		µg/L	1	1/16/2017
n-Hexane	ND	2.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
Pentachloroethane	ND	5.0		µg/L	1	1/16/2017
p-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Propionitrile	ND	2.5		µg/L	1	1/16/2017
Tetrahydrofuran	ND	0.50		µg/L	1	1/16/2017
Benzene	ND	0.50		µg/L	1	1/16/2017
Toluene	ND	0.50		µg/L	1	1/16/2017
Ethylbenzene	ND	0.50		µg/L	1	1/16/2017
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	1/16/2017
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	1/16/2017
Naphthalene	ND	0.50		µg/L	1	1/16/2017
Acetone	ND	2.5		µg/L	1	1/16/2017
Bromobenzene	ND	0.50		µg/L	1	1/16/2017
Bromodichloromethane	ND	0.50		µg/L	1	1/16/2017

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
Bromoform	ND	0.50		µg/L	1	1/16/2017
Bromomethane	ND	0.50		µg/L	1	1/16/2017
2-Butanone	ND	2.5		µg/L	1	1/16/2017
Carbon disulfide	ND	0.50		µg/L	1	1/16/2017
Carbon Tetrachloride	ND	0.50		µg/L	1	1/16/2017
Chlorobenzene	ND	0.50		µg/L	1	1/16/2017
Chloroethane	ND	0.50		µg/L	1	1/16/2017
Chloroform	ND	0.50		µg/L	1	1/16/2017
Chloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
4-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
cis-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	1/16/2017
Dibromochloromethane	ND	0.50		µg/L	1	1/16/2017
Dibromomethane	ND	0.50		µg/L	1	1/16/2017
1,2-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,3-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,4-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
Dichlorodifluoromethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,3-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
2,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	0.50		µg/L	1	1/16/2017
2-Hexanone	ND	0.50		µg/L	1	1/16/2017
Isopropylbenzene	ND	0.50		µg/L	1	1/16/2017
Methylene Chloride	ND	2.5		µg/L	1	1/16/2017
n-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
n-Propylbenzene	ND	0.50		µg/L	1	1/16/2017
sec-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
Styrene	ND	0.50		µg/L	1	1/16/2017
tert-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	1/16/2017
trans-1,2-DCE	ND	0.50		µg/L	1	1/16/2017

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Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well **Collection Date:** 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
Trichloroethene (TCE)	ND	0.50		µg/L	1	1/16/2017
Trichlorofluoromethane	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichloropropane	ND	0.50		µg/L	1	1/16/2017
Vinyl chloride	ND	0.50		µg/L	1	1/16/2017
mp-Xylenes	ND	1.0		µg/L	1	1/16/2017
o-Xylene	ND	0.50		µg/L	1	1/16/2017
tert-Amyl methyl ether	ND	2.0		µg/L	1	1/16/2017
tert-Butyl alcohol	ND	10		µg/L	1	1/16/2017
Acrolein	ND	2.5		µg/L	1	1/16/2017
Acrylonitrile	ND	2.5		µg/L	1	1/16/2017
Bromochloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chloroethyl vinyl ether	ND	4.0		µg/L	1	1/16/2017
Iodomethane	ND	0.50		µg/L	1	1/16/2017
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	1/16/2017
Vinyl acetate	ND	0.50		µg/L	1	1/16/2017
1,4-Dioxane	ND	20		µg/L	1	1/16/2017
Surr: 1,2-Dichlorobenzene-d4	101	70-130		%Rec	1	1/16/2017
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	1/16/2017
Surr: Toluene-d8	104	70-130		%Rec	1	1/16/2017

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R39919**	RunNo: **39919**
Prep Date:	Analysis Date: **1/9/2017**	SeqNo: **1251098** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R39919**	RunNo: **39919**
Prep Date:	Analysis Date: **1/9/2017**	SeqNo: **1251099** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.8	90	110			
Bromide	2.5	0.10	2.500	0	99.5	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.9	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R39952**	RunNo: **39952**
Prep Date:	Analysis Date: **1/10/2017**	SeqNo: **1251860** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R39952**	RunNo: **39952**
Prep Date:	Analysis Date: **1/10/2017**	SeqNo: **1251861** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.2	90	110			
Sulfate	9.4	0.50	10.00	0	94.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279689** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,1-Dichloropropene	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
2-Butanone	ND	2.5								
2-Hexanone	ND	0.50								
Acetone	ND	2.5								
Acetonitrile	ND	2.5								
Acrolein	ND	2.5								
Acrylonitrile	ND	2.5								
Allyl chloride	ND	0.50								
Benzene	ND	0.50								
Bromochloromethane	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
Chloroprene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
Dichlorodifluoromethane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**		TestCode: **EPA Method 8260B: VOLATILES**		
Client ID: **PBW**	Batch ID: **R40852**		RunNo: **40852**		
Prep Date:	Analysis Date: **1/16/2017**		SeqNo: **1279689**	Units: **µg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Ethyl methacrylate	ND	2.5								
Ethylbenzene	ND	0.50								
Iodomethane	ND	0.50								
Isobutanol	ND	10								
mp-Xylenes	ND	1.0								
Methacrylonitrile	ND	2.5								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	2.5								
Methylene Chloride	ND	2.5								
o-Xylene	ND	0.50								
Propionitrile	ND	2.5								
Styrene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
Toluene	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
Vinyl acetate	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
Vinyl chloride	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dioxane	ND	20								
2-Chloroethyl vinyl ether	ND	4.0								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
Bromobenzene	ND	0.50								
Cyclohexane	ND	2.0								
Diethyl ether	ND	2.0								
Diisopropyl ether	ND	2.0								
Epichlorohydrin	ND	5.0								
Ethyl acetate	ND	2.0								
Ethyl tert-butyl ether	ND	2.0								
Freon-113	ND	2.0								
Hexachlorobutadiene	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **R40852** RunNo: **40852**
Prep Date: Analysis Date: **1/16/2017** SeqNo: **1279689** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Isopropyl acetate	ND	2.0								
Isopropylbenzene	ND	0.50								
Methyl acetate	ND	2.0								
Methylcyclohexane	ND	2.0								
Methyl tert-butyl ether (MTBE)	ND	10								
n-Amyl acetate	ND	2.0								
Naphthalene	ND	0.50								
n-Butylbenzene	ND	0.50								
n-Hexane	ND	2.0								
Nitrobenzene	ND	5.0								
n-Propylbenzene	ND	0.50								
Pentachloroethane	ND	5.0								
p-isopropyltoluene	ND	0.50								
sec-Butylbenzene	ND	0.50								
tert-Amyl methyl ether	ND	2.0								
tert-Butyl alcohol	ND	10								
tert-Butylbenzene	ND	0.50								
Tetrahydrofuran	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
2,2-Dichloropropane	ND	0.50								
2-isopropyltoluene	ND	0.50								

Sample ID **LCS-R40852** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW** Batch ID: **R40852** RunNo: **40852**
Prep Date: Analysis Date: **1/16/2017** SeqNo: **1279690** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	2.1		2.000	0	107	80	120			
Benzene	2.0		2.000	0	102	80	120			
Chlorobenzene	1.9		2.000	0	96.5	80	120			
Ethylbenzene	2.0		2.000	0	99.2	80	120			
o-Xylene	2.0		2.000	0	102	80	120			
Tetrachloroethene (PCE)	1.9		2.000	0	95.0	80	120			
Toluene	2.1		2.000	0	106	80	120			
Trichloroethene (TCE)	2.1		2.000	0	103	80	120			
Cyclohexane	3.9		4.000	0	96.5	70	130			
n-Hexane	3.8		4.000	0	94.0	70	130			
Tetrahydrofuran	1.7		2.000	0	84.4	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279692** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	0.50								
Atrazine	ND	0.50								
Benzaldehyde	ND	0.50								
Caprolactam	ND	0.50								
N-Nitroso-di-n-butylamine	ND	0.50								
Acetophenone	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2,3,4,6-Tetrachlorophenol	ND	0.50								
2,4,5-Trichlorophenol	ND	0.50								
2,4,6-Trichlorophenol	ND	0.50								
2,4-Dichlorophenol	ND	0.50								
2,4-Dimethylphenol	ND	0.50								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
2-Chloronaphthalene	ND	0.50								
2-Chlorophenol	ND	0.50								
2-Methylnaphthalene	ND	0.50								
2-Methylphenol	ND	0.50								
2-Nitroaniline	ND	0.50								
2-Nitrophenol	ND	0.50								
3,3´-Dichlorobenzidine	ND	0.50								
3-Nitroaniline	ND	0.50								
4,6-Dinitro-2-methylphenol	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.50								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
4-Chlorophenyl phenyl ether	ND	0.50								
4-Nitroaniline	ND	0.50								
4-Nitrophenol	ND	0.50								
Acenaphthene	ND	0.50								
Acenaphthylene	ND	0.50								
Anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								
Benzo(k)fluoranthene	ND	0.50								
Bis(2-chloroethoxy)methane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279692** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroethyl)ether	ND	0.50								
Bis(2-chloroisopropyl)ether	ND	0.50								
Bis(2-ethylhexyl)phthalate	ND	0.50								
Butyl benzyl phthalate	ND	0.50								
Carbazole	ND	0.50								
Chrysene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Dibenzofuran	ND	0.50								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.50								
Di-n-butyl phthalate	ND	0.50								
Di-n-octyl phthalate	ND	0.50								
Fluoranthene	ND	0.50								
Fluorene	ND	0.50								
Hexachlorobenzene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
Hexachlorocyclopentadiene	ND	0.50								
Hexachloroethane	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Isophorone	ND	0.50								
Naphthalene	ND	0.50								
Nitrobenzene	ND	0.50								
N-Nitrosodi-n-propylamine	ND	0.50								
N-Nitrosodiphenylamine	ND	0.50								
Pentachlorophenol	ND	0.50								
Phenanthrene	ND	0.50								
Phenol	ND	0.50								
Pyrene	ND	0.50								
o-Toluidine	ND	0.50								
Pyridine	ND	0.50								
1,2,4,5-Tetrachlorobenzene	ND	0.50								

Sample ID **LCS-R40852**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279693** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	3.9	0.50	5.000	0	78.8	49	145			
2-Chlorophenol	4.1		5.000	0	81.6	50	131			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**LCS-R40852**	SampType:	**LCS**		TestCode:	**EPA 8270C: Semivolatiles/Mod**				
Client ID:	**LCSW**	Batch ID:	**R40852**		RunNo:	**40852**				
Prep Date:		Analysis Date:	**1/16/2017**		SeqNo:	**1279693**	Units:	**µg/L**		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chloro-3-methylphenol		4.6		5.000	0	93.0	42	139			
4-Nitrophenol		2.8		5.000	0	55.8	19	137			
Acenaphthene		4.5		5.000	0	89.6	36	131			
Bis(2-ethylhexyl)phthalate		4.6		5.000	0	91.6	43	148			
N-Nitrosodi-n-propylamine		4.8		5.000	0	96.4	46	135			
Pentachlorophenol		4.4		5.000	0	87.2	22	138			
Phenol		3.6		5.000	0	71.0	45	134			
Pyrene		4.8		5.000	0	95.6	45	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-29607**	SampType: **MBLK**			TestCode: **EPA Method 7470: Mercury**						
Client ID: **PBW**	Batch ID: **29607**			RunNo: **39928**						
Prep Date: **1/9/2017**	Analysis Date: **1/10/2017**			SeqNo: **1251289**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-29607**	SampType: **LCS**			TestCode: **EPA Method 7470: Mercury**						
Client ID: **LCSW**	Batch ID: **29607**			RunNo: **39928**						
Prep Date: **1/9/2017**	Analysis Date: **1/10/2017**			SeqNo: **1251290**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29638**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252475**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-29638**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252476**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.7	80	120			

Sample ID	**1701255-001CMS**	SampType:	**MS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252485**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.10	0.005000	0	116	75	125			

Sample ID	**1701255-001CMSD**	SampType:	**MSD**	TestCode:	**MERCURY, TCLP**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252486**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.10	0.005000	0	114	75	125	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29669**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**PBW**	Batch ID:	**29669**	RunNo:	**40172**					
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259320**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID	**LCS-29669**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**LCSW**	Batch ID:	**29669**	RunNo:	**40172**					
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259321**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.6	80	120			
Barium	ND	100	0.5000	0	97.4	80	120			
Cadmium	ND	1.0	0.5000	0	101	80	120			
Chromium	ND	5.0	0.5000	0	97.3	80	120			
Lead	ND	5.0	0.5000	0	98.1	80	120			
Selenium	ND	1.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001BMS** SampType: **MS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258095** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.3	0.020	0.5000	0.6211	130	75	125			S
Antimony	0.53	0.050	0.5000	0	106	75	125			
Arsenic	0.57	0.020	0.5000	0.02614	109	75	125			
Barium	0.53	0.020	0.5000	0.02451	102	75	125			
Beryllium	0.52	0.0030	0.5000	0	104	75	125			
Cadmium	0.53	0.0020	0.5000	0	105	75	125			
Chromium	0.50	0.0060	0.5000	0	99.5	75	125			
Cobalt	0.50	0.0060	0.5000	0.001980	100	75	125			
Copper	0.59	0.0060	0.5000	0.01121	117	75	125			
Iron	1.8	0.050	0.5000	1.346	91.7	75	125			
Lead	0.51	0.0050	0.5000	0	102	75	125			
Magnesium	80	1.0	50.00	30.99	98.8	75	125			
Manganese	0.64	0.0020	0.5000	0.1301	101	75	125			
Nickel	0.51	0.010	0.5000	0.01117	99.1	75	125			
Potassium	80	1.0	50.00	30.50	98.6	75	125			
Selenium	0.52	0.050	0.5000	0	105	75	125			
Silver	0.11	0.0050	0.1000	0	107	75	125			
Thallium	0.56	0.050	0.5000	0.04293	104	75	125			
Vanadium	0.53	0.050	0.5000	0.004290	106	75	125			
Zinc	0.52	0.020	0.5000	0.01969	99.7	75	125			

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.3	0.020	0.5000	0.6211	134	75	125	1.38	20	S
Antimony	0.53	0.050	0.5000	0	105	75	125	0.685	20	
Arsenic	0.57	0.020	0.5000	0.02614	108	75	125	1.24	20	
Barium	0.53	0.020	0.5000	0.02451	102	75	125	0.204	20	
Beryllium	0.52	0.0030	0.5000	0	104	75	125	0.557	20	
Cadmium	0.53	0.0020	0.5000	0	105	75	125	0.243	20	
Chromium	0.50	0.0060	0.5000	0	99.2	75	125	0.346	20	
Cobalt	0.50	0.0060	0.5000	0.001980	99.9	75	125	0.559	20	
Copper	0.59	0.0060	0.5000	0.01121	116	75	125	0.300	20	
Iron	1.8	0.050	0.5000	1.346	98.2	75	125	1.79	20	
Lead	0.51	0.0050	0.5000	0	102	75	125	0.513	20	
Magnesium	80	1.0	50.00	30.99	98.0	75	125	0.479	20	
Manganese	0.64	0.0020	0.5000	0.1301	101	75	125	0.130	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	0.51	0.010	0.5000	0.01117	99.0	75	125	0.142	20	
Potassium	79	1.0	50.00	30.50	97.5	75	125	0.698	20	
Selenium	0.55	0.050	0.5000	0	111	75	125	5.59	20	
Silver	0.11	0.0050	0.1000	0	108	75	125	0.214	20	
Thallium	0.57	0.050	0.5000	0.04293	106	75	125	1.14	20	
Vanadium	0.53	0.050	0.5000	0.004290	105	75	125	0.120	20	
Zinc	0.52	0.020	0.5000	0.01969	99.9	75	125	0.172	20	

Sample ID **1701255-001BPS** SampType: **PS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: Analysis Date: **1/18/2017** SeqNo: **1258097** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.2	0.020	0.5000	0.6211	124	80	120			S

Sample ID **1701255-001BMS** SampType: **MS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258099** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	150	5.0	50.00	98.98	97.6	75	125			

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258100** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	150	5.0	50.00	98.98	103	75	125	1.92	20	

Sample ID **MB-29669** SampType: **MBLK** TestCode: **EPA 6010B: Metals**
Client ID: **PBW** Batch ID: **29669** RunNo: **40172**
Prep Date: **1/12/2017** Analysis Date: **1/20/2017** SeqNo: **1259232** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-29669**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**							
Client ID: **PBW**	Batch ID: **29669**	RunNo: **40172**							
Prep Date: **1/12/2017**	Analysis Date: **1/20/2017**	SeqNo: **1259232**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-29669**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **29669**	RunNo: **40172**							
Prep Date: **1/12/2017**	Analysis Date: **1/20/2017**	SeqNo: **1259233**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	111	80	120			
Antimony	0.52	0.050	0.5000	0	104	80	120			
Arsenic	0.50	0.020	0.5000	0	99.6	80	120			
Barium	0.49	0.020	0.5000	0	97.4	80	120			
Beryllium	0.51	0.0030	0.5000	0	102	80	120			
Cadmium	0.50	0.0020	0.5000	0	101	80	120			
Calcium	48	1.0	50.00	0	96.9	80	120			
Chromium	0.49	0.0060	0.5000	0	97.3	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.8	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.49	0.050	0.5000	0	97.1	80	120			
Lead	0.49	0.0050	0.5000	0	98.1	80	120			
Magnesium	49	1.0	50.00	0	98.3	80	120			
Manganese	0.48	0.0020	0.5000	0	96.2	80	120			
Nickel	0.48	0.010	0.5000	0	96.2	80	120			
Potassium	48	1.0	50.00	0	95.5	80	120			
Selenium	0.51	0.050	0.5000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**LCS-29669**	SampType:	**LCS**	TestCode:	**EPA 6010B: Metals**		
Client ID:	**LCSW**	Batch ID:	**29669**	RunNo:	**40172**		
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259233**	Units:	**mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.10	0.0050	0.1000	0	101	80	120			
Sodium	49	1.0	50.00	0	97.6	80	120			
Thallium	0.53	0.050	0.5000	0	106	80	120			
Vanadium	0.50	0.050	0.5000	0	100	80	120			
Zinc	0.48	0.020	0.5000	0	95.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-R40852**	SampType:	**MBLK**	TestCode:	**CYANIDE, Reactive**					
Client ID:	**PBW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/18/2017**	SeqNo:	**1279635**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.0100								

Sample ID	**LCS-R40852**	SampType:	**LCS**	TestCode:	**CYANIDE, Reactive**					
Client ID:	**LCSW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/18/2017**	SeqNo:	**1279636**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.486		0.5000	0	97.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-R40852**	SampType:	**MBLK**	TestCode:	**SULFIDE, Reactive**					
Client ID:	**PBW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/16/2017**	SeqNo:	**1279640**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.50								

Sample ID	**LCS-R40852**	SampType:	**LCS**	TestCode:	**SULFIDE, Reactive**					
Client ID:	**LCSW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/16/2017**	SeqNo:	**1279641**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**mb-1**	SampType:	**mblk**	TestCode:	**SM2320B: Alkalinity**					
Client ID:	**PBW**	Batch ID:	**R39972**	RunNo:	**39972**					
Prep Date:		Analysis Date:	**1/11/2017**	SeqNo:	**1252683**	Units:	**mg/L CaCO3**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	**lcs-1**	SampType:	**lcs**	TestCode:	**SM2320B: Alkalinity**					
Client ID:	**LCSW**	Batch ID:	**R39972**	RunNo:	**39972**					
Prep Date:		Analysis Date:	**1/11/2017**	SeqNo:	**1252684**	Units:	**mg/L CaCO3**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.84	20.00	80.00	0	97.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R39926** RunNo: **39926**
Prep Date: Analysis Date: **1/10/2017** SeqNo: **1251236** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.0600	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29623**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**29623**	RunNo:	**39966**					
Prep Date:	**1/10/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252489**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-29623**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**29623**	RunNo:	**39966**					
Prep Date:	**1/10/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252490**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1060	20.0	1000	0	106	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1701255 RcptNo: 1

Received by/date: RE 01/09/17

Logged By: **Ashley Gallegos** 1/9/2017 9:20:00 AM

Completed By: **Ashley Gallegos** 1/9/2017 10:01:26 AM

Reviewed By: 01/09/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes	No	Not Present ✔
2. Is Chain of Custody complete?	Yes ✔	No	Not Present
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ✔	No	NA
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
6. Sample(s) in proper container(s)?	Yes ✔	No	
7. Sufficient sample volume for indicated test(s)?	Yes ✔	No	
8. Are samples (except VOA and ONG) properly preserved?	Yes ✔	No	
9. Was preservative added to bottles?	Yes	No ✔	NA
10. VOA vials have zero headspace?	Yes ✔	No	No VOA Vials
11. Were any sample containers received broken?	Yes	No ✔	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	# of preserved bottles checked for pH: 2,2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ✔	No	Adjusted? NO
14. Is it clear what analyses were requested?	Yes ✔	No	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes No NA ✔

Person Notified: Date

By Whom: Via: eMail Phone Fax In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standar ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:
Micki Schultz / Scott Denton / Mike Holder

Sampler: Brady Hubbard

On Ice: ☒ Yes ☐ No

Sample Temperature: 1 - 3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1701257	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
1/5/17	3:57	Liquid	Trip Blank	2	Neat	-002		X					
1/5/17	xxx	Liquid	Temperature Blank	1	Neat	-002							

Date:	Time:	Relinquished by:	Received by:	Date	Time
1.6.17	1:30	Brady Hubbard		1/9/17	0920
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HOLLYFRONTIER.

July 11, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 5918

RE: 2016 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2016 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1355 psig and the average flows were 131 gpm for WDW-1, 104 gpm for WDW-2 and 152 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2016 to June 30, 2016. We have disposed a total of 1,214,229 barrels of fluid into the three wells during the second quarter of 2016. The volume per well is:

- 417,759 barrels into WDW-1
- 331,533 barrels into WDW-2
- 483,519 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-748-5487.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

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Received by OCD: 5/16/2022 2:12:41 PM

2016 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	37,950,483
Apr-16	1,361	1,400	1,312	125	134	113	338	511	199	3,171	4,594	3,874	133,178	38,083,661
May-16	1,387	1,400	1,383	135	140	125	362	544	222	3,411	4,800	4,286	143,265	38,226,926
Jun-16	1,343	1,400	1,335	133	146	80	607	857	178	3,365	5,006	2,743	141,316	38,368,242
30-015-20894 WDW-2													**Previous Quarter**	24,863,592
Apr-16	1,360	1,400	1,222	103	113	89	312	432	220	2,598	3,874	3,051	109,111	24,972,703
May-16	1,388	1,400	1,377	112	117	105	301	391	218	2,843	4,011	3,600	119,407	25,092,110
Jun-16	1,315	1,400	1,335	97	121	80	346	455	194	2,453	4,149	2,743	103,015	25,195,125
30-015-26575 WDW-3													**Previous Quarter**	15,259,706
Apr-16	1,355	1,395	1,338	152	161	138	726	900	683	3,856	5,520	4,731	161,973	15,421,679
May-16	1,375	1,390	1,335	160	165	148	625	807	621	4,049	5,657	5,074	170,061	15,591,740
Jun-16	1,313	1,386	1,335	143	168	22	668	907	584	3,607	5,760	754	151,485	15,743,225
													Total Injected fluids:	79,306,592

	Monthly Avg.	Monthly Avg.
WDW-1	1,364	131
WDW-2	1,354	104
WDW-3	1,348	152

	Total BBLS	Beginning Volume	Ending Volume
WDW1	417,759	37,950,483	38,368,242
WDW2	331,533	24,863,592	25,195,125
WDW3	483,519	15,259,706	15,743,225
	1,232,811		79,306,592

HOLLYFRONTIER.

May 12, 2016

Submitted electronically via email to jim.griswold@state.nm.us and carlj.chavez@state.nm.us

Oil Conservation Division
New Mexico Energy, Minerals & Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: Discharge Permit GW-028
Monthly Report – April 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's April 2016 monthly report, for the period of April 1-30, 2016, under the Permit.

Specifically, this report covers the April 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

- Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.
- Analytical results of a discharge sample collected on April 5, 2016.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the two permanent RO units and the temporary RO unit on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. (Note that the temporary RO unit operated through April 2016, and will be replaced in the second quarter of 2016 with the permanent unit, as authorized by OCD on April 1, 2016.)

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the second quarter, samples were collected for the RO reject streams from the permanent units and temporary unit on April 5, 2016. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results are provided in Attachment 2.

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

Navajo is committed to proactively meeting the requirements of the Permit and working cooperatively with OCD. If you have any questions or comments, please contact me at 575-746-5487.

Sincerely,

Scott M. Denton
Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates
Attachment 2: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder
OCD: A. Marks, B. Brancard

Released to Imaging: 7/12/2024 10:49:45 AM

Attachment 1
Daily Discharge Flow Rates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

	Permanent RO Units				Temporary Unit		Daily Discharge Volume
	Metered Data		Combined RO Reject Discharge (Calculated)		Total RO Reject Discharge (Calculated from Log Data)		
	GPM SOUTH	GPM NORTH	GPM	BBL/DAY	GPM	BBL/DAY	BBL
4/1/2016	68	82	151	5,163	131	4489	9,652
4/2/2016	73	87	160	5,488	133	4557	10,045
4/3/2016	73	85	159	5,443	130	4453	9,896
4/4/2016	72	81	153	5,247	134	4585	9,832
4/5/2016	0	8	8	270	146	4991	5,261
4/6/2016	0	57	57	1,958	132	4509	6,467
4/7/2016	3	8	10	356	136	4646	5,002
4/8/2016	102	36	138	4,730	141	4849	9,579
4/9/2016	111	89	200	6,867	140	4801	11,668
4/10/2016	106	90	195	6,701	134	4596	11,297
4/11/2016	113	94	207	7,090	139	4772	11,862
4/12/2016	113	92	205	7,014	145	4954	11,968
4/13/2016	111	89	200	6,873	148	5091	11,964
4/14/2016	114	102	216	7,392	155	5307	12,699
4/15/2016	109	83	191	6,553	157	5390	11,943
4/16/2016	110	83	194	6,644	149	5110	11,754
4/17/2016	113	86	199	6,824	131	4485	11,309
4/18/2016	109	81	190	6,529	119	4066	10,595
4/19/2016	103	82	186	6,365	148	5081	11,446
4/20/2016	108	85	193	6,611	152	5207	11,818
4/21/2016	108	80	188	6,434	143	4903	11,337
4/22/2016	106	82	188	6,440	137	4688	11,128
4/23/2016	87	77	164	5,616	136	4679	10,295
4/24/2016	84	81	165	5,662	139	4754	10,416
4/25/2016	66	82	149	5,096	134	4593	9,689
4/26/2016	75	88	163	5,603	131	4476	10,079
4/27/2016	82	78	159	5,460	136	4653	10,113
4/28/2016	81	73	154	5,273	139	4768	10,041
4/29/2016	84	82	166	5,708	129	4427	10,135
4/30/2016	82	81	163	5,590	126	4314	9,904

Attachment 2
Analytical Lab Report

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 12, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly R.O. Reject OrderNo.: 1604184

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/6/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**	
Arsenic	ND	0.0050		mg/L	5	4/19/2016 6:19:56 PM	A33644
Lead	ND	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
Selenium	ND	0.020		mg/L	20	4/20/2016 6:29:13 PM	A33677
Uranium	0.0067	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**	
Radium-226	1.02	0.578		pCi/L	1	4/29/2016	R34156
Radium-226 ±	0.608	0.578		pCi/L	1	4/29/2016	R34156
Radium-228	0.143	0.803		pCi/L	1	4/29/2016	R34156
Radium-228 ±	0.361	0.803		pCi/L	1	4/29/2016	R34156
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	4.7	2.0	*	mg/L	20	4/18/2016 10:52:15 PM	R33628
Chloride	390	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	4/7/2016 4:51:08 AM	R33368
Nitrogen, Nitrate (As N)	2.4	0.10		mg/L	1	4/7/2016 4:38:43 AM	R33368
Sulfate	2400	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	5190	20.0	*	mg/L	1	4/7/2016 3:22:00 PM	24656
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**	
Cyanide	ND	0.0100		mg/L	1	4/13/2016	R34156
SM4500-H+B: PH						Analyst: **MRA**	
pH	8.17	1.68	H	pH units	1	4/9/2016 2:23:07 AM	R33424
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Aluminum	ND	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Barium	0.094	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Boron	0.10	0.040		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cadmium	ND	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Chromium	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cobalt	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Copper	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Iron	0.034	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Manganese	ND	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Molybdenum	ND	0.0080		mg/L	1	4/18/2016 5:43:21 PM	A33606
Nickel	ND	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
Silver	ND	0.0050		mg/L	1	4/18/2016 5:43:21 PM	A33606
Zinc	0.027	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	4/15/2016 12:01:33 PM	24817
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:39:53 PM	24682
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1221	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1232	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1242	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1248	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1254	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1260	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Surr: Decachlorobiphenyl	121	26.1-140		%Rec	1	4/19/2016 2:38:24 AM	24708
Surr: Tetrachloro-m-xylene	95.2	15-123		%Rec	1	4/19/2016 2:38:24 AM	24708
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**	
Diesel Range Organics (DRO)	9.4	1.0		mg/L	1	4/8/2016 9:58:45 PM	24652
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/8/2016 9:58:45 PM	24652
Surr: DNOP	114	70-141		%Rec	1	4/8/2016 9:58:45 PM	24652
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 11:55:58 AM	R33412
Surr: BFB	89.0	49.5-130		%Rec	1	4/8/2016 11:55:58 AM	R33412
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
1-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
2-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
Benzo(a)pyrene	ND	0.070		µg/L	1	4/19/2016 11:30:48 AM	24709
Surr: Benzo(e)pyrene	74.7	33.4-129		%Rec	1	4/19/2016 11:30:48 AM	24709
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Toluene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:30:43 PM	R33550
Surr: 1,2-Dichloroethane-d4	98.3	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Dibromofluoromethane	110	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Toluene-d8	94.9	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/21/2016	24923

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-002
Client Sample ID: Trip Blank
Collection Date:
Matrix: TRIP BLANK
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:54:59 PM	24682
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 12:20:35 PM	R33412
Surr: BFB	85.7	49.5-130		%Rec	1	4/8/2016 12:20:35 PM	R33412
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Toluene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:59:37 PM	R33550
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Dibromofluoromethane	111	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Toluene-d8	96.2	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034060** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034061** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	ND	0.0020	0.002000	0	94.5	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	94.9	50	150			
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	ND	0.0060	0.006000	0	92.7	50	150			
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	ND	0.020	0.02000	0	98.6	50	150			
Manganese	ND	0.0020	0.002000	0	90.5	50	150			
Molybdenum	ND	0.0080	0.008000	0	99.0	50	150			
Nickel	ND	0.010	0.005000	0	86.2	50	150			
Silver	ND	0.0050	0.005000	0	92.6	50	150			
Zinc	ND	0.010	0.005000	0	108	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036133** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.5	85	115			
Lead	0.011	0.00050	0.01250	0	91.9	85	115			
Uranium	0.011	0.00050	0.01250	0	91.8	85	115			

Sample ID **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			
Lead	0.00052	0.00050	0.0005000	0	105	50	150			
Uranium	ND	0.00050	0.0005000	0	99.1	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Uranium	ND	0.00050								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037321** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.024	0.0010	0.02500	0	97.2	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037322** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0011	0.0010	0.001000	0	106	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037323** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24817**	SampType: **MBLK**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **PBW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-24817**	SampType: **LCS**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **LCSW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032805** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R33368**	RunNo: **33368**
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025773** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R33368**	RunNo: **33368**
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025774** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R33628**	RunNo: **33628**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035257** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R33628**	RunNo: **33628**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035258** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Chloride	4.8	0.50	5.000	0	96.7	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24682**	SampType: **MBLK**	TestCode: **EPA Method 8011/504.1: EDB**							
Client ID: **PBW**	Batch ID: **24682**	RunNo: **33411**							
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027492**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID **LCS-24682**	SampType: **LCS**	TestCode: **EPA Method 8011/504.1: EDB**							
Client ID: **LCSW**	Batch ID: **24682**	RunNo: **33411**							
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027494**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	116	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24652**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**							
Client ID: **PBW**	Batch ID: **24652**	RunNo: **33385**							
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026445**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	70	141			

Sample ID **LCS-24652**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**							
Client ID: **LCSW**	Batch ID: **24652**	RunNo: **33385**							
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026634**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	71.3	139			
Surr: DNOP	0.53		0.5000		107	70	141			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027408** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.6	49.5	130			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027409** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.9	80	120			
Surr: BFB	19		20.00		96.6	49.5	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24708**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **PBW**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034347**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			

Sample ID **LCS-24708**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **LCSW**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034348**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5	1.0	5.000	0	130	15	131			
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S

Sample ID **LCSD-24708**	SampType: **LCSD**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **LCSS02**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034349**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **LCSW**	Batch ID: **R33550**	RunNo: **33550**							
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032303**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **PBW**	Batch ID: **R33550**	RunNo: **33550**							
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032305**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24709**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **PBW**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034469**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID **LCSD-24709**	SampType: **LCSD**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSS02**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034484**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.80	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	2[illegible].4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	33.4	129	0		

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24923**	SampType: **MBLK**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **PBW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037376**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID **LCS-24923**	SampType: **LCS**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **LCSW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037377**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	89.0	64.4	135			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-R34156**	SampType: **MBLK**	TestCode: **EPA 335.4: Total Cyanide Subbed**							
Client ID: **PBW**	Batch ID: **R34156**	RunNo: **34156**							
Prep Date:	Analysis Date: **4/13/2016**	SeqNo: **1053134**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID **LCS-R34156**	SampType: **LCS**	TestCode: **EPA 335.4: Total Cyanide Subbed**							
Client ID: **LCSW**	Batch ID: **R34156**	RunNo: **34156**							
Prep Date:	Analysis Date: **4/13/2016**	SeqNo: **1053135**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.507		0.5000	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-R34156**	SampType: **MBLK**	TestCode: **EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID: **PBW**	Batch ID: **R34156**	RunNo: **34156**
Prep Date:	Analysis Date: **4/29/2016**	SeqNo: **1053137** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	-2.01	0.933								
Radium-226 ±	0.459	0.933								
Radium-228	0.321	0.795								
Radium-228 ±	0.376	0.795								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24656**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025974** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-24656**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1604184 RcptNo: 1

Received by/date: 04/06/16

Logged By: Ashley Gallegos 4/6/2016 9:40:00 AM

Completed By: Ashley Gallegos 4/6/2016 12:24:03 PM

Reviewed By: 04/06/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 6 (1) (<2 or >12 unless noted)
Adjusted? NO
Checked by: AJS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

ent: Navajo Refinery

ailing Address: P.O. Box 159 Artesia,

M 88211-0159

one #: 575-748-3311

ail or Fax#: 575-746-5451

VQC Package:

Standard ☐ Level 4 (Full Validation)

Other

EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Brady Hubbard

On Ice: X Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB	Air Bubbles (Y or N)
4/5/16	8:15	liquid	R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001									X		X	X	X	X		Y
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	HCL		X															
4/5/16	8:15	liquid	R.O. Reject	1-500ml P	HNO3						X											
4/5/16	8:15	liquid	R.O. Reject	1-125ml P	HNO3				X													
4/5/16	8:15	liquid	R.O. Reject	1-500ml P	NaOH					X												
4/5/16	8:15	liquid	R.O. Reject	2- 1L P	HNO3									X								
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	Na2S2O3																X	
4/5/16	8:15	liquid	R.O. Reject	2 - 1L Glass	unpres								X									
4/5/16	8:15	liquid	R.O. Reject	1 - 1L Glass	unpres			X														
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	HCl							X										
4/5/16	8:15	liquid	R.O. Reject	1-250mlGlas	unpres							X										
4/5/16	8:15	liquid	R.O. Reject	1 - 1L Glass	H2SO4											X						
4/5/16	8:15	liquid	Trip Blank	2-40ml VOA	HCL	-002																

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/16	12:00	Elizabeth Salsberry			
Date:	Time:	Relinquished by:	Received by:	Date	Time
				04/06/16	0940

Remarks:

Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride

SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene

This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Quarterly RO Reject Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Brady Hubbard
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	4/5/2016 @ 8:05 a.m.
End Date and Time	4/5/2016 @ 8:30 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: ☐ North Field R.O. Reject Discarge ☑ South Field R.O. Reject Discarge

Container	Size	Material	Number	Preservatives: None	Ice	HCl	Nitric Acid	NaOH	Na2S2O3	NaHSO4	H2SO4	Other	Analysis and/or Method Requested
	500ml	Plastic	2	X			X						pH, Cl, F, S04, NO2/NO3, TDS
	40ml	VOA	3		X								8015 GRO
	500ml	Plastic	1			X							6020 total metals, 7470 Hg
	125ml	Plastic	1			X							6020 Dissolved Metals
	500ml	Plastic	2					X					Cyanide
	1L	Plastic	3			X							Radium 226/228
	40ml	VOA	2		X								8260 see attached list
	1L	Glass	1	X									8270 see attached list
	1L	Glass	2	X									8082 PCBs
	40ml	VOA	2	X									8015 DRO
	40ml	VOA	2		X								Radium 226/228

Field Data (Weather, Observations, etc.) and Date and Time: 4/5/2016 Tmp.55.4 °F, Humidity 41%, Wind Dir. SE, Wind Speed 4.6mph, Conditions Clear

Field Temp. 23.6C Field pH 7.05

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 10, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly Temporary R.O. Reject OrderNo.: 1604182

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/6/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1604182**
Date Reported: **5/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject
Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB						Analyst: **JME**
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:24:54 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1221	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1232	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1242	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1248	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1254	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1260	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Surr: Decachlorobiphenyl	106	26.1-140		%Rec	1	4/19/2016 2:04:17 AM
Surr: Tetrachloro-m-xylene	74.4	15-123		%Rec	1	4/19/2016 2:04:17 AM
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**
Diesel Range Organics (DRO)	2.4	1.0		mg/L	1	4/8/2016 9:37:25 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/8/2016 9:37:25 PM
Surr: DNOP	114	70-141		%Rec	1	4/8/2016 9:37:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 10:42:12 AM
Surr: BFB	84.7	49.5-130		%Rec	1	4/8/2016 10:42:12 AM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
1-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
2-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
Benzo(a)pyrene	ND	0.070		µg/L	1	4/19/2016 11:01:30 AM
Surr: Benzo(e)pyrene	101	33.4-129		%Rec	1	4/19/2016 11:01:30 AM
EPA METHOD 300.0: ANIONS						Analyst: **LGT**
Fluoride	1.9	0.10		mg/L	1	4/18/2016 10:02:35 PM
Chloride	55	10		mg/L	20	4/7/2016 5:15:57 AM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/7/2016 5:03:33 AM
Nitrogen, Nitrate (As N)	1.0	0.10		mg/L	1	4/7/2016 5:03:33 AM
Sulfate	880	25		mg/L	50	4/18/2016 10:15:00 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**
Aluminum	ND	0.020		mg/L	1	4/18/2016 5:39:41 PM
Barium	0.040	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Boron	0.052	0.040		mg/L	1	4/18/2016 5:39:41 PM
Cadmium	ND	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Chromium	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604182**
Date Reported: **5/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject
Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**
Cobalt	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM
Copper	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM
Iron	0.051	0.020		mg/L	1	4/18/2016 5:39:41 PM
Manganese	ND	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Molybdenum	ND	0.0080		mg/L	1	4/18/2016 5:39:41 PM
Nickel	ND	0.010		mg/L	1	4/18/2016 5:39:41 PM
Silver	ND	0.0050		mg/L	1	4/18/2016 5:39:41 PM
Zinc	0.032	0.010		mg/L	1	4/18/2016 5:39:41 PM
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**
Arsenic	ND	0.0050		mg/L	5	4/19/2016 6:16:53 PM
Lead	ND	0.00050		mg/L	1	4/19/2016 2:29:28 PM
Selenium	ND	0.0050		mg/L	5	4/20/2016 6:26:09 PM
Uranium	0.0029	0.00050		mg/L	1	4/19/2016 2:29:28 PM
EPA METHOD 245.1: MERCURY						Analyst: **pmf**
Mercury	ND	0.00020		mg/L	1	4/15/2016 11:59:33 AM
EPA METHOD 8260B: VOLATILES						Analyst: **AG**
Benzene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Toluene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:01:59 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:01:59 PM
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: Dibromofluoromethane	117	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: Toluene-d8	103	70-130		%Rec	1	4/14/2016 6:01:59 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
R	RPD outside accepted recovery limits
RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix
W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604182**
Date Reported: **5/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject
Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/21/2016
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**
Cyanide	ND	0.0100		mg/L	1	4/8/2016
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**
Radium-226	5.67	0.512		pCi/L	1	4/26/2016 7:54:00 PM
Radium-226 ±	2.13	0.512		pCi/L	1	4/26/2016 7:54:00 PM
Radium-228	0.76	0.949		pCi/L	1	4/26/2016 7:54:00 PM
Radium-228 ±	0.5	0.949		pCi/L	1	4/26/2016 7:54:00 PM
SM4500-H+B: PH						Analyst: **MRA**
pH	8.26	1.68	H	pH units	1	4/9/2016 2:18:47 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	1870	20.0	*	mg/L	1	4/7/2016 3:22:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034060** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034061** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	ND	0.0020	0.002000	0	94.5	50	150			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	94.9	50	150			
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	ND	0.0060	0.006000	0	92.7	50	150			
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	ND	0.020	0.02000	0	98.6	50	150			
Manganese	ND	0.0020	0.002000	0	90.5	50	150			
Molybdenum	ND	0.0080	0.008000	0	99.0	50	150			
Nickel	ND	0.010	0.005000	0	86.2	50	150			
Silver	ND	0.0050	0.005000	0	92.6	50	150			
Zinc	ND	0.010	0.005000	0	108	50	150			

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035657** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.013	0.00050	0.01250	0	100	85	115			
Uranium	0.012	0.00050	0.01250	0	97.5	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035658** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00054	0.00050	0.0005000	0	107	50	150			
Uranium	ND	0.00050	0.0005000	0	97.6	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035659** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Uranium	ND	0.00050								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036133** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.5	85	115			

Sample ID **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037321** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.024	0.0010	0.02500	0	97.2	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037322** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0011	0.0010	0.001000	0	106	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037323** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24817**	SampType: **MBLK**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **PBW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-24817**	SampType: **LCS**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **LCSW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032805** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R33368**	RunNo: **33368**							
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025773**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R33368**	RunNo: **33368**							
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025774**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R33628**	RunNo: **33628**							
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035257**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R33628**	RunNo: **33628**							
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035258**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24682**	SampType: **MBLK**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **PBW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027492** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID **LCS-24682**	SampType: **LCS**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **LCSW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027494** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	116	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24652**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	70	141			

Sample ID **LCS-24652**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	71.3	139			
Surr: DNOP	0.53		0.5000		107	70	141			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027408** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.6	49.5	130			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027409** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.9	80	120			
Surr: BFB	19		20.00		96.6	49.5	130			

Sample ID **1604182-001BMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Temporary R.O. Rej**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027412** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.4	70	130			
Surr: BFB	20		20.00		98.2	49.5	130			

Sample ID **1604182-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Temporary R.O. Rej**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027413** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.6	70	130	0.884	20	
Surr: BFB	20		20.00		99.5	49.5	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24708**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBW**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034347** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			

Sample ID **LCS-24708**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSW**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034348** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5	1.0	5.000	0	130	15	131			
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S

Sample ID **LCSD-24708**	SampType: **LCSD**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS02**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034349** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R33550**	RunNo: **33550**
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032303** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R33550**	RunNo: **33550**
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032305** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24709**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034469** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID **LCSD-24709**	SampType: **LCSD**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSS02**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034484** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.80	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	21.4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	33.4	129	0		

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24923**	SampType: **MBLK**	TestCode: **Total Phenolics by SW-846 9067**
Client ID: **PBW**	Batch ID: **24923**	RunNo: **33678**
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037376** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID **LCS-24923**	SampType: **LCS**	TestCode: **Total Phenolics by SW-846 9067**
Client ID: **LCSW**	Batch ID: **24923**	RunNo: **33678**
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037377** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	89.0	64.4	135			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-R34094**	SampType: **MBLK**	TestCode: **EPA 335.4: Total Cyanide Subbed**
Client ID: **PBW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1050918** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID **LCS-R34094**	SampType: **LCS**	TestCode: **EPA 335.4: Total Cyanide Subbed**
Client ID: **LCSW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1050919** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.512		0.5000	0	102	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-R34094**	SampType: **MBLK**	TestCode: **EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID: **PBW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/26/2016**	SeqNo: **1050921** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.965	0.799								
Radium-226 ±	0.644	0.799								
Radium-228	0.0941	0.772								
Radium-228 ±	0.341	0.772								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24656**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025974** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-24656**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1604182 RcptNo: 1

Received by/date: RM 04/06/16

Logged By: Ashley Gallegos 4/6/2016 9:40:00 AM AG

Completed By: Ashley Gallegos 4/6/2016 12:16:42 PM AG

Reviewed By: 04/06/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? AJ ~~Yes ☑~~ No ☑
9. Was preservative added to bottles? Yes ☑ ~~No ☑~~ AJ NA ☐
10. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 6 (1) (<2 or >12 unless noted)
Adjusted? Yes
Checked by: AJ

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks: For metals analysis: added 1 mL HNO3 to -0016 for acceptable PH 4/7 @ 1150 AJ

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

lient: Navajo Refinery

lailing Address: P.O. Box 159 Artesia,

M 88211-0159

hone #: 575-748-3311

mail or Fax#: 575-746-5451

A/QC Package:

[St ndard ☐ Level 4 (Full Validation)

] Other _____

] EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush _____

Project Name:

Quarterly Temporary R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Brady Hubbard

On Ice: X Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type		8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB	Air Bubbles (Y or N)
4/5/16	7:45	liquid	Temporary R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001 -002									X		X	X	X	X		Y
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	HCL		X															
4/5/16	7:45	liquid	Temporary R.O. Reject	1-500ml P	HNO3						X											
4/5/16	7:45	liquid	Temporary R.O. Reject	1-125ml P	HNO3				X													
4/5/16	7:45	liquid	Temporary R.O. Reject	1-500ml P	NaOH					X												
4/5/16	7:45	liquid	Temporary R.O. Reject	2- 1L P	HNO3									X								
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	Na2S2O3																X	
4/5/16	7:45	liquid	Temporary R.O. Reject	2 - 1L Glass	unpres								X									
4/5/16	7:45	liquid	Temporary R.O. Reject	1 - 1L Glass	unpres			X														
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	HCl							X										
4/5/16	7:45	liquid	Temporary R.O. Reject	1-250mlGlass	unpres							X										
4/5/16	7:45	liquid	Temporary R.O. Reject	1 - 1L Glass	H2SO4	* Did not receive TB										X						
4/5/16	7:45	liquid	~~Trip Blank~~	2-40ml VOA	HCL	-003																

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/11/16	12:00	Elizabeth Salsbury		04/26/16	0940
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride

SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Quarterly Temporary RO Reject Sample Details

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Brady Hubbard
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	4/5/2016 @ 7:30 a.m.
End Date and Time	4/5/2016 @ 8:00 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall Sample Location: ☐ North Field R.O. Reject Discarge ☑ South Field R.O. Reject Discarge

Container	Size	Container Material	# of Containers	Preservative: Ice	HNO3	HCl	H2SO4	NaOH	Zn Acetate	NaHSO4	Other	Analysis and/or Method Requested
	500ml	Plastic	2	X			X					pH, Cl, F, S04, NO2/NO3, TDS
	40ml	VOA	3		X							8015 GRO
	500ml	Plastic	1			X						6020 total metals, 7470 Hg
	125ml	Plastic	1			X						6020 Dissolved Metals
	500ml	Plastic	2					X				Cyanide
	1L	Plastic	3			X						Radium 226/228
	40ml	VOA	2		X							8260 see attached list
	1L	Glass	1	X								8270 see attached list
	1L	Glass	2	X								8082 PCBs
	40ml	VOA	2	X								8015 DRO
	40ml	VOA	2		X							Radium 226/228

Field Data / Weather Observations (Temp., ...): 4/5/2016 Tmp. 48.2 °F, Humidity 46%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear
Date and Time

Field Temp. 23.6C Field pH 7.05

Storage Method:	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media:	
Ice	☑
Other	☐

HOLLYFRONTIER.

May 13, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 3010 0000 3143 3326

RE: 2016 1st Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2016 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1338 psig and the average flows were 132 gpm for WDW-1, 98 gpm for WDW-2 and 155 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2016 to March 31, 2016. We have disposed a total of 1,214,229 barrels of fluid into the three wells during the first quarter of 2016. The volume per well is:

- 415,338 barrels into WDW-1
- 308,949 barrels into WDW-2
- 489,942 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

Released to Imaging: 7/12/2024 10:49:45 AM

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Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, L.L.C.

2016 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	37,535,146
Jan-16	1,377	1,400	1,312	135	209	120	411	577	199	4,629	7,166	4,114	143,486	37,678,632
Feb-16	1,399	1,400	1,383	131	142	128	401	637	222	4,491	4,869	4,389	134,743	37,813,375
Mar-16	1,389	1,400	1,335	129	133	119	284	417	178	4,423	4,560	4,080	137,109	37,950,483
30-015-20894 WDW-2													**Previous Quarter**	24,554,643
Jan-16	1,329	1,390	1,222	85	104	52	271	350	220	2,914	3,566	1,783	90,343	24,644,986
Feb-16	1,394	1,400	1,377	103	107	98	300	423	218	3,531	3,669	3,360	105,943	24,750,929
Mar-16	1,385	1,400	1,335	106	111	95	292	437	194	3,634	3,806	3,257	112,663	24,863,592
30-015-26575 WDW-3													**Previous Quarter**	14,769,763
Jan-16	1,377	1,390	1,338	152	158	139	849	965	683	5,211	5,417	4,766	161,554	14,931,317
Feb-16	1,387	1,390	1,335	156	159	143	699	768	621	5,349	5,451	4,903	160,457	15,091,774
Mar-16	1,384	1,400	1,335	158	162	147	675	732	584	5,417	5,554	5,040	167,931	15,259,706
													Total Injected fluids:	78,073,781

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 15, 2016

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1601864

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/22/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	1/29/2016	R32136
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	ND	1.0		mg/L	1	1/29/2016	R32136
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.006	0			1	1/27/2016 3:13:00 PM	R31723
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	20	2.0	*	mg/L	20	1/23/2016 12:57:44 AM	R31638
Chloride	570	25		mg/L	50	1/26/2016 11:44:39 PM	R31714
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	1/23/2016 12:45:19 AM	R31638
Bromide	2.1	2.0		mg/L	20	1/23/2016 12:57:44 AM	R31638
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	1/23/2016 12:45:19 AM	R31638
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	1/23/2016 12:45:19 AM	R31638
Sulfate	2000	25		mg/L	50	1/26/2016 11:44:39 PM	R31714
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5600	0.010		µmhos/cm	1	1/25/2016 8:12:02 PM	R31664
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	220.4	20.00		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
Total Alkalinity (as CaCO3)	220.4	20.00		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3780	40.0	*D	mg/L	1	1/28/2016 6:43:00 PM	23428
CORROSIVITY						Analyst: **SUB**	
pH	7.16			pH Units	1	1/28/2016	R32136
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	2/4/2016	R32136
EPA METHOD 7470: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	1/25/2016 4:48:50 PM	23378
MERCURY, TCLP						Analyst: **pmf**	
Mercury	ND	0.020		mg/L	1	1/28/2016 11:50:30 AM	23438
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Barium	ND	100		mg/L	1	1/25/2016 11:17:08 AM	23359
Cadmium	ND	1.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Chromium	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Lead	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Selenium	ND	1.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Silver	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	1.0	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Antimony	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Arsenic	ND	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Barium	ND	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Beryllium	ND	0.0030		mg/L	1	1/27/2016 10:18:42 AM	23359
Cadmium	ND	0.0020		mg/L	1	1/27/2016 10:18:42 AM	23359
Calcium	39	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Chromium	ND	0.0060		mg/L	1	1/27/2016 10:18:42 AM	23359
Cobalt	ND	0.0060		mg/L	1	1/28/2016 10:29:14 AM	23359
Copper	0.012	0.0060		mg/L	1	1/27/2016 10:18:42 AM	23359
Iron	7.6	0.25		mg/L	5	1/27/2016 10:20:32 AM	23359
Lead	ND	0.0050		mg/L	1	1/27/2016 10:18:42 AM	23359
Magnesium	13	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Manganese	0.15	0.0020		mg/L	1	1/27/2016 10:18:42 AM	23359
Nickel	0.042	0.010		mg/L	1	1/27/2016 10:18:42 AM	23359
Potassium	72	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Selenium	0.53	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Silver	ND	0.0050		mg/L	1	1/27/2016 10:18:42 AM	23359
Sodium	1200	50		mg/L	50	1/29/2016 11:10:54 AM	23359
Thallium	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Vanadium	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Zinc	0.035	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	12		µg/L	1	2/2/2016	R32136
Allyl chloride	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroprene	ND	2.5		µg/L	1	2/2/2016	R32136
Cyclohexane	ND	2.5		µg/L	1	2/2/2016	R32136
Diethyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Diisopropyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Epichlorohydrin	ND	25		µg/L	1	2/2/2016	R32136
Ethyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Ethyl methacrylate	ND	12		µg/L	1	2/2/2016	R32136
Ethyl tert-butyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Freon-113	ND	2.5		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Isobutanol	ND	25		µg/L	1	2/2/2016	R32136
Isopropyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Methacrylonitrile	ND	12		µg/L	1	2/2/2016	R32136
Methyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl ethyl ketone	ND	12		µg/L	1	2/2/2016	R32136
Methyl isobutyl ketone	ND	12		µg/L	1	2/2/2016	R32136
Methyl methacrylate	ND	12		µg/L	1	2/2/2016	R32136
Methylcyclohexane	ND	5.0		µg/L	1	2/2/2016	R32136
n-Amyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
n-Hexane	ND	2.5		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	25		µg/L	1	2/2/2016	R32136
Pentachloroethane	ND	25		µg/L	1	2/2/2016	R32136
p-isopropyltoluene	ND	2.5		µg/L	1	2/2/2016	R32136
Propionitrile	ND	12		µg/L	1	2/2/2016	R32136
Tetrahydrofuran	ND	2.5		µg/L	1	2/2/2016	R32136
Benzene	ND	2.5		µg/L	1	2/2/2016	R32136
Toluene	ND	2.5		µg/L	1	2/2/2016	R32136
Ethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl tert-butyl ether (MTBE)	3.2	2.5		µg/L	1	2/2/2016	R32136
1,2,4-Trimethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,3,5-Trimethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	1	2/2/2016	R32136
Naphthalene	ND	2.5		µg/L	1	2/2/2016	R32136
Acetone	100	12		µg/L	1	2/2/2016	R32136
Bromobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Bromodichloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
Bromoform	ND	2.5		µg/L	1	2/2/2016	R32136
Bromomethane	ND	2.5		µg/L	1	2/2/2016	R32136
Carbon disulfide	ND	2.5		µg/L	1	2/2/2016	R32136
Carbon Tetrachloride	ND	2.5		µg/L	1	2/2/2016	R32136
Chlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroform	ND	2.5		µg/L	1	2/2/2016	R32136
Chloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
2-Chlorotoluene	ND	2.5		µg/L	1	2/2/2016	R32136
4-Chlorotoluene	ND	2.5		µg/L	1	2/2/2016	R32136
cis-1,2-DCE	ND	2.5		µg/L	1	2/2/2016	R32136
cis-1,3-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2-Dibromo-3-chloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
Dibromochloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
Dibromomethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,3-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,4-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Dichlorodifluoromethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloroethene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
1,3-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
2,2-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	2.5		µg/L	1	2/2/2016	R32136
2-Hexanone	ND	2.5		µg/L	1	2/2/2016	R32136
Isopropylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Methylene Chloride	ND	12		µg/L	1	2/2/2016	R32136
n-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
n-Propylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
sec-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Styrene	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Tetrachloroethene (PCE)	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,2-DCE	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,3-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,3-Trichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,4-Trichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,1-Trichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,2-Trichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Trichloroethene (TCE)	ND	2.5		µg/L	1	2/2/2016	R32136
Trichlorofluoromethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,3-Trichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
Vinyl chloride	ND	2.5		µg/L	1	2/2/2016	R32136
mp-Xylenes	ND	5.0		µg/L	1	2/2/2016	R32136
o-Xylene	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Amyl methyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Butyl alcohol	ND	25		µg/L	1	2/2/2016	R32136

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acrolein	ND	12		µg/L	1	2/2/2016	R32136
Acrylonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Bromochloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Iodomethane	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,4-Dichloro-2-butene	ND	2.5		µg/L	1	2/2/2016	R32136
Vinyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	100		µg/L	1	2/2/2016	R32136
Surr: 1,2-Dichlorobenzene-d4	89.2	70-130		%Rec	1	2/2/2016	R32136
Surr: 4-Bromofluorobenzene	94.0	70-130		%Rec	1	2/2/2016	R32136
Surr: Toluene-d8	99.6	70-130		%Rec	1	2/2/2016	R32136
EPA 8270D: SEMIVOLATILES							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	5.0		µg/L	1	2/2/2016	R32136
Atrazine	ND	5.0		µg/L	1	2/2/2016	R32136
Benzaldehyde	ND	5.0		µg/L	1	2/2/2016	R32136
Caprolactam	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	2/2/2016	R32136
Acetophenone	ND	5.0		µg/L	1	2/2/2016	R32136
1-Methylnaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dimethylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dinitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dinitrotoluene	ND	5.0		µg/L	1	2/2/2016	R32136
2,6-Dinitrotoluene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Chloronaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Chlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2-Methylnaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
2-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
2-Nitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	2/2/2016	R32136
3-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	2/2/2016	R32136
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136

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Qualifiers:

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Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270D: SEMIVOLATILES						Analyst: **SUB**	
4-Chloroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	2/2/2016	R32136
4-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4-Nitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
Acenaphthene	ND	5.0		µg/L	1	2/2/2016	R32136
Acenaphthylene	ND	5.0		µg/L	1	2/2/2016	R32136
Anthracene	ND	5.0		µg/L	1	2/2/2016	R32136
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	2/2/2016	R32136
Benz(a)anthracene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(a)pyrene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(b)fluoranthene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(k)fluoranthene	ND	0.50		µg/L	1	2/2/2016	R32136
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Butyl benzyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Carbazole	ND	5.0		µg/L	1	2/2/2016	R32136
Chrysene	ND	0.50		µg/L	1	2/2/2016	R32136
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	2/2/2016	R32136
Dibenzofuran	ND	5.0		µg/L	1	2/2/2016	R32136
Diethyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Dimethyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Di-n-butyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Di-n-octyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Fluoranthene	ND	5.0		µg/L	1	2/2/2016	R32136
Fluorene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachloroethane	ND	5.0		µg/L	1	2/2/2016	R32136
Indeno(1,2,3-cd)pyrene	ND	0.50		µg/L	1	2/2/2016	R32136
Isophorone	ND	5.0		µg/L	1	2/2/2016	R32136
Naphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	2/2/2016	R32136
Pentachlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
Phenanthrene	ND	5.0		µg/L	1	2/2/2016	R32136

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270D: SEMIVOLATILES						Analyst: **SUB**	
Phenol	ND	5.0		µg/L	1	2/2/2016	R32136
Pyrene	ND	5.0		µg/L	1	2/2/2016	R32136
o-Toluidine	ND	5.0		µg/L	1	2/2/2016	R32136
Pyridine	ND	5.0		µg/L	1	2/2/2016	R32136
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Surr: 2,4,6-Tribromophenol	94.2	10-123		%Rec	1	2/2/2016	R32136
Surr: 2-Fluorobiphenyl	80.4	19-130		%Rec	1	2/2/2016	R32136
Surr: 2-Fluorophenol	82.8	21-120		%Rec	1	2/2/2016	R32136
Surr: Nitrobenzene-d5	89.6	25-130		%Rec	1	2/2/2016	R32136
Surr: Phenol-d5	86.0	10-130		%Rec	1	2/2/2016	R32136
Surr: Terphenyl-d14	32.8	20-137		%Rec	1	2/2/2016	R32136

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1601864-002
Matrix: TRIP BLANK
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Allyl chloride	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroprene	ND	0.50		µg/L	1	2/2/2016	R32136
Cyclohexane	ND	0.50		µg/L	1	2/2/2016	R32136
Diethyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Diisopropyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Epichlorohydrin	ND	5.0		µg/L	1	2/2/2016	R32136
Ethyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Ethyl methacrylate	ND	2.5		µg/L	1	2/2/2016	R32136
Ethyl tert-butyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Freon-113	ND	0.50		µg/L	1	2/2/2016	R32136
Isobutanol	ND	5.0		µg/L	1	2/2/2016	R32136
Isopropyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Methacrylonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Methyl ethyl ketone	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl isobutyl ketone	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl methacrylate	ND	2.5		µg/L	1	2/2/2016	R32136
Methylcyclohexane	ND	1.0		µg/L	1	2/2/2016	R32136
n-Amyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
n-Hexane	ND	0.50		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Pentachloroethane	ND	5.0		µg/L	1	2/2/2016	R32136
p-isopropyltoluene	ND	0.50		µg/L	1	2/2/2016	R32136
Propionitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Tetrahydrofuran	ND	0.50		µg/L	1	2/2/2016	R32136
Benzene	ND	0.50		µg/L	1	2/2/2016	R32136
Toluene	ND	0.50		µg/L	1	2/2/2016	R32136
Ethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	2/2/2016	R32136
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	2/2/2016	R32136
Naphthalene	ND	0.50		µg/L	1	2/2/2016	R32136
Acetone	ND	2.5		µg/L	1	2/2/2016	R32136
Bromobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Bromodichloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
Bromoform	ND	0.50		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Bromomethane	ND	0.50		µg/L	1	2/2/2016	R32136
Carbon disulfide	ND	0.50		µg/L	1	2/2/2016	R32136
Carbon Tetrachloride	ND	0.50		µg/L	1	2/2/2016	R32136
Chlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroform	ND	0.50		µg/L	1	2/2/2016	R32136
Chloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
2-Chlorotoluene	ND	0.50		µg/L	1	2/2/2016	R32136
4-Chlorotoluene	ND	0.50		µg/L	1	2/2/2016	R32136
cis-1,2-DCE	ND	0.50		µg/L	1	2/2/2016	R32136
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
Dibromochloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
Dibromomethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,3-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,4-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Dichlorodifluoromethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloroethene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
1,3-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
2,2-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	0.50		µg/L	1	2/2/2016	R32136
2-Hexanone	ND	0.50		µg/L	1	2/2/2016	R32136
Isopropylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Methylene Chloride	ND	2.5		µg/L	1	2/2/2016	R32136
n-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
n-Propylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
sec-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Styrene	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,2-DCE	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136

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Qualifiers:

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Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,1-Trichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,2-Trichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Trichloroethene (TCE)	ND	0.50		µg/L	1	2/2/2016	R32136
Trichlorofluoromethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,2,3-Trichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
Vinyl chloride	ND	0.50		µg/L	1	2/2/2016	R32136
mp-Xylenes	ND	1.0		µg/L	1	2/2/2016	R32136
o-Xylene	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Amyl methyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Butyl alcohol	ND	5.0		µg/L	1	2/2/2016	R32136
Acrolein	ND	2.5		µg/L	1	2/2/2016	R32136
Acrylonitrile	ND	0.50		µg/L	1	2/2/2016	R32136
Bromochloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Iodomethane	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	2/2/2016	R32136
Vinyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	20		µg/L	1	2/2/2016	R32136
Surr: 1,2-Dichlorobenzene-d4	89.2	70-130		%Rec	1	2/2/2016	R32136
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	1	2/2/2016	R32136
Surr: Toluene-d8	99.6	70-130		%Rec	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R31638**	RunNo: **31638**
Prep Date:	Analysis Date: **1/22/2016**	SeqNo: **968134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R31638**	RunNo: **31638**
Prep Date:	Analysis Date: **1/22/2016**	SeqNo: **968135** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.4	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.1	90	110			
Bromide	2.5	0.10	2.500	0	98.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.2	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.3	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R31714**	RunNo: **31714**
Prep Date:	Analysis Date: **1/26/2016**	SeqNo: **970466** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R31714**	RunNo: **31714**
Prep Date:	Analysis Date: **1/26/2016**	SeqNo: **970467** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.5	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	2.5								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	10								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	2.5								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	2.5								
Methylcyclohexane	ND	0.50								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	0.50								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	2.5								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	2.5								
Acrylonitrile	ND	2.5								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	0.50								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982422** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.8		10.00	0	97.7	80	120			
Toluene	9.8		10.00	0	98.4	80	120			
Ethylbenzene	10		10.00	0	102	80	120			
Chlorobenzene	9.6		10.00	0	96.0	80	120			
1,1-Dichloroethene	9.6		10.00	0	96.4	80	120			
Tetrachloroethene (PCE)	9.2		10.00	0	92.4	80	120			
Trichloroethene (TCE)	9.8		10.00	0	98.0	80	120			
o-Xylene	10		10.00	0	104	80	120			

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982533** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	5.0								
1,4-Dioxane	ND	5.0								
Atrazine	ND	5.0								
Benzaldehyde	ND	5.0								
Caprolactam	ND	5.0								
N-Nitroso-di-n-butylamine	ND	5.0								
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3'-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982533** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	5.0								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
o-Toluidine	ND	2.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982534** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.6		5.000	0	93.0	49	134			

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982534** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Chlorophenol	4.6		5.000	0	91.6	50	131			
4-Chloro-3-methylphenol	4.7		5.000	0	94.4	42	139			
4-Nitrophenol	4.5		5.000	0	90.2	19	137			
Acenaphthene	5.0		5.000	0	100	36	122			
Bis(2-ethylhexyl)phthalate	5.2		5.000	0	105	50	150			
N-Nitrosodi-n-propylamine	4.7		5.000	0	93.6	46	135			
Pentachlorophenol	3.7		5.000	0	73.2	22	138			
Phenol	5.2		5.000	0	103	45	134			
Pyrene	4.7		5.000	0	93.2	45	139			

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-23378**	SampType: **MBLK**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968855**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-23378**	SampType: **LCS**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968856**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	80	120			

Sample ID	**1601864-001BMS**	SampType: **MS**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968858**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0040	0.00020	0.005000	.00006177	79.6	75	125			

Sample ID	**1601864-001BMSD**	SampType: **MSD**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968859**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0041	0.00020	0.005000	.00006177	80.1	75	125	0.688	20	

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-23438**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**23438**	RunNo:	**31746**					
Prep Date:	**1/27/2016**	Analysis Date:	**1/28/2016**	SeqNo:	**971551**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-23438**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**23438**	RunNo:	**31746**					
Prep Date:	**1/27/2016**	Analysis Date:	**1/28/2016**	SeqNo:	**971552**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968535** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968536** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	96.1	80	120			
Barium	ND	100	0.5000	0	94.0	80	120			
Cadmium	ND	1.0	0.5000	0	92.5	80	120			
Chromium	ND	5.0	0.5000	0	93.7	80	120			
Lead	ND	5.0	0.5000	0	92.9	80	120			
Selenium	ND	1.0	0.5000	0	95.8	80	120			
Silver	ND	5.0	0.1000	0	92.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968316** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968317** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	91.9	80	120			
Antimony	0.48	0.050	0.5000	0	95.5	80	120			
Arsenic	0.48	0.020	0.5000	0	96.1	80	120			
Barium	0.47	0.020	0.5000	0	94.0	80	120			
Beryllium	0.49	0.0030	0.5000	0	99.0	80	120			
Cadmium	0.46	0.0020	0.5000	0	92.5	80	120			
Chromium	0.47	0.0060	0.5000	0	93.7	80	120			
Copper	0.47	0.0060	0.5000	0	94.5	80	120			
Iron	0.48	0.050	0.5000	0	95.5	80	120			
Lead	0.46	0.0050	0.5000	0	92.9	80	120			
Manganese	0.47	0.0020	0.5000	0	93.5	80	120			
Nickel	0.46	0.010	0.5000	0	92.2	80	120			
Potassium	44	1.0	50.00	0	88.6	80	120			
Selenium	0.48	0.050	0.5000	0	95.8	80	120			
Silver	0.092	0.0050	0.1000	0	92.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968317** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.47	0.050	0.5000	0	93.8	80	120			
Vanadium	0.49	0.050	0.5000	0	98.1	80	120			
Zinc	0.48	0.020	0.5000	0	95.2	80	120			

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31648**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968397** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Sodium	ND	1.0								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31648**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968398** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.1	80	120			
Magnesium	49	1.0	50.00	0	98.8	80	120			
Sodium	48	1.0	50.00	0	96.6	80	120			

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31737**
Prep Date: **1/22/2016**	Analysis Date: **1/28/2016**	SeqNo: **971326** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	ND	0.0060								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31737**
Prep Date: **1/22/2016**	Analysis Date: **1/28/2016**	SeqNo: **971327** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	0.46	0.0060	0.5000	0	91.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **2/4/2016**	SeqNo: **982430**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **2/4/2016**	SeqNo: **982431**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.542		0.5000	0	108	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **1/29/2016**	SeqNo: **982433**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **1/29/2016**	SeqNo: **982434**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R31664**	RunNo: **31664**							
Prep Date:	Analysis Date: **1/25/2016**	SeqNo: **968939**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R31664**	RunNo: **31664**							
Prep Date:	Analysis Date: **1/25/2016**	SeqNo: **968940**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.44	20.00	80.00	0	94.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1601864-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R31723** RunNo: **31723**

Prep Date: Analysis Date: **1/27/2016** SeqNo: **970796** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.004	0						0.179	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23428**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971754** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-23428**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971755** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Sample ID **1601864-001AMS**	SampType: **MS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971765** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	5800	40.0	2000	3784	101	80	120			D

Sample ID **1601864-001AMSD**	SampType: **MSD**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971766** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	5820	40.0	2000	3784	102	80	120	0.379	5	D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1601864 RcptNo: 1

Received by/date: LM 01/22/16

Logged By: Michelle Garcia 1/22/2016 9:40:00 AM Michelle Garcia

Completed By: Michelle Garcia 1/22/2016 11:23:27 AM Michelle Garcia

Reviewed By: JO 01/27/16

Chain of Custody

		Yes	No	Not Present
1	Custody seals intact on sample bottles?	☐	☐	☑
2.	Is Chain of Custody complete?	☑	☐	☐
3.	How was the sample delivered?	Courier		

Log In

		Yes	No	NA
4	Was an attempt made to cool the samples?	☑	☐	☐
5.	Were all samples received at a temperature of >0° C to 6.0°C	☑	☐	☐
6	Sample(s) in proper container(s)?	☑	☐	
7	Sufficient sample volume for indicated test(s)?	☑	☐	
8	Are samples (except VOA and ONG) properly preserved?	☑	☐	
9	Was preservative added to bottles?	☐	☑	☐
10.	VOA vials have zero headspace?	☐	☐	☑ No VOA Vials
11.	Were any sample containers received broken?	☐	☑	
12.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	☑	☐	# of preserved bottles checked for pH: 2,2 (2 or >12 unless noted)
13.	Are matrices correctly identified on Chain of Custody?	☑	☐	Adjusted? No
14.	Is it clear what analyses were requested?	☑	☐	
15.	Were all holding times able to be met? (If no, notify customer for authorization.)	☑	☐	Checked by: MG

Special Handling (if applicable)

16.	Was client notified of all discrepancies with this order?	☐	☐	☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.2	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standar ☐ **Rush**

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1601864	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH cond ,Fl, Cation/anion bal., Br, Fh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136 3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
1/21/16	7:35	Liquid	Trip Blank	2	Neat	-002		X					
1/21/16	7:35	Liquid	Temperature Blank	1	Neat								

Date	Time	Relinquished by	Received by	Date	Time
1/21/2016	1:00	Elizabeth Salsberry			
Date	Time	Relinquished by	Received by	01/22/16	0440

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	1/21/2016 @ 7:30 a.m.
End Date and Time	1/21/2016 @ 7:40 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

Container	Size	Material	# of Containers	Preservatives: Ice Only (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/Or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS pH, cond., Fl Cation/anion ba., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R.C.I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc):	1/21/2016 Temp. 37.4 °F Humidity 70% Wind direction NW Wind Speed 11.5 mph Condition Clear
Date and Time	

Field Temp. 40.7C Field pH 7.49

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

February 4, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 3010 0000 3143 3111

RE: 2015 4th Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1361 psig and the average flows were 123 gpm for WDW-1, 91 gpm for WDW-2 and 140 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from October 1, 2015 to December 31, 2015. We have disposed a total of 1,115,486 barrels of fluid into the three wells during the fourth quarter of 2015. The volume per well is:

- 388,046 barrels into WDW-1
- 287,006 barrels into WDW-2
- 440,434 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

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Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, L.L.C.

2015 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	37,147,100
Oct-15	1,379	1,400	1,234	124	129	95	480	837	305	4,251	4,423	3,257	131,794	37,278,894
Nov-15	1,376	1,400	1,252	121	128	94	335	447	91	4,149	4,389	3,223	124,457	37,403,351
Dec-15	1,342	1,400	1,256	124	256	99	398	661	193	4,251	8,777	3,394	131,794	37,535,146
WDW-2													**Previous Quarter**	24,267,637
Oct-15	1,378	1,234	1,252	102	181	59	467	769	248	3,497	6,206	2,023	108,411	24,376,048
Nov-15	1,376	1,400	1,252	92	100	54	341	787	217	3,154	3,429	1,851	94,629	24,470,677
Dec-15	1,326	1,400	1,253	79	99	55	281	345	209	2,709	3,394	1,886	83,966	24,554,643
WDW-3													**Previous Quarter**	14,329,329
Oct-15	1,370	1,390	1,233	141	769	52	855	1,006	708	4,834	26,366	1,783	149,863	14,479,192
Nov-15	1,369	1,390	1,252	143	151	110	857	983	686	4,903	5,177	3,771	147,086	14,626,278
Dec-15	1,334	1,390	1,255	135	151	108	812	965	715	4,629	5,177	3,703	143,486	14,769,763
													Total Injected fluids:	76,859,552

Page 2914 of 5828

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Navajo Refining Company, L.L.C.

2015 FOURTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/6/15	10/12/15	10/19/15	10/26/15	11/2/15	11/9/15	11/16/15	11/23/15	11/30/15	12/7/15	12/14/16	12/16/15	12/21/15	12/28/15
WDW -1[1]	100	100	155**	150	150	150	145	145	145	145	145		145	Inaccessible
WDW-2[1]	100	100	150**	150	145	145	150	150	150	150	150		150	Inaccessible
WDW-3[1]	255*	170	250	310***	150	250	130****	150	200	245	255	300*****	145	Inaccessible
Comments: * Removed 130 gal. ** Added 55 gal. glycol *** Removed 255 gal. ****Removed 180 gal. *****Removed 200 gal.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 24, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1510908

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/20/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	10/23/2015	R30423
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	ND	1.0		mg/L	1	10/23/2015	R30423
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9991	0			1	10/20/2015 1:22:00 PM	R29675
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	5.5	0.50	*	mg/L	5	10/20/2015 2:08:09 PM	R29684
Chloride	520	50		mg/L	100	10/27/2015 11:24:40 PM	R29842
Bromide	0.72	0.50		mg/L	5	10/20/2015 2:08:09 PM	R29684
Phosphorus, Orthophosphate (As P)	ND	10	H	mg/L	20	11/7/2015 4:57:03 AM	A30103
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	11/3/2015 11:53:29 PM	R29992
Sulfate	2700	50		mg/L	100	10/27/2015 11:24:40 PM	R29842
Nitrate+Nitrite as N	ND	1.0		mg/L	5	10/30/2015 11:15:10 AM	R29930
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	6800	0.010		µmhos/cm	1	10/20/2015 2:13:12 PM	R29677
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	296.6	20.00		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
Total Alkalinity (as CaCO3)	296.6	20.00		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4880	100	*D	mg/L	1	10/23/2015 11:44:00 AM	21952
CORROSIVITY						Analyst: **SUB**	
pH	7.63			pH Units	1	10/26/2015	R30423
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	10/28/2015	R30423
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.75	1.68	H	pH units	1	10/20/2015 2:13:12 PM	R29677
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	10/21/2015 3:46:07 PM	21960
MERCURY, TCLP						Analyst: **DBD**	
Mercury	ND	0.020		mg/L	1	11/3/2015 4:41:03 PM	22145
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Barium	ND	100		mg/L	1	10/22/2015 5:15:45 PM	21978
Cadmium	ND	1.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Chromium	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Lead	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Selenium	ND	1.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Silver	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	0.57	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Antimony	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Arsenic	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Barium	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Beryllium	ND	0.0060		mg/L	2	10/22/2015 4:50:43 PM	21972
Cadmium	ND	0.0040		mg/L	2	10/22/2015 4:50:43 PM	21972
Calcium	65	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Chromium	ND	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Cobalt	ND	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Copper	0.016	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Iron	0.45	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Lead	ND	0.010		mg/L	2	10/22/2015 4:50:43 PM	21972
Magnesium	20	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Manganese	0.089	0.0040		mg/L	2	10/22/2015 4:50:43 PM	21972
Nickel	ND	0.020		mg/L	2	10/22/2015 4:50:43 PM	21972
Potassium	28	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Selenium	0.27	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Silver	ND	0.010		mg/L	2	10/22/2015 4:50:43 PM	21972
Sodium	1400	50		mg/L	50	10/22/2015 4:46:39 PM	21972
Thallium	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Vanadium	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Zinc	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Allyl chloride	ND	2.0		µg/L	1	11/2/2015	R30423
Chloroprene	ND	2.0		µg/L	1	11/2/2015	R30423
Cyclohexane	ND	2.0		µg/L	1	11/2/2015	R30423
Diethyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Diisopropyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Epichlorohydrin	ND	5.0		µg/L	1	11/2/2015	R30423
Ethyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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Hall Environmental Analysis Laboratory, Inc.

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EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl methacrylate	ND	2.0		µg/L	1	11/2/2015	R30423
Ethyl tert-butyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Freon-113	ND	2.0		µg/L	1	11/2/2015	R30423
Isobutanol	ND	2.0		µg/L	1	11/2/2015	R30423
Isopropyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
Methacrylonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Methyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
Methyl ethyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl isobutyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl methacrylate	ND	2.0		µg/L	1	11/2/2015	R30423
Methylcyclohexane	ND	2.0		µg/L	1	11/2/2015	R30423
n-Amyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
n-Hexane	ND	0.50		µg/L	1	11/2/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	11/2/2015	R30423
Pentachloroethane	ND	5.0		µg/L	1	11/2/2015	R30423
p-isopropyltoluene	ND	0.50		µg/L	1	11/2/2015	R30423
Propionitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Tetrahydrofuran	ND	2.0		µg/L	1	11/2/2015	R30423
Benzene	ND	0.50		µg/L	1	11/2/2015	R30423
Toluene	ND	0.50		µg/L	1	11/2/2015	R30423
Ethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	11/2/2015	R30423
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	11/2/2015	R30423
Naphthalene	ND	0.50		µg/L	1	11/2/2015	R30423
Acetone	ND	2.5		µg/L	1	11/2/2015	R30423
Bromobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Bromodichloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Bromoform	ND	0.50		µg/L	1	11/2/2015	R30423
Bromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon disulfide	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon Tetrachloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroform	ND	0.50		µg/L	1	11/2/2015	R30423
Chloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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S	% Recovery outside of range due to dilution or matrix		

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Hall Environmental Analysis Laboratory, Inc.

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Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
4-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Dichlorodifluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
2,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
Hexachlorobutadiene	ND	0.50		µg/L	1	11/2/2015	R30423
2-Hexanone	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methylene Chloride	ND	2.5		µg/L	1	11/2/2015	R30423
n-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
n-Propylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
sec-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Styrene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Trichloroethene (TCE)	ND	0.50		µg/L	1	11/2/2015	R30423
Trichlorofluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
mp-Xylenes	ND	1.0		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
o-Xylene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Amyl methyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
tert-Butyl alcohol	ND	0.50		µg/L	1	11/2/2015	R30423
Acrolein	ND	2.0		µg/L	1	11/2/2015	R30423
Acrylonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Bromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chloroethyl vinyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Iodomethane	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
1,4-Dioxane	ND	20		µg/L	1	11/2/2015	R30423
Surr: 1,2-Dichlorobenzene-d4	111	70-130		%REC	1	11/2/2015	R30423
Surr: 4-Bromofluorobenzene	106	70-130		%REC	1	11/2/2015	R30423
Surr: Toluene-d8	104	70-130		%REC	1	11/2/2015	R30423
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	2.0		µg/L	1	10/30/2015	R30423
Atrazine	ND	2.0		µg/L	1	10/30/2015	R30423
Benzaldehyde	3.6	2.0		µg/L	1	10/30/2015	R30423
Caprolactam	ND	2.0		µg/L	1	10/30/2015	R30423
N-Nitroso-di-n-butylamine	ND	2.0		µg/L	1	10/30/2015	R30423
Acetophenone	ND	5.0		µg/L	1	10/30/2015	R30423
1-Methylnaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dimethylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dinitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dinitrotoluene	ND	5.0		µg/L	1	10/30/2015	R30423
2,6-Dinitrotoluene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Chloronaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Chlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2-Methylnaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
2-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
2-Nitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	10/30/2015	R30423
3-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 10/19/2015 7:40:00 AM
Lab ID: 1510908-001 **Matrix:** AQUEOUS **Received Date:** 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chloroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	10/30/2015	R30423
4-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4-Nitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
Acenaphthene	ND	5.0		µg/L	1	10/30/2015	R30423
Acenaphthylene	ND	5.0		µg/L	1	10/30/2015	R30423
Anthracene	ND	5.0		µg/L	1	10/30/2015	R30423
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	10/30/2015	R30423
Benz(a)anthracene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(a)pyrene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(b)fluoranthene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(k)fluoranthene	ND	0.10		µg/L	1	10/30/2015	R30423
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Butyl benzyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Carbazole	ND	5.0		µg/L	1	10/30/2015	R30423
Chrysene	ND	0.10		µg/L	1	10/30/2015	R30423
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	10/30/2015	R30423
Dibenzofuran	ND	5.0		µg/L	1	10/30/2015	R30423
Diethyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Dimethyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Di-n-butyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Di-n-octyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Fluoranthene	ND	5.0		µg/L	1	10/30/2015	R30423
Fluorene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachlorobenzene	ND	1.0		µg/L	1	10/30/2015	R30423
Hexachlorobutadiene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachloroethane	ND	5.0		µg/L	1	10/30/2015	R30423
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	10/30/2015	R30423
Isophorone	ND	5.0		µg/L	1	10/30/2015	R30423
Naphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	10/30/2015	R30423
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	10/30/2015	R30423
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	10/30/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Pentachlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
Phenanthrene	ND	5.0		µg/L	1	10/30/2015	R30423
Phenol	ND	5.0		µg/L	1	10/30/2015	R30423
Pyrene	ND	5.0		µg/L	1	10/30/2015	R30423
o-Toluidine	ND	2.0		µg/L	1	10/30/2015	R30423
Pyridine	ND	5.0		µg/L	1	10/30/2015	R30423
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	10/30/2015	R30423
Surr: 2,4,6-Tribromophenol	104	10-123		%REC	1	10/30/2015	R30423
Surr: 2-Fluorobiphenyl	90.8	19-130		%REC	1	10/30/2015	R30423
Surr: 2-Fluorophenol	70.2	21-120		%REC	1	10/30/2015	R30423
Surr: Nitrobenzene-d5	85.6	25-130		%REC	1	10/30/2015	R30423
Surr: Phenol-d5	121	10-130		%REC	1	10/30/2015	R30423
Surr: Terphenyl-d14	44.4	21-141		%REC	1	10/30/2015	R30423

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D	Sample Diluted Duc to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1510908-002
Matrix: TRIP BLANK
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Allyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroprene	ND	0.50		µg/L	1	11/2/2015	R30423
Cyclohexane	ND	0.50		µg/L	1	11/2/2015	R30423
Diethyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Diisopropyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Epichlorohydrin	ND	5.0		µg/L	1	11/2/2015	R30423
Ethyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Ethyl methacrylate	ND	0.50		µg/L	1	11/2/2015	R30423
Ethyl tert-butyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Freon-113	ND	0.50		µg/L	1	11/2/2015	R30423
Isobutanol	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Methacrylonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl ethyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl isobutyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl methacrylate	ND	0.50		µg/L	1	11/2/2015	R30423
Methylcyclohexane	ND	1.0		µg/L	1	11/2/2015	R30423
n-Amyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
n-Hexane	ND	0.50		µg/L	1	11/2/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	11/2/2015	R30423
Pentachloroethane	ND	5.0		µg/L	1	11/2/2015	R30423
p-isopropyltoluene	ND	0.50		µg/L	1	11/2/2015	R30423
Propionitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrahydrofuran	ND	0.50		µg/L	1	11/2/2015	R30423
Benzene	ND	0.50		µg/L	1	11/2/2015	R30423
Toluene	ND	0.50		µg/L	1	11/2/2015	R30423
Ethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	11/2/2015	R30423
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	11/2/2015	R30423
Naphthalene	ND	0.50		µg/L	1	11/2/2015	R30423
Acetone	ND	2.5		µg/L	1	11/2/2015	R30423
Bromobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Bromodichloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Bromoform	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1510908-002 **Matrix:** TRIP BLANK **Received Date:** 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon disulfide	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon Tetrachloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroform	ND	0.50		µg/L	1	11/2/2015	R30423
Chloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
4-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Dichlorodifluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
2,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
Hexachlorobutadiene	ND	0.50		µg/L	1	11/2/2015	R30423
2-Hexanone	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methylene Chloride	ND	2.5		µg/L	1	11/2/2015	R30423
n-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
n-Propylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
sec-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Styrene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1510908-002
Matrix: TRIP BLANK
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Trichloroethene (TCE)	ND	0.50		µg/L	1	11/2/2015	R30423
Trichlorofluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
mp-Xylenes	ND	1.0		µg/L	1	11/2/2015	R30423
o-Xylene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Amyl methyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butyl alcohol	ND	0.50		µg/L	1	11/2/2015	R30423
Acrolein	ND	0.50		µg/L	1	11/2/2015	R30423
Acrylonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Bromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Iodomethane	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dioxane	ND	20		µg/L	1	11/2/2015	R30423
Surr: 1,2-Dichlorobenzene-d4	108	70-130		%REC	1	11/2/2015	R30423
Surr: 4-Bromofluorobenzene	105	70-130		%REC	1	11/2/2015	R30423
Surr: Toluene-d8	102	70-130		%REC	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Valuc above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29842**	RunNo: **29842**
Prep Date:	Analysis Date: **10/27/2015**	SeqNo: **908890** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29842**	RunNo: **29842**
Prep Date:	Analysis Date: **10/27/2015**	SeqNo: **908891** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29930**	RunNo: **29930**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **911773** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29930**	RunNo: **29930**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **911774** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	96.6	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29992**	RunNo: **29992**
Prep Date:	Analysis Date: **11/3/2015**	SeqNo: **913762** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29992**	RunNo: **29992**
Prep Date:	Analysis Date: **11/3/2015**	SeqNo: **913763** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A30103**	RunNo: **30103**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916979** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A30103**	RunNo: **30103**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916980** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.3	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928381** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
p-isopropyltoluene	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928381** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	2.5								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	0.50								
o-Xylene	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928382** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.2	0	10.00	0	92.1	80	120			
Toluene	9.6	0	10.00	0	96.5	80	120			
Ethylbenzene	9.7	0	10.00	0	96.9	80	120			
Chlorobenzene	9.5	0	10.00	0	94.7	80	120			
1,1-Dichloroethene	10	0	10.00	0	102	80	120			
Tetrachloroethene (PCE)	9.9	0	10.00	0	99.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928382** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	10	0	10.00	0	102	80	120			
o-Xylene	10	0	10.00	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928385** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	5.0								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928385** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
o-Toluidine	ND	2.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928386** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.8	0	5.000	0	95.6	49	134			
2-Chlorophenol	4.7	0	5.000	0	94.4	50	31			S
4-Chloro-3-methylphenol	4.8	0	5.000	0	95.4	42	139			
4-Nitrophenol	3.2	0	5.000	0	65.0	19	137			
Acenaphthene	5.2	0	5.000	0	105	36	122			
Bis(2-ethylhexyl)phthalate	5.9	0	5.000	0	118	43	142			
N-Nitrosodi-n-propylamine	4.7	0	5.000	0	94.4	46	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928386** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	4.8	0	5.000	0	95.4	22	138			
Phenol	4.5	0	5.000	0	90.8	45	134			
Pyrene	4.6	0	5.000	0	92.2	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21960**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **21960**	RunNo: **29703**
Prep Date: **10/21/2015**	Analysis Date: **10/21/2015**	SeqNo: **904542** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-21960**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **21960**	RunNo: **29703**
Prep Date: **10/21/2015**	Analysis Date: **10/21/2015**	SeqNo: **904543** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-22145**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**22145**	RunNo:	**29977**					
Prep Date:	**11/3/2015**	Analysis Date:	**11/3/2015**	SeqNo:	**913123**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-22145**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**22145**	RunNo:	**29977**					
Prep Date:	**11/3/2015**	Analysis Date:	**11/3/2015**	SeqNo:	**913124**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	101	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21978**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **21978**	RunNo: **29736**
Prep Date: **10/22/2015**	Analysis Date: **10/22/2015**	SeqNo: **905688** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-21978**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **21978**	RunNo: **29736**
Prep Date: **10/22/2015**	Analysis Date: **10/22/2015**	SeqNo: **905689** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	107	80	120			
Barium	ND	100	0.5000	0	100	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	100	80	120			
Lead	ND	5.0	0.5000	0	101	80	120			
Selenium	ND	1.0	0.5000	0	107	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21972**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905617** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-21972**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.52	0.020	0.5000	0	103	80	120			
Antimony	0.52	0.050	0.5000	0	103	80	120			
Arsenic	0.51	0.020	0.5000	0	101	80	120			
Barium	0.49	0.020	0.5000	0	97.9	80	120			
Beryllium	0.51	0.0030	0.5000	0	103	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.2	80	120			
Calcium	49	1.0	50.00	0	97.9	80	120			
Chromium	0.49	0.0060	0.5000	0	97.6	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.3	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.49	0.050	0.5000	0	97.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-21972**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.49	0.0050	0.5000	0	97.9	80	120			
Magnesium	50	1.0	50.00	0	99.1	80	120			
Manganese	0.48	0.0020	0.5000	0	96.9	80	120			
Nickel	0.48	0.010	0.5000	0	95.8	80	120			
Potassium	47	1.0	50.00	0	94.3	80	120			
Selenium	0.49	0.050	0.5000	0	98.4	80	120			
Silver	0.099	0.0050	0.1000	0	99.2	80	120			
Sodium	49	1.0	50.00	0	98.4	80	120			
Thallium	0.51	0.050	0.5000	0	103	80	120			
Vanadium	0.51	0.050	0.5000	0	102	80	120			
Zinc	0.48	0.020	0.5000	0	95.3	80	120			

Sample ID **1510908-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.2	0.040	0.5000	0.5719	126	75	125			S
Antimony	0.60	0.10	0.5000	0	120	75	125			
Arsenic	0.63	0.040	0.5000	0	126	75	125			S
Barium	0.54	0.040	0.5000	0.01050	106	75	125			
Beryllium	0.55	0.0060	0.5000	0	110	75	125			
Cadmium	0.56	0.0040	0.5000	0	111	75	125			
Calcium	120	2.0	50.00	65.14	113	75	125			
Chromium	0.52	0.012	0.5000	0	105	75	125			
Cobalt	0.53	0.012	0.5000	0	106	75	125			
Copper	0.62	0.012	0.5000	0.01570	121	75	125			
Iron	0.99	0.10	0.5000	0.4468	110	75	125			
Lead	0.55	0.010	0.5000	0	110	75	125			
Magnesium	74	2.0	50.00	19.57	110	75	125			
Manganese	0.62	0.0040	0.5000	0.08908	106	75	125			
Nickel	0.54	0.020	0.5000	0	108	75	125			
Potassium	85	2.0	50.00	27.55	115	75	125			
Selenium	0.86	0.10	0.5000	0.2670	118	75	125			
Silver	0.11	0.010	0.1000	0	112	75	125			
Thallium	0.58	0.10	0.5000	0	115	75	125			
Vanadium	0.57	0.10	0.5000	0.01404	110	75	125			
Zinc	0.59	0.040	0.5000	0.03952	110	75	125			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1510908-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **21972** RunNo: **29736**

Prep Date: **10/21/2015** Analysis Date: **10/22/2015** SeqNo: **905635** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.040	0.5000	0.5719	115	75	125	4.76	20	
Antimony	0.54	0.10	0.5000	0	108	75	125	10.5	20	
Arsenic	0.59	0.040	0.5000	0	118	75	125	6.26	20	
Barium	0.51	0.040	0.5000	0.01050	99.5	75	125	6.53	20	
Beryllium	0.50	0.0060	0.5000	0	101	75	125	8.90	20	
Cadmium	0.52	0.0040	0.5000	0	104	75	125	6.55	20	
Calcium	110	2.0	50.00	65.14	88.0	75	125	11.0	20	
Chromium	0.49	0.012	0.5000	0	98.8	75	125	5.80	20	
Cobalt	0.50	0.012	0.5000	0	99.8	75	125	6.05	20	
Copper	0.58	0.012	0.5000	0.01570	112	75	125	7.19	20	
Iron	0.90	0.10	0.5000	0.4468	91.6	75	125	9.48	20	
Lead	0.51	0.010	0.5000	0	102	75	125	7.39	20	
Magnesium	69	2.0	50.00	19.57	99.3	75	125	7.30	20	
Manganese	0.58	0.0040	0.5000	0.08908	98.6	75	125	6.53	20	
Nickel	0.51	0.020	0.5000	0	101	75	125	6.22	20	
Potassium	77	2.0	50.00	27.55	98.0	75	125	10.6	20	
Selenium	0.80	0.10	0.5000	0.2670	108	75	125	6.07	20	
Silver	0.10	0.010	0.1000	0	102	75	125	8.73	20	
Thallium	0.54	0.10	0.5000	0	107	75	125	7.22	20	
Vanadium	0.53	0.10	0.5000	0.01404	103	75	125	6.69	20	
Zinc	0.55	0.040	0.5000	0.03952	103	75	125	6.44	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/28/2015**	SeqNo: **928390** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/28/2015**	SeqNo: **928391** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.478		0.5000	0	95.6	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/23/2015**	SeqNo: **928393** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/23/2015**	SeqNo: **928394** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.20		0.2000	0	100	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R29677**	RunNo: **29677**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904176** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R29677**	RunNo: **29677**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904177** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.04	20.00	80.00	0	96.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1510908-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R29675** RunNo: **29675**

Prep Date: Analysis Date: **10/20/2015** SeqNo: **903627** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.000	0						0.0900	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21952**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **21952**	RunNo: **29751**
Prep Date: **10/21/2015**	Analysis Date: **10/23/2015**	SeqNo: **906219** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-21952**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **21952**	RunNo: **29751**
Prep Date: **10/21/2015**	Analysis Date: **10/23/2015**	SeqNo: **906220** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1510908 RcptNo: 1

Received by/date: 10/20/15

Logged By: Lindsay Mangin 10/20/2015 8:55:00 AM

Completed By: Lindsay Mangin 10/20/2015 9:15:21 AM

Reviewed By: 10/20/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2 2 2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? no
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standar ☐ **Rush**

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:
Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☑ Yes ☐ No

Sample Temperature: 2.4

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1510908	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Ehv40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
10/19/15	7:40	Liquid	Trip Blank	2	Neat	-002		X					
10/19/15	7:40	Liquid	Temperature Blank	1	Neat	-							

Date	Time	Relinquished by	Received by	Date	Time
10/19/15	11:30	Elizabeth Salsberry			
				10/20/15	0855
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	10/19/2015 @ 7:30am
End Date and Time	10/19/2015 @ 7:45 am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Parts / Sample Intervals	One
Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells

☑ P-846 sample point (first from east) ☐ P-856 sample point (third from east)
☐ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond. Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc):	10/19/2015 Temp 55.4 °F Humidity 100% Wind Direction South Wind Speed 8.1 mph Condition Clear
Date and Time	
Field Temp. 42.8C	Field pH 7.54

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

RECEIVED OCD
7 2 P 3:13

October 29, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 5100

RE: 2015 3rd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1381 psig and the average flows were 125 gpm for WDW-1, 158 gpm for WDW-2 and 133 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2015 to September 30, 2015. We have disposed a total of 1,317,417 barrels of fluid into the three wells during the third quarter of 2015. The volume per well is:

- 396,103 barrels into WDW-1
- 501,110 barrels into WDW-2
- 420,204 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/3rd quarter/2015-10-29 3rd QTR Inj. Rpt. for Wells WDW-1,2,3

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Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, L.L.C.

2015 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	36,750,997
Jul-15	1,392	1,400	1,267	128	131	114	622	866	331	4,389	4,491	3,909	136,059	36,887,056
Aug-15	1,389	1,400	1,152	126	128	97	495	858	134	4,320	4,389	3,326	133,695	37,020,751
Sep-15	1,381	1,400	1,100	123	127	84	598	762	59	4,217	4,354	2,880	126,349	37,147,100
WDW-2													**Previous Quarter**	23,766,527
Jul-15	1,391	1,400	1,269	149	278	79	252	314	208	5,109	9,531	2,709	158,379	23,924,906
Aug-15	1,392	1,400	1,156	202	293	146	250	379	217	6,926	10,046	5,006	214,764	24,139,670
Sep-15	1,369	1,400	1,110	124	260	59	263	387	226	4,251	8,914	2,023	127,967	24,267,637
WDW-3													**Previous Quarter**	13,909,125
Jul-15	1,373	1,390	1,265	124	134	75	680	881	500	4,251	4,594	2,571	131,781	14,040,906
Aug-15	1,382	1,390	1,157	119	132	24	849	970	527	4,080	4,526	823	126,544	14,167,450
Sep-15	1,362	1,390	1,113	157	297	86	780	909	539	5,383	10,183	2,949	161,879	14,329,329
													Total Injected fluids:	75,744,066

T:\Injection Wells\Reports C-115 and Quarterly\2015\3rd quarter\
3rd 2015 qtrly rpt data
Injection fluids

10/15/20152:19 PM

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, L.L.C.

2015 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/6/15	7/13/15	7/20/15	7/27/15	8/3/15	8/10/15	8/14/15	8/24/15	9/1/15	9/8/15	9/14/15	9/21/15	9/30/15
WDW -1[1]	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	150	155	235	150*	170	220	253	130**	230	240	254	170***	240

Comments: * Removed 145 gal. ** Removed 180 gal. *** Removed 100 gal.

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

Page 2951 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 10, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1507D99

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/31/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1507D99**
Date: **9/10/2015**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	8/11/2015	R28710
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	1.4	1.0		mg/L	1	8/7/2015	R28710
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9967	0			1	8/5/2015 3:14:00 PM	R27979
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	42	5.0	*	mg/L	50	7/31/2015 2:33:11 PM	R27901
Chloride	330	25		mg/L	50	7/31/2015 2:33:11 PM	R27901
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Bromide	1.2	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	7/31/2015 2:20:46 PM	R27901
Sulfate	2200	25		mg/L	50	7/31/2015 2:33:11 PM	R27901
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5900	0.010		µmhos/cm	1	8/6/2015 4:51:43 PM	R28029
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	392.7	20.00		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
Total Alkalinity (as CaCO3)	392.7	20.00		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3580	20.0	*	mg/L	1	8/5/2015 7:28:00 PM	20581
CORROSIVITY						Analyst: **SUB**	
pH	8.31	0.100		pH Units	1	8/5/2015	R28710
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	8/13/2015	R28710
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.17	1.68	H	pH units	1	8/6/2015 4:51:43 PM	R28029
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	8/4/2015 2:15:41 PM	20588
MERCURY, TCLP						Analyst: **JLF**	
Mercury	0.078	0.020		mg/L	20	8/6/2015 1:58:10 PM	20636
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Barium	ND	100		mg/L	1	8/6/2015 9:36:29 AM	20620
Cadmium	ND	1.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Chromium	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Lead	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Selenium	ND	1.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Silver	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	1.2	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Antimony	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Arsenic	0.029	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Barium	ND	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Beryllium	ND	0.0030		mg/L	1	8/6/2015 9:44:36 AM	20620
Cadmium	ND	0.0020		mg/L	1	8/6/2015 9:44:36 AM	20620
Calcium	52	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Chromium	ND	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Cobalt	0.0085	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Copper	0.017	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Iron	0.89	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Lead	ND	0.0050		mg/L	1	8/6/2015 9:44:36 AM	20620
Magnesium	17	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Manganese	0.10	0.0020		mg/L	1	8/6/2015 9:44:36 AM	20620
Nickel	0.021	0.010		mg/L	1	8/6/2015 9:44:36 AM	20620
Potassium	77	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Selenium	0.19	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Silver	ND	0.0050		mg/L	1	8/6/2015 9:44:36 AM	20620
Sodium	980	10		mg/L	10	8/10/2015 1:27:17 PM	20675
Thallium	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Vanadium	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Zinc	0.31	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Allyl chloride	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroprene	ND	2.5		µg/L	1	8/11/2015	R28710
Cyclohexane	ND	2.5		µg/L	1	8/11/2015	R28710
Diethyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Diisopropyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Epichlorohydrin	ND	25		µg/L	1	8/11/2015	R28710
Ethyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl methacrylate	ND	2.5		µg/L	1	8/11/2015	R28710
Ethyl tert-butyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Freon-113	ND	2.5		µg/L	1	8/11/2015	R28710
Isobutanol	ND	2.5		µg/L	1	8/11/2015	R28710
Isopropyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
Methacrylonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl ethyl ketone	24	12		µg/L	1	8/11/2015	R28710
Methyl isobutyl ketone	ND	12		µg/L	1	8/11/2015	R28710
Methyl methacrylate	ND	2.5		µg/L	1	8/11/2015	R28710
Methylcyclohexane	ND	5.0		µg/L	1	8/11/2015	R28710
n-Amyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
n-Hexane	ND	2.5		µg/L	1	8/11/2015	R28710
Nitrobenzene	ND	25		µg/L	1	8/11/2015	R28710
Pentachloroethane	ND	25		µg/L	1	8/11/2015	R28710
p-isopropyltoluene	ND	2.5		µg/L	1	8/11/2015	R28710
Propionitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Tetrahydrofuran	ND	2.5		µg/L	1	8/11/2015	R28710
Benzene	ND	2.5		µg/L	1	8/11/2015	R28710
Toluene	ND	2.5		µg/L	1	8/11/2015	R28710
Ethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	1	8/11/2015	R28710
1,2,4-Trimethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,3,5-Trimethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	1	8/11/2015	R28710
Naphthalene	3.4	2.5		µg/L	1	8/11/2015	R28710
Acetone	890	12		µg/L	1	8/11/2015	R28710
Bromobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Bromodichloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
Bromoform	ND	2.5		µg/L	1	8/11/2015	R28710
Bromomethane	ND	2.5		µg/L	1	8/11/2015	R28710
Carbon disulfide	ND	2.5		µg/L	1	8/11/2015	R28710
Carbon Tetrachloride	ND	2.5		µg/L	1	8/11/2015	R28710
Chlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroform	ND	2.5		µg/L	1	8/11/2015	R28710
Chloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
2-Chlorotoluene	ND	2.5		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
4-Chlorotoluene	ND	2.5		µg/L	1	8/11/2015	R28710
cis-1,2-DCE	ND	2.5		µg/L	1	8/11/2015	R28710
cis-1,3-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dibromo-3-chloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
Dibromochloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
Dibromomethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,3-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,4-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Dichlorodifluoromethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloroethene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
1,3-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
2,2-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
Hexachlorobutadiene	ND	2.5		µg/L	1	8/11/2015	R28710
2-Hexanone	ND	2.5		µg/L	1	8/11/2015	R28710
Isopropylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Methylene Chloride	ND	12		µg/L	1	8/11/2015	R28710
n-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
n-Propylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
sec-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Styrene	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Tetrachloroethene (PCE)	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,2-DCE	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,3-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,3-Trichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,4-Trichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,1-Trichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,2-Trichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Trichloroethene (TCE)	ND	2.5		µg/L	1	8/11/2015	R28710
Trichlorofluoromethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,3-Trichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
Vinyl chloride	ND	2.5		µg/L	1	8/11/2015	R28710
mp-Xylenes	ND	5.0		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
o-Xylene	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Amyl methyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Butyl alcohol	ND	2.5		µg/L	1	8/11/2015	R28710
Acrolein	ND	2.5		µg/L	1	8/11/2015	R28710
Acrylonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Bromochloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Iodomethane	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,4-Dichloro-2-butene	ND	2.5		µg/L	1	8/11/2015	R28710
Vinyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
1,4-Dioxane	ND	100		µg/L	1	8/11/2015	R28710
Surr: 1,2-Dichlorobenzene-d4	94.0	70-130		%REC	1	8/11/2015	R28710
Surr: 4-Bromofluorobenzene	96.0	70-130		%REC	1	8/11/2015	R28710
Surr: Toluene-d8	100	70-130		%REC	1	8/11/2015	R28710
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	8/12/2015	R28710
Atrazine	ND	5.0		µg/L	1	8/12/2015	R28710
Benzaldehyde	ND	5.0		µg/L	1	8/12/2015	R28710
Caprolactam	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	8/12/2015	R28710
Acetophenone	ND	5.0		µg/L	1	8/12/2015	R28710
1-Methylnaphthalene	7.1	5.0		µg/L	1	8/12/2015	R28710
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dimethylphenol	6.7	5.0		µg/L	1	8/12/2015	R28710
2,4-Dinitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dinitrotoluene	ND	5.0		µg/L	1	8/12/2015	R28710
2,6-Dinitrotoluene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Chloronaphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Chlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2-Methylnaphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710
2-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
2-Nitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	8/12/2015	R28710
3-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chloroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	8/12/2015	R28710
4-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4-Nitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
Acenaphthene	ND	5.0		µg/L	1	8/12/2015	R28710
Acenaphthylene	ND	5.0		µg/L	1	8/12/2015	R28710
Anthracene	ND	5.0		µg/L	1	8/12/2015	R28710
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	8/12/2015	R28710
Benz(a)anthracene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(a)pyrene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(b)fluoranthene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(k)fluoranthene	ND	1.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Butyl benzyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Carbazole	ND	5.0		µg/L	1	8/12/2015	R28710
Chrysene	ND	1.0		µg/L	1	8/12/2015	R28710
Dibenz(a,h)anthracene	ND	1.0		µg/L	1	8/12/2015	R28710
Dibenzofuran	5.7	5.0		µg/L	1	8/12/2015	R28710
Diethyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Dimethyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Di-n-butyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Di-n-octyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Fluoranthene	ND	5.0		µg/L	1	8/12/2015	R28710
Fluorene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorobenzene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorobutadiene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachloroethane	ND	5.0		µg/L	1	8/12/2015	R28710
Indeno(1,2,3-cd)pyrene	ND	1.0		µg/L	1	8/12/2015	R28710
Isophorone	ND	5.0		µg/L	1	8/12/2015	R28710
Naphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
Nitrobenzene	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	8/12/2015	R28710

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Pentachlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
Phenanthrene	ND	5.0		µg/L	1	8/12/2015	R28710
Phenol	5.0	5.0		µg/L	1	8/12/2015	R28710
Pyrene	ND	5.0		µg/L	1	8/12/2015	R28710
o-Toluidine	ND	5.0		µg/L	1	8/12/2015	R28710
Pyridine	ND	5.0		µg/L	1	8/12/2015	R28710
1,2,4,5-Tetrachlorobenzene	ND	0		µg/L	1	8/12/2015	R28710
Surr: 2,4,6-Tribromophenol	111	10-123		%REC	1	8/12/2015	R28710
Surr: 2-Fluorobiphenyl	84.4	19-130		%REC	1	8/12/2015	R28710
Surr: 2-Fluorophenol	85.2	21-120		%REC	1	8/12/2015	R28710
Surr: Nitrobenzene-d5	84.0	25-130		%REC	1	8/12/2015	R28710
Surr: Phenol-d5	66.4	10-130		%REC	1	8/12/2015	R28710
Surr: Terphenyl-d14	51.6	21-141		%REC	1	8/12/2015	R28710

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Qualifiers:

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D	Sample Diluted Duc to Matrix	E	Value above quantitation range
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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002
Matrix: TRIP BLANK
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Allyl chloride	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroprene	ND	0.50		µg/L	1	8/11/2015	R28710
Cyclohexane	ND	0.50		µg/L	1	8/11/2015	R28710
Diethyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Diisopropyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Epichlorohydrin	ND	5.0		µg/L	1	8/11/2015	R28710
Ethyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Ethyl methacrylate	ND	0.50		µg/L	1	8/11/2015	R28710
Ethyl tert-butyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Freon-113	ND	0.50		µg/L	1	8/11/2015	R28710
Isobutanol	ND	0.50		µg/L	1	8/11/2015	R28710
Isopropyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Methacrylonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl ethyl ketone	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl isobutyl ketone	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl methacrylate	ND	0.50		µg/L	1	8/11/2015	R28710
Methylcyclohexane	ND	1.0		µg/L	1	8/11/2015	R28710
n-Amyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
n-Hexane	ND	0.50		µg/L	1	8/11/2015	R28710
Nitrobenzene	ND	5.0		µg/L	1	8/11/2015	R28710
Pentachloroethane	ND	5.0		µg/L	1	8/11/2015	R28710
p-isopropyltoluene	ND	0.50		µg/L	1	8/11/2015	R28710
Propionitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Tetrahydrofuran	ND	0.50		µg/L	1	8/11/2015	R28710
Benzene	ND	0.50		µg/L	1	8/11/2015	R28710
Toluene	ND	0.50		µg/L	1	8/11/2015	R28710
Ethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	8/11/2015	R28710
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	8/11/2015	R28710
Naphthalene	ND	0.50		µg/L	1	8/11/2015	R28710
Acetone	ND	2.5		µg/L	1	8/11/2015	R28710
Bromobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Bromodichloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
Bromoform	ND	0.50		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002
Matrix: TRIP BLANK
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	8/11/2015	R28710
Carbon disulfide	ND	0.50		µg/L	1	8/11/2015	R28710
Carbon Tetrachloride	ND	0.50		µg/L	1	8/11/2015	R28710
Chlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroform	ND	0.50		µg/L	1	8/11/2015	R28710
Chloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
2-Chlorotoluene	ND	0.50		µg/L	1	8/11/2015	R28710
4-Chlorotoluene	ND	0.50		µg/L	1	8/11/2015	R28710
cis-1,2-DCE	ND	0.50		µg/L	1	8/11/2015	R28710
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
Dibromochloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
Dibromomethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,3-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,4-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Dichlorodifluoromethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloroethene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
1,3-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
2,2-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
Hexachlorobutadiene	ND	0.50		µg/L	1	8/11/2015	R28710
2-Hexanone	ND	0.50		µg/L	1	8/11/2015	R28710
Isopropylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Methylene Chloride	ND	2.5		µg/L	1	8/11/2015	R28710
n-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
n-Propylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
sec-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Styrene	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,2-DCE	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002 **Matrix:** TRIP BLANK **Received Date:** 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,1-Trichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,2-Trichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Trichloroethene (TCE)	ND	0.50		µg/L	1	8/11/2015	R28710
Trichlorofluoromethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,2,3-Trichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
Vinyl chloride	ND	0.50		µg/L	1	8/11/2015	R28710
mp-Xylenes	ND	1.0		µg/L	1	8/11/2015	R28710
o-Xylene	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Amyl methyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Butyl alcohol	ND	0.50		µg/L	1	8/11/2015	R28710
Acrolein	ND	0.50		µg/L	1	8/11/2015	R28710
Acrylonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Bromochloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Iodomethane	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	8/11/2015	R28710
Vinyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
1,4-Dioxane	ND	20		µg/L	1	8/11/2015	R28710
Surr: 1,2-Dichlorobenzene-d4	95.6	70-130		%REC	1	8/11/2015	R28710
Surr: 4-Bromofluorobenzene	95.2	70-130		%REC	1	8/11/2015	R28710
Surr: Toluene-d8	93.6	70-130		%REC	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R27901**	RunNo: **27901**
Prep Date:	Analysis Date: **7/31/2015**	SeqNo: **839136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R27901**	RunNo: **27901**
Prep Date:	Analysis Date: **7/31/2015**	SeqNo: **839137** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.8	0.50	5.000	0	95.8	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	95.9	90	110			
Bromide	2.5	0.10	2.500	0	98.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.3	90	110			
Sulfate	9.8	0.50	10.00	0	97.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	0.50								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	5.0								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Methylcyclohexane	ND	0.50								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	0.50								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	0.50								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	0.50								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.6	0	10.00	0	96.3	80	120			
Toluene	9.7	0	10.00	0	97.3	80	120			
Ethylbenzene	9.7	0	10.00	0	97.3	80	120			
Chlorobenzene	9.5	0	10.00	0	95.2	80	120			
1,1-Dichloroethene	9.6	0	10.00	0	95.5	80	120			
Tetrachloroethene (PCE)	9.0	0	10.00	0	89.9	80	120			
Trichloroethene (TCE)	9.4	0	10.00	0	93.6	80	120			
o-Xylene	10	0	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870225** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	0.50								
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870225** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Carbazole	ND	5.0								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	2.0								
o-Toluidine	ND	5.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870226** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.0	0	5.000	0	99.8	49	134			
2-Chlorophenol	4.8	0	5.000	0	95.4	50	131			
4-Chloro-3-methylphenol	5.4	0	5.000	0	109	42	139			
4-Nitrophenol	5.6	0	5.000	0	111	19	137			
Acenaphthene	5.2	0	5.000	0	103	36	122			
Bis(2-ethylhexyl)phthalate	5.6	0	5.000	0	112	43	142			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870226** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodi-n-propylamine	5.3	0	5.000	0	106	46	140			
Pentachlorophenol	5.9	0	5.000	0	118	22	138			
Phenol	4.7	0	5.000	0	94.6	45	134			
Pyrene	4.9	0	5.000	0	98.0	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**1507d99-001adup**	SampType: **DUP**		TestCode: **SM2510B: Specific Conductance**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **R28029**		RunNo: **28029**					
Prep Date:		Analysis Date: **8/6/2015**		SeqNo: **843890**		Units: **µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	5900	0.010						0.354	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20588**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **20588**	RunNo: **27941**
Prep Date: **8/4/2015**	Analysis Date: **8/4/2015**	SeqNo: **840615** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-20588**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **20588**	RunNo: **27941**
Prep Date: **8/4/2015**	Analysis Date: **8/4/2015**	SeqNo: **840616** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20636**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **20636**	RunNo: **28011**
Prep Date: **8/6/2015**	Analysis Date: **8/6/2015**	SeqNo: **843195** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-20636**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **20636**	RunNo: **28011**
Prep Date: **8/6/2015**	Analysis Date: **8/6/2015**	SeqNo: **843196** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	111	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20620**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842847** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-20620**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842848** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	95.8	80	120			
Barium	ND	100	0.5000	0	98.8	80	120			
Cadmium	ND	1.0	0.5000	0	96.2	80	120			
Chromium	ND	5.0	0.5000	0	98.4	80	120			
Lead	ND	5.0	0.5000	0	97.5	80	120			
Selenium	ND	1.0	0.5000	0	97.8	80	120			
Silver	ND	5.0	0.1000	0	97.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20620**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842849** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-20620**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842850** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.47	0.020	0.5000	0	94.7	80	120			
Antimony	0.49	0.050	0.5000	0	98.3	80	120			
Arsenic	0.49	0.020	0.5000	0	98.5	80	120			
Barium	0.50	0.020	0.5000	0	100	80	120			
Beryllium	0.50	0.0030	0.5000	0	101	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.7	80	120			
Chromium	0.50	0.0060	0.5000	0	100	80	120			
Copper	0.51	0.0060	0.5000	0	103	80	120			
Iron	0.51	0.050	0.5000	0	102	80	120			
Lead	0.50	0.0050	0.5000	0	99.7	80	120			
Manganese	0.50	0.0020	0.5000	0	101	80	120			
Nickel	0.51	0.010	0.5000	0	101	80	120			
Selenium	0.49	0.050	0.5000	0	97.5	80	120			
Silver	0.098	0.0050	0.1000	0	98.2	80	120			
Thallium	0.50	0.050	0.5000	0	99.1	80	120			
Vanadium	0.50	0.050	0.5000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-20620** SampType: **LCS** TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW** Batch ID: **20620** RunNo: **27997**
Prep Date: **8/5/2015** Analysis Date: **8/6/2015** SeqNo: **842850** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.49	0.020	0.5000	0	97.2	80	120			

Sample ID **1507D99-001BMS** SampType: **MS** TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **20620** RunNo: **27997**
Prep Date: **8/5/2015** Analysis Date: **8/6/2015** SeqNo: **842864** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.7	0.020	0.5000	1.205	107	75	125			
Antimony	0.44	0.050	0.5000	0	88.8	75	125			
Arsenic	0.49	0.020	0.5000	0.02853	92.4	75	125			
Barium	0.43	0.020	0.5000	0.006150	85.7	75	125			
Beryllium	0.44	0.0030	0.5000	0	87.6	75	125			
Cadmium	0.44	0.0020	0.5000	0	87.4	75	125			
Chromium	0.42	0.0060	0.5000	0.003330	84.3	75	125			
Cobalt	0.43	0.0060	0.5000	0.008460	84.7	75	125			
Copper	0.49	0.0060	0.5000	0.01740	93.8	75	125			
Iron	1.3	0.050	0.5000	0.8854	92.2	75	125			
Lead	0.43	0.0050	0.5000	0	85.8	75	125			
Manganese	0.53	0.0020	0.5000	0.1014	84.8	75	125			
Nickel	0.45	0.010	0.5000	0.02121	85.8	75	125			
Selenium	0.66	0.050	0.5000	0.1944	92.2	75	125			
Silver	0.086	0.0050	0.1000	0	85.9	75	125			
Thallium	0.44	0.050	0.5000	0	88.4	75	125			
Vanadium	0.46	0.050	0.5000	0.01240	89.4	75	125			
Zinc	0.77	0.020	0.5000	0.3098	92.1	75	125			

Sample ID **1507D99-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **20620** RunNo: **27997**
Prep Date: **8/5/2015** Analysis Date: **8/6/2015** SeqNo: **842865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.7	0.020	0.5000	1.205	96.2	75	125	3.27	20	
Antimony	0.42	0.050	0.5000	0	84.7	75	125	4.66	20	
Arsenic	0.47	0.020	0.5000	0.02853	88.6	75	125	4.01	20	
Barium	0.42	0.020	0.5000	0.006150	82.9	75	125	3.32	20	
Beryllium	0.43	0.0030	0.5000	0	85.0	75	125	3.04	20	
Cadmium	0.43	0.0020	0.5000	0	85.0	75	125	2.73	20	
Chromium	0.41	0.0060	0.5000	0.003330	82.1	75	125	2.67	20	
Cobalt	0.42	0.0060	0.5000	0.008460	82.7	75	125	2.33	20	
Copper	0.47	0.0060	0.5000	0.01740	90.7	75	125	3.26	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507D99-001BMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	1.3	0.050	0.5000	0.8854	83.8	75	125	3.16	20	
Lead	0.42	0.0050	0.5000	0	83.6	75	125	2.58	20	
Manganese	0.51	0.0020	0.5000	0.1014	81.7	75	125	2.98	20	
Nickel	0.44	0.010	0.5000	0.02121	82.8	75	125	3.38	20	
Selenium	0.64	0.050	0.5000	0.1944	88.6	75	125	2.79	20	
Silver	0.083	0.0050	0.1000	0	83.2	75	125	3.16	20	
Thallium	0.44	0.050	0.5000	0	88.0	75	125	0.497	20	
Vanadium	0.44	0.050	0.5000	0.01240	86.5	75	125	3.22	20	
Zinc	0.74	0.020	0.5000	0.3098	87.0	75	125	3.34	20	

Sample ID **MB-20675**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **20675**	RunNo: **28076**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **845664** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID **LCS-20675**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **20675**	RunNo: **28076**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **845665** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	50	1.0	50.00	0	100	80	120			
Potassium	48	1.0	50.00	0	95.7	80	120			
Sodium	49	1.0	50.00	0	98.7	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507d99-001adup**	SampType: **DUP**			TestCode: **SM4500-H+B: pH**						
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R28029**			RunNo: **28029**						
Prep Date:	Analysis Date: **8/6/2015**			SeqNo: **843901**		Units: **pH units**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.15	1.68								H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/13/2015**	SeqNo: **870230** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/13/2015**	SeqNo: **870231** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.478		0.5000	0	95.6	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **870233** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **870234** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.22		0.2000	0	110	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843850**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843851**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.64	20.00	80.00	0	98.3	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843874**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843875**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.72	20.00	80.00	0	99.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507D99-001ADUP**	SampType: **DUP**			TestCode: **Specific Gravity**						
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R27979**			RunNo: **27979**						
Prep Date:	Analysis Date: **8/5/2015**			SeqNo: **841885**		Units:				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9985	0						0.180	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20581**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **20581**	RunNo: **27984**
Prep Date: **8/4/2015**	Analysis Date: **8/5/2015**	SeqNo: **842184** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-20581**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **20581**	RunNo: **27984**
Prep Date: **8/4/2015**	Analysis Date: **8/5/2015**	SeqNo: **842185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1507D99 RcptNo: 1

Received by/date: SA 07/31/15

Logged By: Lindsay Mangin 7/31/2015 8:00:00 AM

Completed By: Lindsay Mangin 7/31/2015 9:58:04 AM

Reviewed By: IO 07/31/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2, 2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? no
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standar ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:
Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1507D99	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attachec list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-845 Method 1311
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
7/30/15	0855	Liquid	Trip Blank	2	Neat	-002		X					
7/30/15	0855	Liquid	Temperature Blank	1	Neat	—							

Analysis Request

Date:	Time:	Relinquished by	Received by	Date	Time
7/30/2015	10:30	Elizabeth Salsberry	[illegible]	07/31/15	0800
Date:	Time:	Relinquished by:	Received by	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Comb and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	7/30/2015 @ 8:50 am
End Date and Time	7/30/2015 @ 9:01 am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp:75.2 °F Humidity: 69% Wind Direction: North Wind Speed: 10.0 mi Over all Condition:Partly Cloudy

Date and Time:

Field Temp. 111.4 F Field pH 7.90

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, July 21, 2015 10:52 AM
To: Denton, Scott (Scott.Denton@HollyFrontier.com)
Cc: Griswold, Jim, EMNRD
Subject: 2015 2nd Quarter Injection Report for WDW-1, WDW-2 and WDW-3 July 15, 2015

Mr. Denton:

The New Mexico Oil Conservation Division (OCD) received the above subject environmental laboratory analytical data report(s) for the quarter of April through June 2015.

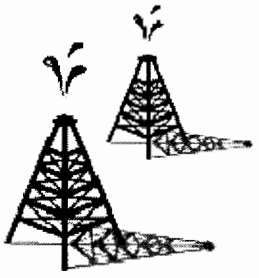
Carl noticed the following:

1) During Data Quality Objective evaluation of received samples from the refinery the lab detected bubbles in all 3 VOC sample containers.
2) There was a metals preservative issue.
3) The sample containment temperature upon delivery was 6.9 °C instead of 4 °C.

OCD requires that the operator comply with USEPA Quality Assurance/Quality Control and Data Quality Objectives when sampling, handling, and shipping environmental samples to the laboratory for analyses.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
O: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US
Web: http://www.emnrd.state.nm.us/ocd/
"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental



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HOLLYFRONTIER

RECEIVED OCD
2015 JUL 17 P 2:59

July 15, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 9944 5666

RE: 2015 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1377 psig and the average flows were 127 gpm for WDW-1, 116 gpm for WDW-2 and 125 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2015 to June 30, 2015. We have disposed a total of 1,150,921 barrels of fluid into the three wells during the second quarter of 2015. The volume per well is:

- 397,034 barrels into WDW-1
- 364,011 barrels into WDW-2
- 389,876 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/2nd quarter/2015-7-15 2nd QTR Inj. Rpt. for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2015 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	36,354,894
Apr-15	1,350	1,400	1,075	121	132	85	426	845	225	4,149	4,526	2,914	124,457	36,479,351
May-15	1,393	1,400	1,273	130	132	116	298	793	173	4,457	4,526	3,977	138,167	36,617,518
Jun-15	1,398	1,400	1,375	130	132	127	446	864	230	4,457	4,526	4,354	133,710	36,751,228
WDW-2													**Previous Quarter**	23,265,417
Apr-15	1,365	1,400	1,245	112	122	76	280	717	241	3,840	4,183	2,606	115,200	23,380,617
May-15	1,389	1,400	1,194	117	121	61	248	274	225	4,011	4,149	2,091	124,341	23,504,958
Jun-15	1,400	1,400	1,391	121	183	105	249	266	239	4,149	6,274	3,600	124,470	23,629,428
WDW-3													**Previous Quarter**	13,488,921
Apr-15	1,364	1,390	1,300	126	138	106	593	1,026	464	4,320	4,731	3,634	129,600	13,618,521
May-15	1,359	1,390	1,098	121	137	4	526	919	259	4,149	4,697	137	128,619	13,747,140
Jun-15	1,379	1,390	1,149	128	137	20	685	931	307	4,389	4,697	686	131,657	13,878,797
													Total Injected fluids:	74,259,453

T:\Injection Wells\Reports C-115 and Quarterly\2015\2nd quarter\
2nd 2015 qtrly rpt data
Injection fluids

7/13/20152:56 PM

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Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, L.L.C.

2015 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/1/15	4/7/15	4/14/15	4/22/15	4/30/15	5/4/15	5/11/15	5/19/15	5/29/15	6/1/15	6/8/15	6/15/15	6/22/15	6/29/15
WDW -1[1]	145	145	145	145	145	145	100**	75**	100	100	100	100	100	100
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	255	225*	225	225	225	255	290	150***	160	160	160	245	260	285
Comments:														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 16, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1505504

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/12/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1505504**
Date: **6/16/2015**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	11	0.15	1.0	*	mg/L	10	5/12/2015 9:30:50 PM	R26148
Chloride	550	2.2	50		mg/L	100	5/12/2015 9:43:14 PM	R26148
Nitrogen, Nitrite (As N)	0.32	0.10	1.0	J	mg/L	10	5/12/2015 9:30:50 PM	R26148
Bromide	2.2	0.26	1.0		mg/L	10	5/12/2015 9:30:50 PM	R26148
Nitrogen, Nitrate (As N)	0.80	0.064	1.0	J	mg/L	10	5/12/2015 9:30:50 PM	R26148
Phosphorus, Orthophosphate (As P)	ND	0.75	5.0		mg/L	10	5/12/2015 9:30:50 PM	R26148
Sulfate	2600	8.2	50		mg/L	100	5/12/2015 9:43:14 PM	R26148
EPA METHOD 7470: MERCURY							Analyst: **MED**	
Mercury	ND	0.000059	0.00020		mg/L	1	5/14/2015 2:31:19 PM	19224
MERCURY, TCLP							Analyst: **MED**	
Mercury	0.0012	0.00075	0.020	J	mg/L	1	5/27/2015 3:12:30 PM	19406
EPA METHOD 6010B: TCLP METALS							Analyst: **ELS**	
Arsenic	0.049	0.011	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Barium	0.051	0.00060	100	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Cadmium	ND	0.00090	1.0		mg/L	1	5/27/2015 10:03:57 AM	19377
Chromium	0.016	0.0014	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Lead	0.0015	0.0013	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Selenium	0.13	0.019	1.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Silver	ND	0.0013	5.0		mg/L	1	5/27/2015 10:03:57 AM	19377
EPA 6010B: TOTAL METALS							Analyst: **ELS**	
Aluminum	0.48	0.0038	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
Antimony	ND	0.015	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Arsenic	0.042	0.018	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
Barium	0.010	0.00098	0.020	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Beryllium	ND	0.00046	0.0030		mg/L	1	5/27/2015 9:51:20 AM	19377
Cadmium	ND	0.00071	0.0020		mg/L	1	5/27/2015 9:51:20 AM	19377
Calcium	51	0.063	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Chromium	ND	0.0015	0.0060		mg/L	1	5/27/2015 9:51:20 AM	19377
Cobalt	0.0026	0.0021	0.0060	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Copper	0.0051	0.0039	0.0060	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Iron	0.33	0.0079	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Lead	ND	0.0023	0.0050		mg/L	1	5/27/2015 9:51:20 AM	19377
Magnesium	19	0.062	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Manganese	0.10	0.0012	0.0020		mg/L	1	5/27/2015 9:51:20 AM	19377
Nickel	0.011	0.0060	0.010		mg/L	1	5/27/2015 9:51:20 AM	19377
Potassium	62	0.13	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Selenium	0.13	0.017	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 6010B: TOTAL METALS							Analyst: **ELS**	
Silver	ND	0.0013	0.0050		mg/L	1	5/27/2015 9:51:20 AM	19377
Sodium	1400	10	20		mg/L	20	5/27/2015 10:17:24 AM	19377
Thallium	ND	0.010	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Vanadium	0.0078	0.0018	0.050	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Zinc	0.030	0.0020	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Acetonitrile	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Allyl chloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroprene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Cyclohexane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Diethyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Diisopropyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Epichlorohydrin	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Ethyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Ethyl methacrylate	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Ethyl tert-butyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Freon-113	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Isobutanol	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Isopropyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methacrylonitrile	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methyl ethyl ketone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl isobutyl ketone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl methacrylate	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methylcyclohexane	ND	1.0	1.0		µg/L	1	5/22/2015	R26752
n-Amyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
n-Hexane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Nitrobenzene	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Pentachloroethane	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
p-isopropyltoluene	0.83	0.50	0.50		µg/L	1	5/22/2015	R26752
Propionitrile	7.3	2.5	2.5		µg/L	1	5/22/2015	R26752
Tetrahydrofuran	1.3	0.50	0.50		µg/L	1	5/22/2015	R26752
Benzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Toluene	0.66	0.50	0.50		µg/L	1	5/22/2015	R26752
Ethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methyl tert-butyl ether (MTBE)	ND	10	10		µg/L	1	5/22/2015	R26752
1,2,4-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3,5-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichloroethane (EDC)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,2-Dibromoethane (EDB)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Naphthalene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Acetone	10	2.5	2.5		µg/L	1	5/22/2015	R26752
Bromobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromodichloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromoform	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Carbon disulfide	1.0	0.50	0.50		µg/L	1	5/22/2015	R26752
Carbon Tetrachloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroform	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
4-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
cis-1,2-DCE	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
cis-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dibromo-3-chloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dibromochloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dibromomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,4-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dichlorodifluoromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloroethene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Hexachlorobutadiene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Hexanone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Isopropylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methylene Chloride	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
n-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
n-Propylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
sec-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Styrene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,1,1,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,2,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Tetrachloroethene (PCE)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,2-DCE	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,3-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,4-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,1-Trichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,2-Trichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Trichloroethene (TCE)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Trichlorofluoromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,3-Trichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Vinyl chloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
mp-Xylenes	ND	1.0	1.0		µg/L	1	5/22/2015	R26752
o-Xylene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Amyl methyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Butyl alcohol	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Acrolein	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Acrylonitrile	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromochloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Chloroethyl vinyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Iodomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,4-Dichloro-2-butene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Vinyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,4-Dioxane	ND	20	20		µg/L	1	5/22/2015	R26752
Surr: 1,2-Dichlorobenzene-d4	111		70-130		%REC	1	5/22/2015	R26752
Surr: 4-Bromofluorobenzene	106	0	70-130		%REC	1	5/22/2015	R26752
Surr: Toluene-d8	104	0	70-130		%REC	1	5/22/2015	R26752
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
1,1-Biphenyl	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Atrazine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Benzaldehyde	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Caprolactam	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
N-Nitroso-di-n-butylamine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Acetophenone	ND	10	10		µg/L	1	5/21/2015	R26752
1-Methylnaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2,3,4,6-Tetrachlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4,5-Trichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4,6-Trichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
2,4-Dichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dimethylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dinitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dinitrotoluene	ND	10	10		µg/L	1	5/21/2015	R26752
2,6-Dinitrotoluene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Chloronaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Chlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2-Methylnaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Methylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
2-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
2-Nitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
3,3´-Dichlorobenzidine	ND	10	10		µg/L	1	5/21/2015	R26752
3-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4,6-Dinitro-2-methylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
4-Bromophenyl phenyl ether	ND	10	10		µg/L	1	5/21/2015	R26752
4-Chloro-3-methylphenol	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
4-Chloroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4-Chlorophenyl phenyl ether	ND	10	10		µg/L	1	5/21/2015	R26752
4-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4-Nitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
Acenaphthene	ND	10	10		µg/L	1	5/21/2015	R26752
Acenaphthylene	ND	10	10		µg/L	1	5/21/2015	R26752
Anthracene	ND	10	10		µg/L	1	5/21/2015	R26752
Benzo(g,h,i)perylene	ND	10	10		µg/L	1	5/21/2015	R26752
Benz(a)anthracene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(a)pyrene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(b)fluoranthene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(k)fluoranthene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Bis(2-chloroethoxy)methane	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-chloroethyl)ether	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-chloroisopropyl)ether	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-ethylhexyl)phthalate	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Butyl benzyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Carbazole	ND	10	10		µg/L	1	5/21/2015	R26752
Chrysene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Dibenz(a,h)anthracene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Dibenzofuran	ND	10	10		µg/L	1	5/21/2015	R26752
Diethyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Dimethyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
Di-n-butyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Di-n-octyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Fluoranthene	ND	10	10		µg/L	1	5/21/2015	R26752
Fluorene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachlorobenzene	ND	1.0	1.0		µg/L	1	5/21/2015	R26752
Hexachlorobutadiene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachlorocyclopentadiene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachloroethane	ND	10	10		µg/L	1	5/21/2015	R26752
Indeno(1,2,3-cd)pyrene	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Isophorone	ND	10	10		µg/L	1	5/21/2015	R26752
Naphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
Nitrobenzene	ND	10	10		µg/L	1	5/21/2015	R26752
N-Nitrosodi-n-propylamine	ND	10	10		µg/L	1	5/21/2015	R26752
N-Nitrosodiphenylamine	ND	2.0	2.0		µg/L	1	5/21/2015	R26752
Pentachlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
Phenanthrene	ND	10	10		µg/L	1	5/21/2015	R26752
Phenol	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pyrene	ND	10	10		µg/L	1	5/21/2015	R26752
o-Toluidine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pyridine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
1,2,4,5-Tetrachlorobenzene	ND	10	10		µg/L	1	5/21/2015	R26752
Surr: 2,4,6-Tribromophenol	111	0	10-123		%REC	1	5/21/2015	R26752
Surr: 2-Fluorobiphenyl	90.0	0	19-130		%REC	1	5/21/2015	R26752
Surr: 2-Fluorophenol	74.4	0	21-120		%REC	1	5/21/2015	R26752
Surr: Nitrobenzene-d5	80.4	0	25-130		%REC	1	5/21/2015	R26752
Surr: Phenol-d5	64.0	0	10-130		%REC	1	5/21/2015	R26752
Surr: Terphenyl-d14	74.8	0	21-141		%REC	1	5/21/2015	R26752
CORROSIVITY							Analyst: **SUB**	
pH	7.99				pH Units	1	5/19/2015	R26752
IGNITABILITY METHOD 1010							Analyst: **SUB**	
Ignitability	>200	0	0		°F	1	5/22/2015	R26752
CYANIDE, REACTIVE							Analyst: **SUB**	
Cyanide, Reactive	ND	1.00	1.00		mg/L	1	5/22/2015	R26752
SULFIDE, REACTIVE							Analyst: **SUB**	
Reactive Sulfide	ND	1.0	1.0		mg/L	1	5/21/2015	R26752
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	6600	0.010	0.010		µmhos/c	1	5/12/2015 4:15:42 PM	R26154

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM4500-H+B: PH							Analyst: **JRR**	
pH	7.95	0.100	1.68	H	pH units	1	5/12/2015 4:15:42 PM	R26154
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	313.4	0.9399	20.00		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
Total Alkalinity (as CaCO3)	313.4	0.9399	20.00		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
SPECIFIC GRAVITY							Analyst: **JRR**	
Specific Gravity	0.9990	0	0			1	5/18/2015 11:44:00 AM	R26252
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JML**	
Total Dissolved Solids	4260	145	200	*	mg/L	1	5/15/2015 5:40:00 PM	19225

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
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S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well **Collection Date:**
Lab ID: 1505504-002 **Matrix:** TRIP BLANK **Received Date:** 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Acetonitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Allyl chloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroprene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Cyclohexane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Diethyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Diisopropyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Epichlorohydrin	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Ethyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Ethyl methacrylate	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Ethyl tert-butyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Freon-113	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Isobutanol	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Isopropyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methacrylonitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Methyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methyl ethyl ketone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Methyl isobutyl ketone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Methyl methacrylate	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Methylcyclohexane	ND	1.0	1.0		µg/L	1	5/21/2015	R26752
n-Amyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
n-Hexane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Nitrobenzene	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pentachloroethane	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
p-isopropyltoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Propionitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Tetrahydrofuran	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Benzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Toluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Ethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methyl tert-butyl ether (MTBE)	ND	10	0.50		µg/L	1	5/21/2015	R26752
1,2,4-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3,5-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichloroethane (EDC)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dibromoethane (EDB)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Naphthalene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Acetone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Bromobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Bromodichloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Bromoform	ND	0.50	0.50		µg/L	1	5/21/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Rccovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1505504-002
Matrix: TRIP BLANK
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Bromomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Carbon disulfide	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Carbon Tetrachloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroform	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
4-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
cis-1,2-DCE	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
cis-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dibromo-3-chloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dibromochloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dibromomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,4-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dichlorodifluoromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloroethene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Hexachlorobutadiene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Hexanone	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Isopropylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methylene Chloride	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
n-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
n-Propylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
sec-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Styrene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,1,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,2,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Tetrachloroethene (PCE)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,2-DCE	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2,3-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well **Collection Date:**
Lab ID: 1505504-002 **Matrix:** TRIP BLANK **Received Date:** 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,1-Trichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,2-Trichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Trichloroethene (TCE)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Trichlorofluoromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2,3-Trichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Vinyl chloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
mp-Xylenes	ND	1.0	0.50		µg/L	1	5/21/2015	R26752
o-Xylene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Amyl methyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Butyl alcohol	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Acrolein	ND	2.5	10		µg/L	1	5/21/2015	R26752
Acrylonitrile	ND	2.5	10		µg/L	1	5/21/2015	R26752
Bromochloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Chloroethyl vinyl ether	ND	0.50	1.0		µg/L	1	5/21/2015	R26752
Iodomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,4-Dichloro-2-butene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Vinyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,4-Dioxane	ND	20	20		µg/L	1	5/21/2015	R26752
Surr: 1,2-Dichlorobenzene-d4	105		70-130		%REC	1	5/21/2015	R26752
Surr: 4-Bromofluorobenzene	101	0	70-130		%REC	1	5/21/2015	R26752
Surr: Toluene-d8	102	0	70-130		%REC	1	5/21/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R26148**	RunNo: **26148**
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775809** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R26148**	RunNo: **26148**
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775815** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.55	0.10	0.5000	0	110	90	110			
Chloride	4.8	0.50	5.000	0	96.6	90	110			
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	102	90	110			
Bromide	2.5	0.10	2.500	0	99.3	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	102	90	110			
Phosphorus, Orthophosphate (As P	5.1	0.50	5.000	0	102	90	110			
Sulfate	10	0.50	10.00	0	99.9	90	110			

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797217** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Ethyl methacrylate	ND	0.50								
Isobutanol	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Propionitrile	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797217** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50								
2-Hexanone	ND	0.50								
Methylene Chloride	ND	2.5								
Styrene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797218** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.4		10.00	0	93.8	80	120			
Toluene	9.9		10.00	0	99.0	80	120			
Ethylbenzene	10		10.00	0	99.9	80	120			
Chlorobenzene	9.8		10.00	0	97.9	80	120			
1,1-Dichloroethene	9.7		10.00	0	96.9	80	120			
Tetrachloroethene (PCE)	11		10.00	0	106	80	120			
Trichloroethene (TCE)	10		10.00	0	101	80	120			
o-Xylene	10		10.00	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2,3,4,6-Tetrachlorophenol	ND	0.50								
2,4,5-Trichlorophenol	ND	0.50								
2,4,6-Trichlorophenol	ND	0.50								
2,4-Dichlorophenol	ND	0.50								
2,4-Dimethylphenol	ND	0.50								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
2-Chloronaphthalene	ND	0.50								
2-Chlorophenol	ND	0.50								
2-Methylnaphthalene	ND	0.50								
2-Methylphenol	ND	0.50								
2-Nitroaniline	ND	0.50								
2-Nitrophenol	ND	0.50								
3,3´-Dichlorobenzidine	ND	0.50								
3-Nitroaniline	ND	0.50								
4,6-Dinitro-2-methylphenol	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.50								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
4-Chlorophenyl phenyl ether	ND	0.50								
4-Nitroaniline	ND	0.50								
4-Nitrophenol	ND	0.50								
Acenaphthene	ND	0.50								
Acenaphthylene	ND	0.50								
Anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								
Benzo(k)fluoranthene	ND	0.50								
Bis(2-chloroethoxy)methane	ND	0.50								
Bis(2-chloroethyl)ether	ND	0.50								
Bis(2-chloroisopropyl)ether	ND	0.50								
Bis(2-ethylhexyl)phthalate	ND	0.50								
Butyl benzyl phthalate	ND	0.50								
Carbazole	ND	0.50								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Dibenzofuran	ND	0.50								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.50								
Di-n-butyl phthalate	ND	0.50								
Di-n-octyl phthalate	ND	0.50								
Fluoranthene	ND	0.50								
Fluorene	ND	0.50								
Hexachlorobenzene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
Hexachlorocyclopentadiene	ND	0.50								
Hexachloroethane	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Isophorone	ND	0.50								
Naphthalene	ND	0.50								
Nitrobenzene	ND	0.50								
N-Nitrosodi-n-propylamine	ND	0.50								
N-Nitrosodiphenylamine	ND	0.50								
Pentachlorophenol	ND	0.50								
Phenanthrene	ND	0.50								
Phenol	ND	0.50								
Pyrene	ND	0.50								
Pyridine	ND	0.50								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797223** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.6		5.000	0	93.0	49	145			
2-Chlorophenol	4.8		5.000	0	96.2	50	131			
4-Chloro-3-methylphenol	5.4		5.000	0	108	42	139			
4-Nitrophenol	5.3		5.000	0	106	19	137			
Acenaphthene	4.8		5.000	0	96.6	36	131			
Bis(2-ethylhexyl)phthalate	5.6		5.000	0	113	43	148			
N-Nitrosodi-n-propylamine	6.1		5.000	0	122	46	135			
Pentachlorophenol	5.1		5.000	0	101	22	138			
Phenol	4.4		5.000	0	88.8	45	134			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**LCS-R26752**	SampType:	**LCS**	TestCode:	**EPA 8270C: Semivolatiles/Mod**					
Client ID:	**LCSW**	Batch ID:	**R26752**	RunNo:	**26752**					
Prep Date:		Analysis Date:	**5/21/2015**	SeqNo:	**797223**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pyrene	5.4		5.000	0	109	45	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19224**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777328** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-19224**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

Sample ID **LCSD-19224**	SampType: **LCSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSS02**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	101	80	120	0.438	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19406**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **19406**	RunNo: **26436**							
Prep Date: **5/27/2015**	Analysis Date: **5/27/2015**	SeqNo: **785575**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-19406**	SampType: **LCS**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSW**	Batch ID: **19406**	RunNo: **26436**							
Prep Date: **5/27/2015**	Analysis Date: **5/27/2015**	SeqNo: **785576**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.020	0.005000	0	95.3	80	120			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19377**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785370** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-19377**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785371** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	5.0	0.5000	0	98.7	80	120			J
Barium	0.47	100	0.5000	0	94.3	80	120			J
Cadmium	0.48	1.0	0.5000	0	96.3	80	120			J
Chromium	0.47	5.0	0.5000	0	94.2	80	120			J
Lead	0.46	5.0	0.5000	0	92.7	80	120			J
Selenium	0.48	1.0	0.5000	0	95.9	80	120			J
Silver	0.099	5.0	0.1000	0	98.7	80	120			J

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19377** SampType: **MBLK** TestCode: **EPA 6010B: Total Metals**

Client ID: **PBW** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785351** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	0.031	0.050								J
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	0.0083	0.050								J
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-19377** SampType: **LCS** TestCode: **EPA 6010B: Total Metals**

Client ID: **LCSW** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785352** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	101	80	120			
Antimony	0.49	0.050	0.5000	0	97.9	80	120			
Arsenic	0.49	0.020	0.5000	0	98.7	80	120			
Barium	0.47	0.020	0.5000	0	94.3	80	120			
Beryllium	0.49	0.0030	0.5000	0	97.9	80	120			
Cadmium	0.48	0.0020	0.5000	0	96.3	80	120			
Calcium	48	1.0	50.00	0	96.6	80	120			
Chromium	0.47	0.0060	0.5000	0	94.2	80	120			
Cobalt	0.46	0.0060	0.5000	0	92.4	80	120			
Copper	0.48	0.0060	0.5000	0	95.6	80	120			
Iron	0.47	0.050	0.5000	0	94.1	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-19377**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785352** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.46	0.0050	0.5000	0	92.7	80	120			
Magnesium	48	1.0	50.00	0	96.9	80	120			
Manganese	0.47	0.0020	0.5000	0	93.6	80	120			
Nickel	0.47	0.010	0.5000	0	93.1	80	120			
Potassium	46	1.0	50.00	0	93.0	80	120			
Selenium	0.48	0.050	0.5000	0	95.9	80	120			
Silver	0.099	0.0050	0.1000	0	98.7	80	120			
Sodium	48	1.0	50.00	0	96.1	80	120			
Thallium	0.49	0.050	0.5000	0	97.0	80	120			
Vanadium	0.49	0.050	0.5000	0	98.0	80	120			
Zinc	0.47	0.020	0.5000	0	93.5	80	120			

Sample ID **1505504-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785354** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.020	0.5000	0.4834	114	75	125			
Antimony	0.51	0.050	0.5000	0	103	75	125			
Arsenic	0.57	0.020	0.5000	0.04239	105	75	125			
Barium	0.50	0.020	0.5000	0.01049	97.1	75	125			
Beryllium	0.49	0.0030	0.5000	0	98.5	75	125			
Cadmium	0.51	0.0020	0.5000	0	102	75	125			
Calcium	100	1.0	50.00	51.14	97.3	75	125			
Chromium	0.48	0.0060	0.5000	0	95.4	75	125			
Cobalt	0.48	0.0060	0.5000	0.002620	96.1	75	125			
Copper	0.55	0.0060	0.5000	0.005100	110	75	125			
Iron	0.80	0.050	0.5000	0.3329	92.5	75	125			
Lead	0.48	0.0050	0.5000	0	95.9	75	125			
Magnesium	70	1.0	50.00	19.14	101	75	125			
Manganese	0.58	0.0020	0.5000	0.1030	96.0	75	125			
Nickel	0.49	0.010	0.5000	0.01120	95.5	75	125			
Selenium	0.66	0.050	0.5000	0.1334	105	75	125			
Silver	0.10	0.0050	0.1000	0	104	75	125			
Thallium	0.51	0.050	0.5000	0	101	75	125			
Vanadium	0.51	0.050	0.5000	0.007830	101	75	125			
Zinc	0.52	0.020	0.5000	0.03044	98.1	75	125			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **1505504-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.020	0.5000	0.4834	123	75	125	4.31	20	
Antimony	0.53	0.050	0.5000	0	106	75	125	3.03	20	
Arsenic	0.58	0.020	0.5000	0.04239	108	75	125	2.76	20	
Barium	0.51	0.020	0.5000	0.01049	100	75	125	3.03	20	
Beryllium	0.50	0.0030	0.5000	0	101	75	125	2.04	20	
Cadmium	0.52	0.0020	0.5000	0	105	75	125	2.76	20	
Chromium	0.49	0.0060	0.5000	0	97.8	75	125	2.49	20	
Cobalt	0.50	0.0060	0.5000	0.002620	98.6	75	125	2.48	20	
Copper	0.57	0.0060	0.5000	0.005100	113	75	125	3.29	20	
Iron	0.83	0.050	0.5000	0.3329	99.1	75	125	4.06	20	
Lead	0.49	0.0050	0.5000	0	98.1	75	125	2.26	20	
Magnesium	71	1.0	50.00	19.14	104	75	125	1.82	20	
Manganese	0.60	0.0020	0.5000	0.1030	99.9	75	125	3.33	20	
Nickel	0.50	0.010	0.5000	0.01120	98.0	75	125	2.50	20	
Selenium	0.67	0.050	0.5000	0.1334	106	75	125	1.30	20	
Silver	0.11	0.0050	0.1000	0	108	75	125	3.31	20	
Thallium	0.53	0.050	0.5000	0	107	75	125	4.89	20	
Vanadium	0.53	0.050	0.5000	0.007830	104	75	125	3.13	20	
Zinc	0.53	0.020	0.5000	0.03044	101	75	125	2.60	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797254**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797255**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.486		0.5000	0	97.2	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797257**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.10								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797258**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R26154**	RunNo: **26154**							
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775904**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	4.120	20.00								J

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R26154**	RunNo: **26154**							
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775905**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	87.40	20.00	80.00	0	109	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19225**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **19225**	RunNo: **26231**
Prep Date: **5/14/2015**	Analysis Date: **5/15/2015**	SeqNo: **778508** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-19225**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **19225**	RunNo: **26231**
Prep Date: **5/14/2015**	Analysis Date: **5/15/2015**	SeqNo: **778509** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1505504 RcptNo: 1

Received by/date: CS 05/12/15

Logged By: Ashley Gallegos 5/12/2015 8:56:00 AM

Completed By: Ashley Gallegos 5/12/2015 12:36:44 PM

Reviewed By: 05/12/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☑	NA ☐
	Approved by client.		
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☑ CS 05/12/15	
9. Was preservative added to bottles?	Yes ☑	No ☑	NA ☐
For metals analysis, added 1ml HNO3 to -001B for acceptable pH. Held in Login for 24 hours. CS 05/12			
10. VOA vials have zero headspace?	Yes ☑	No ☑	No VOA Vials ☐
11. Were any sample containers received broken? CS 05/12/15	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2 2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? yes
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks: Sample -001D (all 3 vials) and -002A (2 of 2) have bubbles. CS 05/12,

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	6.9	Good	Not Present			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☒ Standar ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☒ Yes ☐ No

Sample Temperature: 6.9°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1505604	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond. Fl, Cation/anion bal., Br, Eh/4D	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
5-11-15	0820	Liquid	Trip Blank	2	Neat	-002		X					
5-11-15	0820	Liquid	Temperature Blank	1	Neat								

Date:	Time:	Relinquished by:	Received by:	Date	Time
5-11-15	1000	Elizabeth Salsberry	Celina Sanchez	05/12/15	0856
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras

Client approved temp. Spoke with Micki. CS 05/12/15

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM
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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	7/9/2015 @ 08:57am
End Date and Time	7/9/2015 @ 09:08am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp:78.8 °F Humidity: 47% Wind Direction: NNE Wind Speed: 10.4 mph Overall Condition: clear
Date and Time:

Field Temp. 45.3 Field pH : 7.62

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER

January 22, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 1200 0000 1832 3280

RE: 2014 4th Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for all three wells was 1345 psig and the average flows were 111 gpm for WDW-1, 113 gpm for WDW-2 and 128 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from October 1, 2014 to December 31, 2014. We have disposed a total of 1,088,093 barrels of fluid into the three wells during the fourth quarter of 2014. The volume per well is:

- 350,826 barrels into WDW-1
- 360,020 barrels into WDW-2
- 377,247 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/4th quarter/2015-1-22 4th QTR Inj Rpt for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2014 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	35,589,080
Oct-14	1,341	1,350	1,310	93	125	67	360	569	203	3,189	4,286	2,297	99,503	35,688,583
Nov-14	1,356	1,375	1,300	122	128	112	305	380	193	4,183	4,389	3,840	125,348	35,813,931
Dec-14	1,346	1,380	1,244	118	269	94	285	402	156	4,046	9,223	3,223	125,975	35,939,906
WDW-2													**Previous Quarter**	22,558,499
Oct-14	1,341	1,350	1,306	119	126	110	298	366	256	4,080	4,320	3,771	127,175	22,685,674
Nov-14	1,353	1,375	1,300	115	123	105	515	1,617	253	3,943	4,217	3,600	118,739	22,804,413
Dec-14	1,347	1,380	1,255	107	117	83	808	1,492	256	3,669	4,011	2,846	114,106	22,918,519
WDW-3													**Previous Quarter**	12,735,189
Oct-14	1,341	1,350	1,063	122	144	0	784	938	331	4,183	4,937	0	129,877	12,865,066
Nov-14	1,342	1,375	1,205	124	139	54	847	1,002	676	4,251	4,766	1,851	127,146	12,992,212
Dec-14	1,340	1,373	1,258	138	127	82	706	799	616	4,731	4,354	2,811	120,224	13,112,436
													Total Injected fluids:	71,970,861

Page 3023 of 5828

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Navajo Refining Company, L.L.C.

2014 FOURTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/8/14	10/13/14	10/21/14	10/27/02	11/4/14	11/10/14	11/17/14	11/24/14	12/1/14	12/9/14	12/15/14	12/22/14	12/29/14	
WDW -1[1]	145	145	145	145	145	145	145	145	145	145	145	145	145	
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100	
WDW-3[1]	145	145	145	145	145	145	145	200	200	200	200	200	200	
					Comments:									

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

Page 3024 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 09, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1411288

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/7/2014 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued December 08, 2014

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1411288**
Date: **12/9/2014**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Fluoride	5.3	0.50	*	mg/L	5	11/7/2014 11:52:12 PM	R22427
Chloride	330	25		mg/L	50	11/19/2014 12:14:33 AM	R22629
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Bromide	0.68	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Nitrogen, Nitrate (As N)	1.3	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	11/7/2014 11:52:12 PM	R22427
Sulfate	1300	25		mg/L	50	11/19/2014 12:14:33 AM	R22629
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	11/13/2014 11:05:18 AM	16357
MERCURY, TCLP						Analyst: **MMD**	
Mercury	ND	0.020		mg/L	1	11/13/2014 2:54:22 PM	16358
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	0.20		mg/L	1	11/12/2014 11:08:39 AM	16345
Barium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Cadmium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Chromium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Lead	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Selenium	ND	0.20		mg/L	1	11/12/2014 11:08:39 AM	16345
Silver	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	0.48	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Antimony	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Arsenic	0.050	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Barium	ND	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Beryllium	ND	0.0030		mg/L	1	11/12/2014 11:06:42 AM	16345
Cadmium	ND	0.0020		mg/L	1	11/12/2014 11:06:42 AM	16345
Calcium	50	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Chromium	ND	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Cobalt	ND	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Copper	0.0092	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Iron	0.86	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Lead	ND	0.0050		mg/L	1	11/12/2014 11:06:42 AM	16345
Magnesium	17	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Manganese	0.10	0.0020		mg/L	1	11/12/2014 11:06:42 AM	16345
Nickel	0.010	0.010		mg/L	1	11/12/2014 11:06:42 AM	16345
Potassium	22	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Selenium	0.058	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	11/12/2014 11:06:42 AM	16345
Sodium	ND	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Thallium	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Vanadium	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Zinc	0.049	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Allyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroprene	ND	0.500		µg/L	1	11/13/2014	R22819
Cyclohexane	ND	0.500		µg/L	1	11/13/2014	R22819
Diethyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Diisopropyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Epichlorohydrin	ND	5.00		µg/L	1	11/13/2014	R22819
Ethyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl tert-butyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Freon-113	ND	0.500		µg/L	1	11/13/2014	R22819
Isobutanol	ND	50.0		µg/L	1	11/13/2014	R22819
Isopropyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methacrylonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl ethyl ketone	2.82	2.50		µg/L	1	11/13/2014	R22819
Methyl isobutyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Methylcyclohexane	ND	1.00		µg/L	1	11/13/2014	R22819
n-Amyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
n-Hexane	ND	0.500		µg/L	1	11/13/2014	R22819
Nitrobenzene	ND	5.00		µg/L	1	11/13/2014	R22819
Pentachloroethane	ND	5.00		µg/L	1	11/13/2014	R22819
p-isopropyltoluene	ND	0.500		µg/L	1	11/13/2014	R22819
Propionitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrahydrofuran	ND	0.500		µg/L	1	11/13/2014	R22819
Benzene	ND	0.500		µg/L	1	11/13/2014	R22819
Toluene	ND	0.500		µg/L	1	11/13/2014	R22819
Ethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl tert-butyl ether (MTBE)	ND	10.0		µg/L	1	11/13/2014	R22819
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3,5-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloroethane (EDC)	ND	0.500		µg/L	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.500		µg/L	1	11/13/2014	R22819
Naphthalene	ND	0.500		µg/L	1	11/13/2014	R22819
Acetone	47.2	2.50		µg/L	1	11/13/2014	R22819
Bromobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Bromodichloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Bromoform	ND	0.500		µg/L	1	11/13/2014	R22819
Bromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon disulfide	0.930	0.500		µg/L	1	11/13/2014	R22819
Carbon Tetrachloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroform	ND	0.500		µg/L	1	11/13/2014	R22819
Chloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
4-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromo-3-chloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Dichlorodifluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
2,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
Hexachlorobutadiene	ND	0.500		µg/L	1	11/13/2014	R22819
2-Hexanone	ND	0.500		µg/L	1	11/13/2014	R22819
Isopropylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methylene Chloride	ND	2.50		µg/L	1	11/13/2014	R22819
n-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
n-Propylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
sec-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Styrene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,1,1,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrachloroethene (PCE)	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,4-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Trichloroethene (TCE)	ND	0.500		µg/L	1	11/13/2014	R22819
Trichlorofluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Xylenes, Total	ND	1.00		µg/L	1	11/13/2014	R22819
mp-Xylenes	ND	1.00		µg/L	1	11/13/2014	R22819
o-Xylene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Amyl methyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butyl alcohol	46.8	0.500		µg/L	1	11/13/2014	R22819
Acrolein	ND	0.500		µg/L	1	11/13/2014	R22819
Acrylonitrile	ND	10.0		µg/L	1	11/13/2014	R22819
Bromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chloroethyl vinyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Iodomethane	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,4-Dichloro-2-butene	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dioxane	ND	20.0		µg/L	1	11/13/2014	R22819
Surr: 1,2-Dichlorobenzene-d4	108	70-130		%REC	1	11/13/2014	R22819
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	11/13/2014	R22819
Surr: Toluene-d8	99.2	70-130		%REC	1	11/13/2014	R22819
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	11/14/2014	R22918
Atrazine	ND	5.0		µg/L	1	11/14/2014	R22918
Benzaldehyde	ND	5.0		µg/L	1	11/14/2014	R22918
Caprolactam	ND	5.0		µg/L	1	11/14/2014	R22918
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	11/14/2014	R22918
Acetophenone	ND	10		µg/L	1	11/14/2014	R22918
1-Methylnaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4,5-Trichlorophenol	ND	10		µg/L	1	11/14/2014	R22918

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
2,4,6-Trichlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dichlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dimethylphenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dinitrophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dinitrotoluene	ND	10		µg/L	1	11/14/2014	R22918
2,6-Dinitrotoluene	ND	10		µg/L	1	11/14/2014	R22918
2-Chloronaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2-Chlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2-Methylnaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2-Methylphenol	ND	10		µg/L	1	11/14/2014	R22918
2-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
2-Nitrophenol	ND	10		µg/L	1	11/14/2014	R22918
3,3'-Dichlorobenzidine	ND	10		µg/L	1	11/14/2014	R22918
3-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	11/14/2014	R22918
4-Bromophenyl phenyl ether	ND	10		µg/L	1	11/14/2014	R22918
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	11/14/2014	R22918
4-Chloroaniline	ND	10		µg/L	1	11/14/2014	R22918
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	11/14/2014	R22918
4-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
4-Nitrophenol	ND	10		µg/L	1	11/14/2014	R22918
Acenaphthene	ND	10		µg/L	1	11/14/2014	R22918
Acenaphthylene	ND	10		µg/L	1	11/14/2014	R22918
Anthracene	ND	10		µg/L	1	11/14/2014	R22918
Benzo(g,h,i)perylene	ND	10		µg/L	1	11/14/2014	R22918
Benz(a)anthracene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(a)pyrene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(b)fluoranthene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(k)fluoranthene	ND	0.10		µg/L	1	11/14/2014	R22918
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-chloroethyl)ether	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	11/14/2014	R22918
Butyl benzyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Carbazole	ND	10		µg/L	1	11/14/2014	R22918
Chrysene	ND	0.10		µg/L	1	11/14/2014	R22918
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	11/14/2014	R22918
Dibenzofuran	ND	10		µg/L	1	11/14/2014	R22918
Diethyl phthalate	ND	10		µg/L	1	11/14/2014	R22918

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Dimethyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Di-n-butyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Di-n-octyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Fluoranthene	ND	10		µg/L	1	11/14/2014	R22918
Fluorene	ND	10		µg/L	1	11/14/2014	R22918
Hexachlorobenzene	ND	1.0		µg/L	1	11/14/2014	R22918
Hexachlorobutadiene	ND	10		µg/L	1	11/14/2014	R22918
Hexachlorocyclopentadiene	ND	10		µg/L	1	11/14/2014	R22918
Hexachloroethane	ND	10		µg/L	1	11/14/2014	R22918
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	11/14/2014	R22918
Isophorone	ND	10		µg/L	1	11/14/2014	R22918
Naphthalene	ND	10		µg/L	1	11/14/2014	R22918
Nitrobenzene	ND	10		µg/L	1	11/14/2014	R22918
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	11/14/2014	R22918
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	11/14/2014	R22918
Pentachlorophenol	ND	10		µg/L	1	11/14/2014	R22918
Phenanthrene	ND	10		µg/L	1	11/14/2014	R22918
Phenol	ND	5.0		µg/L	1	11/14/2014	R22918
Pyrene	ND	10		µg/L	1	11/14/2014	R22918
o-Toluidine	ND	5.0		µg/L	1	11/14/2014	R22918
Pyridine	ND	5.0		µg/L	1	11/14/2014	R22918
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	11/14/2014	R22918
Surr: 2,4,6-Tribromophenol	131	10-123	S	%REC	1	11/14/2014	R22918
Surr: 2-Fluorobiphenyl	88.8	19-130		%REC	1	11/14/2014	R22918
Surr: 2-Fluorophenol	82.4	21-110		%REC	1	11/14/2014	R22918
Surr: Nitrobenzene-d5	86.4	25-130		%REC	1	11/14/2014	R22918
Surr: Phenol-d5	90.8	10-125		%REC	1	11/14/2014	R22918
Surr: Terphenyl-d14	35.6	33-141		%REC	1	11/14/2014	R22918
CORROSIVITY							Analyst: **SUB**
pH	7.51			pH Units	1	11/13/2014	R22918
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	11/18/2014	R22918
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	11/18/2014	R22918
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	11/21/2014	R22918
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date: 11/6/2014 10:30:00 AM
Lab ID: 1411288-001 **Matrix:** AQUEOUS **Received Date:** 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3500	0.010		µmhos/cm	1	11/11/2014 1:35:05 PM	R22485
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	320	20		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
Total Alkalinity (as CaCO3)	320	20		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.001	0			1	11/20/2014 2:11:00 PM	R22669
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2380	100	*	mg/L	1	11/12/2014 1:18:00 PM	16340

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Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002
Matrix: TRIP BLANK
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Allyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroprene	ND	0.500		µg/L	1	11/13/2014	R22819
Cyclohexane	ND	0.500		µg/L	1	11/13/2014	R22819
Diethyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Diisopropyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Epichlorohydrin	ND	5.00		µg/L	1	11/13/2014	R22819
Ethyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl tert-butyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Freon-113	ND	0.500		µg/L	1	11/13/2014	R22819
Isobutanol	ND	50.0		µg/L	1	11/13/2014	R22819
Isopropyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methacrylonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl ethyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl isobutyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Methylcyclohexane	ND	1.00		µg/L	1	11/13/2014	R22819
n-Amyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
n-Hexane	ND	0.500		µg/L	1	11/13/2014	R22819
Nitrobenzene	ND	5.00		µg/L	1	11/13/2014	R22819
Pentachloroethane	ND	5.00		µg/L	1	11/13/2014	R22819
p-isopropyltoluene	ND	0.500		µg/L	1	11/13/2014	R22819
Propionitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrahydrofuran	ND	0.500		µg/L	1	11/13/2014	R22819
Benzene	ND	0.500		µg/L	1	11/13/2014	R22819
Toluene	ND	0.500		µg/L	1	11/13/2014	R22819
Ethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl tert-butyl ether (MTBE)	ND	10.0		µg/L	1	11/13/2014	R22819
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3,5-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloroethane (EDC)	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromoethane (EDB)	ND	0.500		µg/L	1	11/13/2014	R22819
Naphthalene	ND	0.500		µg/L	1	11/13/2014	R22819
Acetone	5.30	2.50		µg/L	1	11/13/2014	R22819
Bromobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Bromodichloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Bromoform	ND	0.500		µg/L	1	11/13/2014	R22819

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Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002
Matrix: TRIP BLANK
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon disulfide	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon Tetrachloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroform	ND	0.500		µg/L	1	11/13/2014	R22819
Chloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
4-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromo-3-chloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Dichlorodifluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
2,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
Hexachlorobutadiene	ND	0.500		µg/L	1	11/13/2014	R22819
2-Hexanone	ND	0.500		µg/L	1	11/13/2014	R22819
Isopropylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methylene Chloride	ND	2.50		µg/L	1	11/13/2014	R22819
n-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
n-Propylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
sec-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Styrene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrachloroethene (PCE)	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002
Matrix: TRIP BLANK
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Trichloroethene (TCE)	ND	0.500		µg/L	1	11/13/2014	R22819
Trichlorofluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Xylenes, Total	ND	1.00		µg/L	1	11/13/2014	R22819
mp-Xylenes	ND	1.00		µg/L	1	11/13/2014	R22819
o-Xylene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Amyl methyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butyl alcohol	ND	0.500		µg/L	1	11/13/2014	R22819
Acrolein	ND	0.500		µg/L	1	11/13/2014	R22819
Acrylonitrile	ND	10.0		µg/L	1	11/13/2014	R22819
Bromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chloroethyl vinyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Iodomethane	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,4-Dichloro-2-butene	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dioxane	ND	20.0		µg/L	1	11/13/2014	R22819
Surr: 1,2-Dichlorobenzene-d4	102	70-130		%REC	1	11/13/2014	R22819
Surr: 4-Bromofluorobenzene	94.4	70-130		%REC	1	11/13/2014	R22819
Surr: Toluene-d8	96.4	70-130		%REC	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661019** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661020** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	93.8	66.6	112			
Nitrogen, Nitrite (As N)	0.90	0.10	1.000	0	90.2	67.5	109			
Bromide	2.3	0.10	2.500	0	92.8	82.8	103			
Nitrogen, Nitrate (As N)	2.3	0.10	2.500	0	93.3	84	109			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	91.7	68.8	109			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661041** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661042** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	96.6	66.6	112			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.0	67.5	109			
Bromide	2.4	0.10	2.500	0	96.4	82.8	103			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.1	84	109			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.8	68.8	109			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R22629**	RunNo: **22629**							
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **667493**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R22629**	RunNo: **22629**							
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **667494**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.7	90	110			
Sulfate	9.5	0.50	10.00	0	95.2	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.500								
Allyl chloride	ND	0.500								
Chloroprene	ND	0.500								
Cyclohexane	ND	0.500								
Diethyl ether	ND	0.500								
Diisopropyl ether	ND	0.500								
Epichlorohydrin	ND	0.500								
Ethyl acetate	ND	0.500								
Ethyl methacrylate	ND	0.500								
Ethyl tert-butyl ether	ND	0.500								
Freon-113	ND	0.500								
Isobutanol	ND	0.500								
Isopropyl acetate	ND	0.500								
Methacrylonitrile	ND	0.500								
Methyl acetate	ND	0.500								
Methyl ethyl ketone	ND	2.50								
Methyl isobutyl ketone	ND	2.50								
Methyl methacrylate	ND	0.500								
Methylcyclohexane	ND	0.500								
n-Amyl acetate	ND	0.500								
n-Hexane	ND	0.500								
Nitrobenzene	ND	0.500								
Pentachloroethane	ND	0.500								
p-isopropyltoluene	ND	0.500								
Propionitrile	ND	0.500								
Tetrahydrofuran	ND	0.500								
Benzene	ND	0.500								
Toluene	ND	0.500								
Ethylbenzene	ND	0.500								
Methyl tert-butyl ether (MTBE)	ND	0.500								
1,2,4-Trimethylbenzene	ND	0.500								
1,3,5-Trimethylbenzene	ND	0.500								
1,2-Dichloroethane (EDC)	ND	0.500								
1,2-Dibromoethane (EDB)	ND	0.500								
Naphthalene	ND	0.500								
Acetone	ND	2.50								
Bromobenzene	ND	0.500								
Bromodichloromethane	ND	0.500								
Bromoform	ND	0.500								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.500								
Carbon disulfide	ND	0.500								
Carbon Tetrachloride	ND	0.500								
Chlorobenzene	ND	0.500								
Chloroethane	ND	0.500								
Chloroform	ND	0.500								
Chloromethane	ND	0.500								
2-Chlorotoluene	ND	0.500								
4-Chlorotoluene	ND	0.500								
cis-1,2-DCE	ND	0.500								
cis-1,3-Dichloropropene	ND	0.500								
1,2-Dibromo-3-chloropropane	ND	0.500								
Dibromochloromethane	ND	0.500								
Dibromomethane	ND	0.500								
1,2-Dichlorobenzene	ND	0.500								
1,3-Dichlorobenzene	ND	0.500								
1,4-Dichlorobenzene	ND	0.500								
Dichlorodifluoromethane	ND	0.500								
1,1-Dichloroethane	ND	0.500								
1,1-Dichloroethene	ND	0.500								
1,2-Dichloropropane	ND	0.500								
1,3-Dichloropropane	ND	0.500								
2,2-Dichloropropane	ND	0.500								
1,1-Dichloropropene	ND	0.500								
Hexachlorobutadiene	ND	0.500								
2-Hexanone	ND	0.500								
Isopropylbenzene	ND	0.500								
Methylene Chloride	ND	2.50								
n-Butylbenzene	ND	0.500								
n-Propylbenzene	ND	0.500								
sec-Butylbenzene	ND	0.500								
Styrene	ND	0.500								
tert-Butylbenzene	ND	0.500								
1,1,1,2-Tetrachloroethane	ND	0.500								
1,1,2,2-Tetrachloroethane	ND	0.500								
Tetrachloroethene (PCE)	ND	0.500								
trans-1,2-DCE	ND	0.500								
trans-1,3-Dichloropropene	ND	0.500								
1,2,3-Trichlorobenzene	ND	0.500								

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.500								
1,1,1-Trichloroethane	ND	0.500								
1,1,2-Trichloroethane	ND	0.500								
Trichloroethene (TCE)	ND	0.500								
Trichlorofluoromethane	ND	0.500								
1,2,3-Trichloropropane	ND	0.500								
Vinyl chloride	ND	0.500								
Xylenes, Total	ND	1.00								
mp-Xylenes	ND	1.00								
o-Xylene	ND	0.500								
tert-Amyl methyl ether	ND	0.500								
tert-Butyl alcohol	ND	0.500								
Acrolein	ND	0.500								
Acrylonitrile	ND	0.500								
Bromochloromethane	ND	0.500								
2-Chloroethyl vinyl ether	ND	0.500								
Iodomethane	ND	0.500								
trans-1,4-Dichloro-2-butene	ND	0.500								
Vinyl acetate	ND	0.500								
1,4-Dioxane	ND	0.500								
Surr: 1,2-Dichloroethane-d4	0		10.00		0	70	130			S
Surr: 4-Bromofluorobenzene	0		10.00		0	70	130			S
Surr: Toluene-d8	0		10.00		0	70	130			S

Sample ID **LCS-R22819**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673563** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.77		10.00	0	97.7	80	120			
Toluene	10.0		10.00	0	100	80	120			
Ethylbenzene	10.0		10.00	0	100	80	120			
Chlorobenzene	9.99		10.00	0	99.9	80	120			
1,1-Dichloroethene	9.57		10.00	0	95.7	80	120			
Trichloroethene (TCE)	9.91		10.00	0	99.1	80	120			
o-Xylene	10.6		10.00	0	106	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-R22918	SampType:	MBLK	TestCode:	EPA 8270C: Semivolatiles/Mod
Client ID:	PBW	Batch ID:	R22918	RunNo:	22918
Prep Date:		Analysis Date:	11/14/2014	SeqNo:	676667
Units:	µg/L				

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetophenone	ND	10								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/14/2014**	SeqNo: **676667** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	10								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	10								
1,2,4,5-Tetrachlorobenzene	ND	10								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/14/2014**	SeqNo: **676668** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.4		5.000	0	108	49	134			
2-Chlorophenol	4.8		5.000	0	96.4	50	131			
4-Chloro-3-methylphenol	5.8		5.000	0	115	42	139			
4-Nitrophenol	3.9		5.000	0	78.4	19	137			
Acenaphthene	5.3		5.000	0	105	36	122			
Bis(2-ethylhexyl)phthalate	6.0		5.000	0	120	43	142			
N-Nitrosodi-n-propylamine	5.1		5.000	0	102	46	135			
Pentachlorophenol	4.8		5.000	0	95.2	22	138			
Phenol	4.4		5.000	0	88.0	45	134			
Pyrene	5.9		5.000	0	117	45	138			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- O RSD is greater than RSDlimit
- P Sample pH greater than 2.
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**MB-16357**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**16357**	RunNo:	**22512**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664165**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-16357**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**16357**	RunNo:	**22512**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664166**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.5	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**MB-16358**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**16358**	RunNo:	**22521**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664178**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-16358**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**16358**	RunNo:	**22521**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664179**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16345**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663247** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-16345**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663248** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	103	80	120			
Barium	ND	100	0.5000	0	98.9	80	120			
Cadmium	ND	1.0	0.5000	0	99.2	80	120			
Chromium	ND	5.0	0.5000	0	98.1	80	120			
Lead	ND	5.0	0.5000	0	95.2	80	120			
Selenium	ND	1.0	0.5000	0	97.9	80	120			
Silver	ND	5.0	0.1000	0	99.9	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16345**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663203** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-16345**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663204** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	103	80	120			
Antimony	0.50	0.050	0.5000	0	99.3	80	120			
Arsenic	0.52	0.020	0.5000	0	103	80	120			
Barium	0.49	0.020	0.5000	0	98.9	80	120			
Beryllium	0.52	0.0030	0.5000	0	104	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.2	80	120			
Calcium	51	1.0	50.00	0	102	80	120			
Chromium	0.49	0.0060	0.5000	0	98.1	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.9	80	120			
Copper	0.50	0.0060	0.5000	0	100	80	120			
Iron	0.49	0.050	0.5000	0	98.8	80	120			
Lead	0.48	0.0050	0.5000	0	95.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-16345**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663204** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	50	1.0	50.00	0	100	80	120			
Manganese	0.49	0.0020	0.5000	0	97.2	80	120			
Nickel	0.48	0.010	0.5000	0	95.5	80	120			
Potassium	47	1.0	50.00	0	94.6	80	120			
Selenium	0.49	0.050	0.5000	0	97.9	80	120			
Silver	0.10	0.0050	0.1000	0	99.9	80	120			
Thallium	0.48	0.050	0.5000	0	96.1	80	120			
Vanadium	0.52	0.050	0.5000	0	104	80	120			
Zinc	0.49	0.020	0.5000	0	98.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **677093** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **677094** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.532		0.5000	0	106	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**							
Prep Date:	Analysis Date: **11/21/2014**	SeqNo: **677096**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**							
Prep Date:	Analysis Date: **11/21/2014**	SeqNo: **677097**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663098**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663099**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	99.3	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663121**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663122**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	99.5	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **1411288-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R22669** RunNo: **22669**

Prep Date: Analysis Date: **11/20/2014** SeqNo: **668670** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.0500	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16340**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **16340**	RunNo: **22490**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663255** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-16340**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **16340**	RunNo: **22490**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663256** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1411288 RcptNo: 1

Received by/date: 11/07/14
Logged By: Ashley Gallegos 11/7/2014 9:20:00 AM
Completed By: Ashley Gallegos 11/7/2014 11:25:06 AM
Reviewed By: CS 11/07/14

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☑ No ☑ No VOA Vials ☐ my 11/07/14
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 3 2 (<2 or >12 unless noted)
Adjusted? No
Checked by: my

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks: All VOA's including trip blank have bubbles. my 11/07/14

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain of Custody Record

Client: Navajo Refining Co.	☐ Standar ☐ Rush
	Project Name: Quarterly WDW-1, 2, & 3 Inj Well
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Dan Crawford
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler:
	On Ice: X Yes ☐ No
	Sample Temperature: 1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1411283	Analysis Request: Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
11/6/14	~~9:00~~ 10:30am	Liquid	Trip Blank	2	Neat	-002		X					
11/6/14	~~9:00~~ 10:30am	Liquid	Temperature Blank	1	Neat								

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/6/14	10:30am	Elizabeth Salsberry			
Date:	Time:	Relinquished by:	Received by:	11/07/14	0920

Remarks: Report these results separately from all other Chain of Custody kits provided.
pH: 7.30
temp of sample: 44.4°C
Temp: 54°F windspeed 8.1mp
humidity: 43% conditi
wind direction: NNE Cl

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Sampler's Name	Aaron Strange
Sampler's Affiliation	Navajo Refining Co. LLC
Start Date and Time	11/6/2014 @ 10:30
End Date and Time	11/6/2014 @ 10:30

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sample:	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☐ P-854 sample point (second from east)
☑ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

Container	Size	Material	# of Containers	Preservatives: None	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp: 54 humidity:43% wind direction:NNE Wind speed: 8.1 mph condition: clear

Date and Time:

Field Temp. 44.4 C Field pH 7.30

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☐ Standar ☐ **Rush**

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Dan Crawford

Sampler:

On Ice: ☐ Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4		X						X
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
11/6/14	~~9:00~~ 10:30am	Liquid	Trip Blank	2	Neat			X					
11/6/14	~~9:00~~ 10:30am	Liquid	Temperature Blank	1	Neat								

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/6/14	10:30am	Elizabeth Salsberry			
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.

pH: 7.30

temp of sample: 44.4°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HOLLYFRONTIER

October 27, 2014

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7007 3020 0000 3028 9359

RE: 2014 3rd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1260 psig and the average flows were 105 gpm for WDW-1, 98 gpm for WDW-2 and 106 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2014 to September 30, 2014. We have disposed a total of 976,643 barrels of fluid into the three wells during the third quarter of 2014. The volume per well is:

- 423,882 barrels into WDW-1
- 143,954 barrels into WDW-2
- 408,807 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/3rd quarter/2014-10-27 3rd QTR Inj Rpt for Wells WDW-1,2,3

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Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, L.L.C.

2014 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	35,238,254
Jul-14	1,241	1,275	970	153	393	140	722	819	179	5,246	13,474	4,800	163,199	35,401,453
Aug-14	1,235	1,275	996	138	144	112	550	769	79	4,731	4,937	3,840	146,646	35,548,099
Sep-14	1,305	1,350	1,273	111	143	76	110	361	0	3,806	4,903	2,606	114,037	35,662,136
WDW-2													**Previous Quarter**	22,198,479
Jul-14	1,241	1,275	983	35	37	11	573	943	265	1,200	1,269	377	37,182	22,235,661
Aug-14	1,235	1,275	1,011	33	37	10	320	402	271	1,131	1,269	343	34,872	22,270,533
Sep-14	1,303	1,350	1,265	70	129	33	285	304	268	2,400	4,423	1,131	71,900	22,342,432
WDW-3													**Previous Quarter**	12,357,942
Jul-14	1,238	1,275	987	128	140	15	914	1,023	260	4,389	4,800	514	136,278	12,494,220
Aug-14	1,239	1,275	1,012	123	137	13	811	935	308	4,217	4,697	446	130,920	12,625,140
Sep-14	1,301	1,350	1,143	138	150	80	782	976	560	4,731	5,143	2,743	141,609	12,766,749
													Total Injected fluids:	70,771,318

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Navajo Refining Company, L.L.C.

2014 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/1/14	7/7/14	7/14/14	7/22/14	7/28/14	8/4/14	8/11/14	8/18/14	8/26/14	9/3/14	9/8/14	9/15/14	9/22/14	9/29/14
WDW -1[1]	150	145	145	145	145	145	145	145	145	145	145	145	145	145
WDW-2[1]	130	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	145	145	145	145	145	145	145	145	145	145	145	145	145	145
Comments: WDW-2 Minor surface tubing leak identified and repaired week of 7/7.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 09, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1409594

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/12/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
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Case Narrative

WO#: **1409594**
Date: **10/9/2014**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Fluoride	7.0	2.0	*	mg/L	20	9/13/2014 4:23:10 AM	R21201
Chloride	350	10		mg/L	20	9/13/2014 4:23:10 AM	R21201
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Bromide	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	9/13/2014 4:23:10 AM	R21201
Sulfate	2500	50		mg/L	100	9/19/2014 12:23:58 AM	R21321
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	9/18/2014 1:55:03 PM	15362
MERCURY, TCLP						Analyst: **JLF**	
Mercury	ND	0.020		mg/L	1	9/23/2014 11:17:20 AM	15428
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Barium	ND	100		mg/L	1	9/20/2014 10:20:57 AM	15405
Cadmium	ND	1.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Chromium	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Lead	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Selenium	ND	1.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Silver	ND	5.0		mg/L	1	9/25/2014 12:34:33 PM	15405
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	0.18	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Antimony	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Arsenic	0.061	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Barium	0.022	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Beryllium	ND	0.0030		mg/L	1	9/20/2014 9:40:32 AM	15405
Cadmium	ND	0.0020		mg/L	1	9/20/2014 9:40:32 AM	15405
Calcium	80	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Chromium	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Cobalt	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Copper	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Iron	0.50	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Lead	ND	0.0050		mg/L	1	9/20/2014 9:40:32 AM	15405
Magnesium	28	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Manganese	0.21	0.0020		mg/L	1	9/20/2014 9:40:32 AM	15405
Nickel	0.012	0.010		mg/L	1	9/20/2014 9:40:32 AM	15405
Potassium	58	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Selenium	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	9/23/2014 1:35:48 PM	15405
Thallium	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Titanium	ND	0.0050		mg/L	1	9/20/2014 9:40:32 AM	15405
Silica	9.8	1.1		mg/L	1	9/20/2014 9:40:32 AM	15405
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	73	0.50		µg/L	1	9/24/2014	R21755
Allyl chloride	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroprene	ND	0.50		µg/L	1	9/24/2014	R21755
Cyclohexane	ND	0.50		µg/L	1	9/24/2014	R21755
Diethyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Diisopropyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Epichlorohydrin	ND	5.0		µg/L	1	9/24/2014	R21755
Ethyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Ethyl methacrylate	ND	0.50		µg/L	1	9/24/2014	R21755
Ethyl tert-butyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Freon-113	ND	0.50		µg/L	1	9/24/2014	R21755
Isobutanol	ND	50		µg/L	1	9/24/2014	R21755
Isopropyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Methacrylonitrile	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl ethyl ketone	ND	2.5		µg/L	1	9/24/2014	R21755
Methyl isobutyl ketone	ND	2.5		µg/L	1	9/24/2014	R21755
Methyl methacrylate	ND	0.50		µg/L	1	9/24/2014	R21755
Methylcyclohexane	ND	1.0		µg/L	1	9/24/2014	R21755
n-Amyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
n-Hexane	ND	0.50		µg/L	1	9/24/2014	R21755
Nitrobenzene	ND	5.0		µg/L	1	9/24/2014	R21755
Pentachloroethane	ND	5.0		µg/L	1	9/24/2014	R21755
p-isopropyltoluene	ND	0.50		µg/L	1	9/24/2014	R21755
Propionitrile	0.97	0.50		µg/L	1	9/24/2014	R21755
Tetrahydrofuran	ND	0.50		µg/L	1	9/24/2014	R21755
Benzene	ND	0.50		µg/L	1	9/24/2014	R21755
Toluene	ND	0.50		µg/L	1	9/24/2014	R21755
Ethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	9/24/2014	R21755
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	9/24/2014	R21755

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Naphthalene	ND	0.50		µg/L	1	9/24/2014	R21755
Acetone	18	2.5		µg/L	1	9/24/2014	R21755
Bromobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Bromodichloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
Bromoform	ND	0.50		µg/L	1	9/24/2014	R21755
Bromomethane	ND	0.50		µg/L	1	9/24/2014	R21755
Carbon disulfide	0.56	0.50		µg/L	1	9/24/2014	R21755
Carbon Tetrachloride	ND	0.50		µg/L	1	9/24/2014	R21755
Chlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroform	ND	0.50		µg/L	1	9/24/2014	R21755
Chloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
2-Chlorotoluene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Chlorotoluene	ND	0.50		µg/L	1	9/24/2014	R21755
cis-1,2-DCE	ND	0.50		µg/L	1	9/24/2014	R21755
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
Dibromochloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
Dibromomethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,3-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,4-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Dichlorodifluoromethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloroethene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
1,3-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
2,2-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
Hexachlorobutadiene	ND	0.50		µg/L	1	9/24/2014	R21755
2-Hexanone	ND	0.50		µg/L	1	9/24/2014	R21755
Isopropylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Isopropyltoluene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Methyl-2-pentanone	ND	0.50		µg/L	1	9/24/2014	R21755
Methylene Chloride	ND	2.5		µg/L	1	9/24/2014	R21755
n-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
n-Propylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
sec-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Styrene	ND	0.50		µg/L	1	9/24/2014	R21755

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
tert-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,2-DCE	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,1-Trichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,2-Trichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Trichloroethene (TCE)	ND	0.50		µg/L	1	9/24/2014	R21755
Trichlorofluoromethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,3-Trichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
Vinyl chloride	ND	0.50		µg/L	1	9/24/2014	R21755
Xylenes, Total	ND	1.0		µg/L	1	9/24/2014	R21755
mp-Xylenes	ND	1.0		µg/L	1	9/24/2014	R21755
o-Xylene	ND	0.50		µg/L	1	9/24/2014	R21755
tert-Amyl methyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
tert-Butyl alcohol	23	0.50		µg/L	1	9/24/2014	R21755
Acrolein	ND	0.50		µg/L	1	9/24/2014	R21755
Acrylonitrile	ND	10		µg/L	1	9/24/2014	R21755
Bromochloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Iodomethane	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	9/24/2014	R21755
Vinyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
1,4-Dioxane	ND	20		µg/L	1	9/24/2014	R21755
Surr: 1,2-Dichloroethane-d4	110	70-130		%REC	1	9/24/2014	R21755
Surr: 4-Bromofluorobenzene	99.6	70-130		%REC	1	9/24/2014	R21755
Surr: Toluene-d8	104	70-130		%REC	1	9/24/2014	R21755
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	9/23/2014	R21755
Atrazine	ND	5.0		µg/L	1	9/23/2014	R21755
Benzaldehyde	ND	5.0		µg/L	1	9/23/2014	R21755
Caprolactam	ND	5.0		µg/L	1	9/23/2014	R21755
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	9/23/2014	R21755
Acetophenone	ND	10		µg/L	1	9/23/2014	R21755
1-Methylnaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	9/23/2014	R21755

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
2,4,5-Trichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4,6-Trichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dimethylphenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dinitrophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dinitrotoluene	ND	10		µg/L	1	9/23/2014	R21755
2,6-Dinitrotoluene	ND	10		µg/L	1	9/23/2014	R21755
2-Chloronaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2-Chlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2-Methylnaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2-Methylphenol	ND	10		µg/L	1	9/23/2014	R21755
2-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
2-Nitrophenol	ND	10		µg/L	1	9/23/2014	R21755
3,3'-Dichlorobenzidine	ND	10		µg/L	1	9/23/2014	R21755
3-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	9/23/2014	R21755
4-Bromophenyl phenyl ether	ND	10		µg/L	1	9/23/2014	R21755
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/23/2014	R21755
4-Chloroaniline	ND	10		µg/L	1	9/23/2014	R21755
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	9/23/2014	R21755
4-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
4-Nitrophenol	ND	10		µg/L	1	9/23/2014	R21755
Acenaphthene	ND	10		µg/L	1	9/23/2014	R21755
Acenaphthylene	ND	10		µg/L	1	9/23/2014	R21755
Anthracene	ND	10		µg/L	1	9/23/2014	R21755
Benzo(g,h,i)perylene	ND	10		µg/L	1	9/23/2014	R21755
Benz(a)anthracene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(a)pyrene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(b)fluoranthene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(k)fluoranthene	ND	0.10		µg/L	1	9/23/2014	R21755
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-chloroethyl)ether	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/23/2014	R21755
Butyl benzyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Carbazole	ND	10		µg/L	1	9/23/2014	R21755
Chrysene	ND	0.10		µg/L	1	9/23/2014	R21755
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	9/23/2014	R21755
Dibenzofuran	ND	10		µg/L	1	9/23/2014	R21755

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Diethyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Dimethyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Di-n-butyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Di-n-octyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Fluoranthene	ND	10		µg/L	1	9/23/2014	R21755
Fluorene	ND	10		µg/L	1	9/23/2014	R21755
Hexachlorobenzene	ND	1.0		µg/L	1	9/23/2014	R21755
Hexachlorobutadiene	ND	10		µg/L	1	9/23/2014	R21755
Hexachlorocyclopentadiene	ND	10		µg/L	1	9/23/2014	R21755
Hexachloroethane	ND	10		µg/L	1	9/23/2014	R21755
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	9/23/2014	R21755
Isophorone	ND	10		µg/L	1	9/23/2014	R21755
Naphthalene	ND	10		µg/L	1	9/23/2014	R21755
Nitrobenzene	ND	10		µg/L	1	9/23/2014	R21755
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	9/23/2014	R21755
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	9/23/2014	R21755
Pentachlorophenol	ND	10		µg/L	1	9/23/2014	R21755
Phenanthrene	ND	10		µg/L	1	9/23/2014	R21755
Phenol	ND	5.0		µg/L	1	9/23/2014	R21755
Pyrene	ND	10		µg/L	1	9/23/2014	R21755
o-Toluidine	ND	5.0		µg/L	1	9/23/2014	R21755
Pyridine	ND	5.0		µg/L	1	9/23/2014	R21755
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	9/23/2014	R21755
Surr: 2,4,6-Tribromophenol	80.2	10-123		%REC	1	9/23/2014	R21755
Surr: 2-Fluorobiphenyl	100	19-130		%REC	1	9/23/2014	R21755
Surr: 2-Fluorophenol	77.0	21-110		%REC	1	9/23/2014	R21755
Surr: Nitrobenzene-d5	91.2	25-130		%REC	1	9/23/2014	R21755
Surr: Phenol-d5	94.4	10-125		%REC	1	9/23/2014	R21755
Surr: Terphenyl-d14	39.9	33-141		%REC	1	9/23/2014	R21755
CORROSIVITY							Analyst: **SUB**
pH	6.61			pH Units	1	9/18/2014	R21755
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	9/24/2014	R21755
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	9/25/2014	R21755
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	9/30/2014	R21755

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5400	0.010		µmhos/cm	1	9/19/2014 8:48:13 PM	R21338
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	120	20		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
Total Alkalinity (as CaCO3)	120	20		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
SPECIFIC GRAVITY						Analyst: **SRM**	
Specific Gravity	1.001	0			1	9/23/2014 4:39:00 PM	R21384
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4700	20.0	*	mg/L	1	9/17/2014 10:23:00 AM	15289

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617354** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.9	0.50	5.000	0	97.9	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	97.0	90	110			
Bromide	2.4	0.10	2.500	0	96.4	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	103	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617410** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617411** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	103	90	110			
Chloride	4.7	0.50	5.000	0	94.7	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.9	90	110			
Bromide	2.4	0.10	2.500	0	96.7	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617411** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.1	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.5	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21321**	RunNo: **21321**
Prep Date:	Analysis Date: **9/18/2014**	SeqNo: **622134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21321**	RunNo: **21321**
Prep Date:	Analysis Date: **9/18/2014**	SeqNo: **622135** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.6	0.50	10.00	0	96.2	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	0.50								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	50								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Methylcyclohexane	ND	1.0								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	5.0								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	0.50								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	10								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
4-Isopropyltoluene	ND	0.50								
4-Methyl-2-pentanone	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
Xylenes, Total	ND	1.0								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	10								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	20								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638769** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.9		10.00	0	99.2	80	120			
Toluene	10		10.00	0	102	80	120			
Ethylbenzene	10		10.00	0	99.6	80	120			
Chlorobenzene	9.9		10.00	0	99.3	80	120			
1,1-Dichloroethene	9.2		10.00	0	91.9	80	120			
Tetrachloroethene (PCE)	9.8		10.00	0	98.4	80	120			
Trichloroethene (TCE)	9.5		10.00	0	95.2	80	120			
o-Xylene	10		10.00	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**	
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**	
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638842**	Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	10								
Atrazine	ND	10								
Caprolactam	ND	10								
N-Nitroso-di-n-butylamine	ND	10								
Acetophenone	ND	10								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638842** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	10								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	10								
o-Toluidine	ND	10								
Pyridine	ND	10								
1,2,4,5-Tetrachlorobenzene	ND	10								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638843** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	3.1		5.000	0	61.2	49	134			
2-Chlorophenol	3.4		5.000	0	67.6	50	131			
4-Chloro-3-methylphenol	3.3		5.000	0	66.4	42	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638843** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Nitrophenol	2.6		5.000	0	53.0	19	137			
Acenaphthene	4.0		5.000	0	79.6	36	122			
Bis(2-ethylhexyl)phthalate	3.9		5.000	0	78.2	43	142			
N-Nitrosodi-n-propylamine	4.1		5.000	0	82.0	46	135			
Pentachlorophenol	2.5		5.000	0	49.6	22	138			
Phenol	3.7		5.000	0	73.4	45	134			
Pyrene	3.6		5.000	0	73.0	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-15362	SampType:	MBLK		TestCode:	EPA Method 7470: Mercury				
Client ID:	PBW	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621116	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-15362	SampType:	LCS		TestCode:	EPA Method 7470: Mercury				
Client ID:	LCSW	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621117	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	105	80	120			

Sample ID	1409594-001BMS	SampType:	MS		TestCode:	EPA Method 7470: Mercury				
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621119	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	100	75	125			

Sample ID	1409594-001BMSD	SampType:	MSD		TestCode:	EPA Method 7470: Mercury				
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621120	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	101	75	125	0.392	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15428**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **15428**	RunNo: **21367**							
Prep Date: **9/22/2014**	Analysis Date: **9/23/2014**	SeqNo: **623963**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-15428**	SampType: **LCS**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSW**	Batch ID: **15428**	RunNo: **21367**							
Prep Date: **9/22/2014**	Analysis Date: **9/23/2014**	SeqNo: **623964**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.4	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **626611** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **626612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	106	80	120			
Barium	ND	100	0.5000	0	101	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	100	80	120			
Lead	ND	5.0	0.5000	0	98.6	80	120			
Selenium	ND	1.0	0.5000	0	104	80	120			

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **626633** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	5.0								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **626634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	5.0	0.1000	0	104	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409594

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622303** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Thallium	ND	0.050								
Titanium	ND	0.0050								
Silica	ND	1.1								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.57	0.020	0.5000	0	114	80	120			
Antimony	0.50	0.050	0.5000	0	100	80	120			
Arsenic	0.53	0.020	0.5000	0	106	80	120			
Barium	0.50	0.020	0.5000	0	101	80	120			
Beryllium	0.53	0.0030	0.5000	0	106	80	120			
Cadmium	0.51	0.0020	0.5000	0	102	80	120			
Calcium	52	1.0	50.00	0	105	80	120			
Chromium	0.50	0.0060	0.5000	0	100	80	120			
Cobalt	0.49	0.0060	0.5000	0	97.9	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.51	0.050	0.5000	0	101	80	120			
Lead	0.49	0.0050	0.5000	0	98.6	80	120			
Magnesium	52	1.0	50.00	0	103	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.50	0.0020	0.5000	0	100	80	120			
Nickel	0.49	0.010	0.5000	0	98.7	80	120			
Potassium	49	1.0	50.00	0	98.1	80	120			
Selenium	0.52	0.050	0.5000	0	104	80	120			
Thallium	0.49	0.050	0.5000	0	97.7	80	120			
Titanium	0.52	0.0050	0.5000	0	104	80	120			
Silica	5.6	1.1	5.350	0	104	80	120			

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **624518** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.0050								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **624519** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.10	0.0050	0.1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/25/2014**	SeqNo: **639462** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/25/2014**	SeqNo: **639463** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.487		0.5000	0	97.4	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**MB-R21755**	SampType:	**MBLK**	TestCode:	**SULFIDE, Reactive**				
Client ID:	**PBW**	Batch ID:	**R21755**	RunNo:	**21755**				
Prep Date:		Analysis Date:	**9/30/2014**	SeqNo:	**639465**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID	**LCS-R21755**	SampType:	**LCS**	TestCode:	**SULFIDE, Reactive**				
Client ID:	**LCSW**	Batch ID:	**R21755**	RunNo:	**21755**				
Prep Date:		Analysis Date:	**9/30/2014**	SeqNo:	**639466**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.16		0.2000	0	80.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622910**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622911**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	99.6	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622914**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622915**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	81	20	80.00	0	102	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**1409594-001ADUP**	SampType:	**DUP**	TestCode:	**Specific Gravity**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**R21384**	RunNo:	**21384**					
Prep Date:		Analysis Date:	**9/23/2014**	SeqNo:	**624495**	Units:				

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.000	0						0.110	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15289**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **15289**	RunNo: **21253**
Prep Date: **9/15/2014**	Analysis Date: **9/17/2014**	SeqNo: **619558** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-15289**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **15289**	RunNo: **21253**
Prep Date: **9/15/2014**	Analysis Date: **9/17/2014**	SeqNo: **619559** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1409594 RcptNo: 1

Received by/date: 09/12/14

Logged By: Lindsay Mangin 9/12/2014 9:45:00 AM

Completed By: Lindsay Mangin 9/12/2014 10:09:46 AM

Reviewed By: 09/12/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 2 (2) (<2 or >12 unless noted)

Adjusted? no

Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain of Custody Record

Client: Navajo Refining Co.	☐ Standar ☐ Rush
	Project Name:
Mailing Address: P.O. Box 159 Artesia,	Quarterly WDW-1, 2, & 3 Inj Well
NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager:
QA/QC Package:	Dan Crawford
☐ Standard ☐ Level 4 (Full Validation)	Sampler: Steven URBAN
☐ Other _____	On Ice: ☑ Yes ☐ No
☐ EDD (Type) _____	Sample Temperature: 2.5 2.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1409592	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
~~9/11/14~~	~~9:30~~	Liquid	Trip Blank	~~2~~	~~Neat~~	-002	CS 09/12/14	X					
9/11/14	9:30	Liquid	Temperature Blank	1	Neat	-							

Date: 9-11-14	Time: 10:08	Relinquished by: Steven URBAN	Received by:	Date: 09/12/14	Time: 0945
Date:	Time:	Relinquished by:	Received by:	Date:	Time:

Remarks: Report these results separately from all other Chain of Custody kits provided.

The trip blank sample was not recieved.
—CS 09/12/14

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Page 3090 of 5828

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Steven Urban
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	9/11/2014 @ 9:58
End Date and Time	9/11/2014 @ 10:08

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east) ☐ P-856 sample point (third from east)
☐ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): 6/11/2014 08:51 Tmp. 72.0, Humidity 68%, Wind Dir. SE, Wind Speed 8.1 mph, Conditions Overcast
Date and Time:

Field Temp. 113 °F Field pH 6.48

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

Received by OCD: 5/16/2022 2:12:41 PM
Released to Imaging: 7/12/2024 10:49:45 AM

HOLLYFRONTIER.

July 30, 2014

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7007 3020 0000 3028 8413

RE: 2014 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1180 psig and the average flows were 134 gpm for WDW-1, 132 gpm for WDW-2 and 111 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS) although minor above ground tubing leaks at two of the wells were identified and repaired. The quarterly effluent analyses indicated parameters are within limits.

This report covers the period from April 1, 2014 to June 30, 2014. We have disposed a total of 1,179,825 barrels of fluid into the three wells during the second quarter of 2014. The volume per well is:

- 421,136 barrels into WDW-1
- 412,743 barrels into WDW-2
- 345,946 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): D Crawford, R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/2nd quarter/2014-07-31 2nd QTR Inj Rpt for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2014 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	34,814,372
Apr-14	1,198	1,226	1,138	136	140	129	335	483	202	4,663	4,800	4,423	140,351	34,954,723
May-14	1,173	1,250	947	133	147	115	508	874	189	4,560	5,040	3,943	141,827	35,096,550
Jun-14	1,194	1,261	972	135	144	121	746	993	232	4,629	4,937	4,149	138,958	35,235,507
WDW-2													**Previous Quarter**	22,054,526
Apr-14	1,192	1,226	1,109	211	347	109	477	630	241	7,234	11,897	3,737	216,878	22,271,404
May-14	1,163	1,248	958	98	121	34	662	1,251	198	3,360	4,149	1,166	103,840	22,375,244
Jun-14	1,206	1,265	1,155	89	116	32	537	1,018	146	3,051	3,977	1,097	92,025	22,467,269
WDW-3													**Previous Quarter**	11,949,135
Apr-14	1,176	1,225	1,100	119	133	96	462	698	268	4,080	4,560	3,291	122,621	12,071,756
May-14	1,139	1,250	961	100	140	11	519	999	226	3,429	4,800	377	106,412	12,178,167
Jun-14	1,184	1,248	989	114	133	27	572	876	267	3,909	4,560	926	116,913	12,295,081
													Total Injected fluids:	69,997,857

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Navajo Refining Company, L.L.C.

2014 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/7/14	4/14/14	4/22/14	4/28/14	5/5/14	5/16/14	5/23/14	5/29/14	6/2/14	6/9/14	6/17/14	6/25/14		
WDW -1[1]	145	145	145	145	145	140	140	135	130	125	100	100		
WDW-2[1]	150	150	150	150	150	145	145	145	145	145	145	130		
WDW-3[1]	145	145	145	145	145	145	145	145	145	145	145	145		
Comments: 6/9/14 small tubing leak at WDW-1 reported and repaired. 6/17/14 a second tubing leak at WDW-1 was reported and repaired. 6/25/14 small tubing leak at WDW-2 reported and repaired.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

N:\Injection Wells\Reports C-115 and Quarterly\2014\2nd quarter\
2nd 2014 qtrly rpt data
WAMS Tanks

7/30/20148:43 AM

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Aaron Strange
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	6/19/2014 @ 09:25
End Date and Time	6/19/2014 @ 09:35

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Parts / Sample Intervals	One

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): 6/19/2014 09:35 Tmp. 77.0, Humidity 61%, Wind Dir. N, Wind Speed 10.4 mph, Conditions Clear
Date and Time:

Field Temp. 116.6°F Field pH 7.37

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 17, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: WDW-1, 2, & 3 Qtrly Inj Well OrderNo.: 1406935

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/19/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1406935**
Date: **7/17/2014**

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	28	2.0	*	mg/L	20	6/19/2014 5:43:17 PM	R19410
Chloride	290	10		mg/L	20	6/19/2014 5:43:17 PM	R19410
Nitrogen, Nitrite (As N)	1.5	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Bromide	0.72	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	6/19/2014 5:30:53 PM	R19410
Sulfate	2600	50		mg/L	100	7/7/2014 4:18:15 PM	R19725
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	6/26/2014 9:07:50 AM	13883
MERCURY, TCLP						Analyst: **MMD**	
Mercury	ND	0.020		mg/L	1	7/8/2014 12:50:03 PM	14082
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Barium	ND	100		mg/L	1	7/8/2014 12:02:28 PM	14080
Cadmium	ND	1.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Chromium	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Lead	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Selenium	ND	1.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Silver	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	1.2	0.020		mg/L	1	7/11/2014 10:29:51 AM	14172
Antimony	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Arsenic	0.027	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
Barium	ND	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
Beryllium	ND	0.0030		mg/L	1	7/7/2014 12:25:17 PM	14075
Cadmium	ND	0.0020		mg/L	1	7/7/2014 12:25:17 PM	14075
Calcium	27	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Chromium	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Cobalt	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Copper	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Iron	0.21	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Lead	ND	0.0050		mg/L	1	7/7/2014 12:25:17 PM	14075
Magnesium	9.2	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Manganese	0.032	0.0020		mg/L	1	7/7/2014 12:25:17 PM	14075
Nickel	ND	0.010		mg/L	1	7/7/2014 12:25:17 PM	14075
Potassium	69	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Selenium	0.069	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	7/7/2014 12:25:17 PM	14075
Sodium	1200	20		mg/L	20	7/7/2014 12:31:46 PM	14075
Thallium	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Vanadium	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Zinc	ND	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Ethyl tert-butyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Acetonitrile	ND	0.50		µg/L	1	6/26/2014	R19890
Allyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroprene	ND	0.50		µg/L	1	6/26/2014	R19890
Cyclohexane	ND	2.5		µg/L	1	6/26/2014	R19890
Diethyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Diisopropyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Epichlorohydrin	ND	5.0		µg/L	1	6/26/2014	R19890
Ethyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Ethyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Freon-113	ND	0.50		µg/L	1	6/26/2014	R19890
Isobutanol	ND	50		µg/L	1	6/26/2014	R19890
Isopropyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methacrylonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl ethyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl isobutyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Methylcyclohexane	ND	1.0		µg/L	1	6/26/2014	R19890
n-Amyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
n-Hexane	ND	0.50		µg/L	1	6/26/2014	R19890
Nitrobenzene	ND	5.0		µg/L	1	6/26/2014	R19890
Pentachloroethane	ND	5.0		µg/L	1	6/26/2014	R19890
p-isopropyltoluene	ND	0.50		µg/L	1	6/26/2014	R19890
Propionitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Tetrahydrofuran	ND	0.50		µg/L	1	6/26/2014	R19890
Benzene	0.64	0.50		µg/L	1	6/26/2014	R19890
Toluene	ND	0.50		µg/L	1	6/26/2014	R19890
Ethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	6/26/2014	R19890
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/26/2014	R19890

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Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	6/26/2014	R19890
Naphthalene	ND	0.50		µg/L	1	6/26/2014	R19890
Acetone	15	2.5		µg/L	1	6/26/2014	R19890
Bromobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Bromodichloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Bromoform	ND	0.50		µg/L	1	6/26/2014	R19890
Bromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon disulfide	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon Tetrachloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroform	ND	0.50		µg/L	1	6/26/2014	R19890
Chloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
4-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Dichlorodifluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
2,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
Hexachlorobutadiene	ND	0.50		µg/L	1	6/26/2014	R19890
2-Hexanone	ND	0.50		µg/L	1	6/26/2014	R19890
Isopropylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methylene Chloride	ND	2.5		µg/L	1	6/26/2014	R19890
n-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
n-Propylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
sec-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Styrene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890

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Qualifiers:

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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/26/2014	R19890
Trichlorofluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
mp-Xylenes	ND	1.0		µg/L	1	6/26/2014	R19890
o-Xylene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Amyl methyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butyl alcohol	ND	10		µg/L	1	6/26/2014	R19890
Acrolein	ND	2.5		µg/L	1	6/26/2014	R19890
Acrylonitrile	ND	10		µg/L	1	6/26/2014	R19890
Bromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	6/26/2014	R19890
Iodomethane	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dioxane	ND	20		µg/L	1	6/26/2014	R19890
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	6/26/2014	R19890
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	6/26/2014	R19890
Surr: Toluene-d8	101	70-130		%REC	1	6/26/2014	R19890
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	0.10		µg/L	1	6/26/2014	R19935
Atrazine	ND	0.10		µg/L	1	6/26/2014	R19935
Benzaldehyde	ND	0.10		µg/L	1	6/26/2014	R19935
Caprolactam	ND	0.10		µg/L	1	6/26/2014	R19935
N-Nitroso-di-n-butylamine	ND	0.10		µg/L	1	6/26/2014	R19935
Acetophenone	ND	10		µg/L	1	6/26/2014	R19935
1-Methylnaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4,5-Trichlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4,6-Trichlorophenol	ND	10		µg/L	1	6/26/2014	R19935

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Qualifiers:

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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
2,4-Dichlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dimethylphenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dinitrophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dinitrotoluene	ND	10		µg/L	1	6/26/2014	R19935
2,6-Dinitrotoluene	ND	10		µg/L	1	6/26/2014	R19935
2-Chloronaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2-Chlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2-Methylnaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2-Methylphenol	ND	10		µg/L	1	6/26/2014	R19935
2-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
2-Nitrophenol	ND	10		µg/L	1	6/26/2014	R19935
3,3'-Dichlorobenzidine	ND	10		µg/L	1	6/26/2014	R19935
3-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	6/26/2014	R19935
4-Bromophenyl phenyl ether	ND	10		µg/L	1	6/26/2014	R19935
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/26/2014	R19935
4-Chloroaniline	ND	10		µg/L	1	6/26/2014	R19935
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	6/26/2014	R19935
4-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
4-Nitrophenol	ND	10		µg/L	1	6/26/2014	R19935
Acenaphthene	ND	10		µg/L	1	6/26/2014	R19935
Acenaphthylene	ND	10		µg/L	1	6/26/2014	R19935
Anthracene	ND	10		µg/L	1	6/26/2014	R19935
Benzo(g,h,i)perylene	ND	10		µg/L	1	6/26/2014	R19935
Benz(a)anthracene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(a)pyrene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(b)fluoranthene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(k)fluoranthene	ND	0.10		µg/L	1	6/26/2014	R19935
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-chloroethyl)ether	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/26/2014	R19935
Butyl benzyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Carbazole	ND	10		µg/L	1	6/26/2014	R19935
Chrysene	ND	0.10		µg/L	1	6/26/2014	R19935
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	6/26/2014	R19935
Dibenzofuran	ND	10		µg/L	1	6/26/2014	R19935
Diethyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Dimethyl phthalate	ND	10		µg/L	1	6/26/2014	R19935

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Qualifiers:

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Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Di-n-butyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Di-n-octyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Fluoranthene	ND	10		µg/L	1	6/26/2014	R19935
Fluorene	ND	10		µg/L	1	6/26/2014	R19935
Hexachlorobenzene	ND	1.0		µg/L	1	6/26/2014	R19935
Hexachlorobutadiene	ND	10		µg/L	1	6/26/2014	R19935
Hexachlorocyclopentadiene	ND	10		µg/L	1	6/26/2014	R19935
Hexachloroethane	ND	10		µg/L	1	6/26/2014	R19935
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	6/26/2014	R19935
Isophorone	ND	10		µg/L	1	6/26/2014	R19935
Naphthalene	ND	10		µg/L	1	6/26/2014	R19935
Nitrobenzene	ND	10		µg/L	1	6/26/2014	R19935
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	6/26/2014	R19935
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	6/26/2014	R19935
Pentachlorophenol	ND	10		µg/L	1	6/26/2014	R19935
Phenanthrene	ND	10		µg/L	1	6/26/2014	R19935
Phenol	ND	5.0		µg/L	1	6/26/2014	R19935
Pyrene	ND	10		µg/L	1	6/26/2014	R19935
o-Toluidine	ND	0.10		µg/L	1	6/26/2014	R19935
Pyridine	ND	0.10		µg/L	1	6/26/2014	R19935
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	6/26/2014	R19935
Surr: 2,4,6-Tribromophenol	101	10-123		%REC	1	6/26/2014	R19935
Surr: 2-Fluorobiphenyl	102	19-130		%REC	1	6/26/2014	R19935
Surr: 2-Fluorophenol	76.2	21-110		%REC	1	6/26/2014	R19935
Surr: Nitrobenzene-d5	91.1	25-130		%REC	1	6/26/2014	R19935
Surr: Phenol-d5	79.3	10-125		%REC	1	6/26/2014	R19935
Surr: Terphenyl-d14	92.2	33-141		%REC	1	6/26/2014	R19935
CORROSIVITY							Analyst: **SUB**
pH	7.90		H	pH Units	1	7/2/2014	R19940
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	7/7/2014	R19940
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	7/2/2014	R19940
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	6/26/2014	R19940
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**
Conductivity	6000	0.010		µmhos/cm	1	6/23/2014 3:26:39 PM	R19484

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Qualifiers:

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Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.91	1.68	H	pH units	1	6/23/2014 3:26:39 PM	R19484
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	290	20		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
Total Alkalinity (as CaCO3)	290	20		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
SPECIFIC GRAVITY						Analyst: **SRM**	
Specific Gravity	1.003	0			1	6/30/2014 10:37:00 AM	R19574
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4440	40.0	*	mg/L	1	6/23/2014 11:26:00 AM	13798

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2.
RL	Reporting Detection Limit

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: WDW-1, 2, & 3 Qtrly Inj Well
Collection Date:
Lab ID: 1406935-002 **Matrix:** TRIP BLANK **Received Date:** 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl tert-butyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Acetonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Allyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroprene	ND	0.50		µg/L	1	6/26/2014	R19890
Cyclohexane	ND	0.50		µg/L	1	6/26/2014	R19890
Diethyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Diisopropyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Epichlorohydrin	ND	5.0		µg/L	1	6/26/2014	R19890
Ethyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Ethyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Freon-113	ND	0.50		µg/L	1	6/26/2014	R19890
Isobutanol	ND	50		µg/L	1	6/26/2014	R19890
Isopropyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methacrylonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl ethyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl isobutyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Methylcyclohexane	ND	1.0		µg/L	1	6/26/2014	R19890
n-Amyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
n-Hexane	ND	0.50		µg/L	1	6/26/2014	R19890
Nitrobenzene	ND	5.0		µg/L	1	6/26/2014	R19890
Pentachloroethane	ND	5.0		µg/L	1	6/26/2014	R19890
p-isopropyltoluene	ND	0.50		µg/L	1	6/26/2014	R19890
Propionitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Tetrahydrofuran	ND	0.50		µg/L	1	6/26/2014	R19890
Benzene	ND	0.50		µg/L	1	6/26/2014	R19890
Toluene	ND	0.50		µg/L	1	6/26/2014	R19890
Ethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	6/26/2014	R19890
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	6/26/2014	R19890
Naphthalene	ND	0.50		µg/L	1	6/26/2014	R19890
Acetone	ND	2.5		µg/L	1	6/26/2014	R19890
Bromobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Bromodichloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Bromoform	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-002 **Matrix:** TRIP BLANK

Client Sample ID: Trip Blank
Collection Date:
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon disulfide	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon Tetrachloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroform	ND	0.50		µg/L	1	6/26/2014	R19890
Chloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
4-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Dichlorodifluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
2,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
Hexachlorobutadiene	ND	0.50		µg/L	1	6/26/2014	R19890
2-Hexanone	ND	0.50		µg/L	1	6/26/2014	R19890
Isopropylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methylene Chloride	ND	2.5		µg/L	1	6/26/2014	R19890
n-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
n-Propylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
sec-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Styrene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: WDW-1, 2, & 3 Qtrly Inj Well
Collection Date:
Lab ID: 1406935-002 **Matrix:** TRIP BLANK **Received Date:** 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/26/2014	R19890
Trichlorofluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
mp-Xylenes	ND	1.0		µg/L	1	6/26/2014	R19890
o-Xylene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Amyl methyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butyl alcohol	ND	0.50		µg/L	1	6/26/2014	R19890
Acrolein	ND	0.50		µg/L	1	6/26/2014	R19890
Acrylonitrile	ND	10		µg/L	1	6/26/2014	R19890
Bromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Iodomethane	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dioxane	ND	20		µg/L	1	6/26/2014	R19890
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	6/26/2014	R19890
Surr: 4-Bromofluorobenzene	102	70-130		%REC	1	6/26/2014	R19890
Surr: Toluene-d8	99.6	70-130		%REC	1	6/26/2014	R19890

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561477** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.4	0.10	1.600	0	90.3	90	110			
Chloride	7.8	0.50	8.000	0	96.9	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	99.5	90	110			
Bromide	7.9	0.10	8.000	0	98.4	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	97.4	90	110			

Sample ID **MB** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561479** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561480** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	94.3	90	110			
Chloride	4.7	0.50	5.000	0	94.8	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.7	90	110			
Bromide	2.4	0.10	2.500	0	96.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.8	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.6	90	110			

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561489** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	95.4	90	110			
Chloride	12	0.50	12.00	0	102	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	90	110			
Bromide	12	0.10	12.00	0	100	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561489**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561501**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.94	0.10	1.000	0	93.7	90	110			
Chloride	4.6	0.50	5.000	0	92.9	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	97.9	90	110			
Bromide	4.8	0.10	5.000	0	96.0	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.7	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.8	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561513**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.10	1.600	0	96.1	90	110			
Chloride	7.8	0.50	8.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)	3.1	0.10	3.200	0	98.3	90	110			
Bromide	7.6	0.10	8.000	0	95.3	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.7	0.50	8.000	0	96.6	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561525**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	97.8	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.8	0.10	4.800	0	101	90	110			
Bromide	12	0.10	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	107	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561529** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561530** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	101	90	110			
Chloride	4.8	0.50	5.000	0	96.1	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	97.0	90	110			
Bromide	2.5	0.10	2.500	0	99.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.0	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561537** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.96	0.10	1.000	0	95.6	90	110			
Chloride	4.7	0.50	5.000	0	93.1	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	98.8	90	110			
Bromide	4.8	0.10	5.000	0	96.5	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.9	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.0	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561549** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.10	1.600	0	96.4	90	110			
Chloride	7.8	0.50	8.000	0	97.5	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	100	90	110			
Bromide	7.8	0.10	8.000	0	98.0	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561549**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			
Phosphorus, Orthophosphate (As P	7.9	0.50	8.000	0	98.2	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561555**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	97.5	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	90	110			
Bromide	12	0.10	12.00	0	99.7	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	107	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572917**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	30	0.50	30.00	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572919**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572920**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.3	0.50	10.00	0	93.5	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572929** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	94.3	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572941** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.2	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572953** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	31	0.50	30.00	0	102	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572968** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	95.2	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572970** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R19725**	RunNo: **19725**
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572971** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.5	0.50	10.00	0	95.0	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572980**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.6	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **572992**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	30	0.50	30.00	0	102	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **573004**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	94.7	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **573016**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.9	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19890**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578052** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Ethyl methacrylate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Propionitrile	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
2-Hexanone	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19890**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578052** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methylene Chloride	ND	0.50								
Styrene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	0.50								
o-Xylene	ND	0.50								
Acrolein	ND	10								
Bromochloromethane	ND	0.50								
Iodomethane	ND	0.50								
Vinyl acetate	ND	0.50								

Sample ID **LCS-R19890**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578053** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.6	0.50	10.00	0	95.5	80	120			
Toluene	9.8	0.50	10.00	0	98.2	80	120			
Ethylbenzene	10	0.50	10.00	0	99.9	80	120			
Chlorobenzene	9.8	0.50	10.00	0	97.5	80	120			
1,1-Dichloroethene	9.5	0.50	10.00	0	94.9	80	120			
Tetrachloroethene (PCE)	9.9	0.50	10.00	0	98.9	80	120			
Trichloroethene (TCE)	9.9	0.50	10.00	0	98.8	80	120			
o-Xylene	10	0.50	10.00	0	102	80	120			

Qualifiers:

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- E Value above quantitation range
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- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19935**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579511** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	1.0								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	1.0								
Benz(a)anthracene	ND	1.0								
Benzo(a)pyrene	ND	1.0								
Benzo(b)fluoranthene	ND	1.0								
Benzo(k)fluoranthene	ND	1.0								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19935**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579511** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	1.0								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	5.0								
Pyrene	ND	10								

Sample ID **LCS-R19935**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579512** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.3		5.000	0	106	49	134			
2-Chlorophenol	4.4		5.000	0	87.0	50	131			
4-Chloro-3-methylphenol	5.4		5.000	0	108	42	139			
4-Nitrophenol	4.6		5.000	0	92.8	19	137			
Acenaphthene	4.6		5.000	0	93.0	36	122			
Bis(2-ethylhexyl)phthalate	4.9		5.000	0	97.8	43	142			
N-Nitrosodi-n-propylamine	4.5		5.000	0	89.6	46	135			
Pentachlorophenol	4.1		5.000	0	82.6	22	138			
Phenol	6.3		5.000	0	126	45	134			
Pyrene	4.7		5.000	0	93.6	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-13883**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564933** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-13883**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564934** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	92.4	80	120			

Sample ID **1406935-001BMS**	SampType: **MS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564941** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.9	75	125			

Sample ID **1406935-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564944** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.6	75	125	0.263	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14082**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **14082**	RunNo: **19737**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573374** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-14082**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **14082**	RunNo: **19737**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573375** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	100	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14080**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573325** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-14080**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573326** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.9	80	120			
Barium	ND	100	0.5000	0	96.7	80	120			
Cadmium	ND	1.0	0.5000	0	97.9	80	120			
Chromium	ND	5.0	0.5000	0	96.1	80	120			
Lead	ND	5.0	0.5000	0	94.4	80	120			
Selenium	ND	1.0	0.5000	0	97.1	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Sample ID **1406935-001CMS**	SampType: **MS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02968	108	75	125			
Barium	ND	100	0.5000	0.04484	98.2	75	125			
Cadmium	ND	1.0	0.5000	0	103	75	125			
Chromium	ND	5.0	0.5000	0.001840	98.1	75	125			
Lead	ND	5.0	0.5000	0	95.5	75	125			
Selenium	ND	1.0	0.5000	0.09485	103	75	125			
Silver	ND	5.0	0.1000	0	107	75	125			

Sample ID **1406935-001CMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02968	109	75	125	0	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **1406935-001CMSD**	SampType: **MSD**		TestCode: **EPA Method 6010B: TCLP Metals**		
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **14080**		RunNo: **19736**		
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**		SeqNo: **573330**	Units: **mg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.04484	98.1	75	125	0	20	
Cadmium	ND	1.0	0.5000	0	102	75	125	0	20	
Chromium	ND	5.0	0.5000	0.001840	97.8	75	125	0	20	
Lead	ND	5.0	0.5000	0	95.1	75	125	0	20	
Selenium	ND	1.0	0.5000	0.09485	108	75	125	0	20	
Silver	ND	5.0	0.1000	0	107	75	125	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14075**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572184** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-14075**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.55	0.050	0.5000	0	110	80	120			
Arsenic	0.55	0.020	0.5000	0	110	80	120			
Barium	0.54	0.020	0.5000	0	109	80	120			
Beryllium	0.57	0.0030	0.5000	0	115	80	120			
Cadmium	0.54	0.0020	0.5000	0	109	80	120			
Calcium	57	1.0	50.00	0	114	80	120			
Chromium	0.54	0.0060	0.5000	0	108	80	120			
Cobalt	0.52	0.0060	0.5000	0	104	80	120			
Copper	0.56	0.0060	0.5000	0	112	80	120			
Iron	0.55	0.050	0.5000	0	110	80	120			
Lead	0.53	0.0050	0.5000	0	107	80	120			
Magnesium	57	1.0	50.00	0	113	80	120			
Manganese	0.54	0.0020	0.5000	0	108	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **LCS-14075**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	0.52	0.010	0.5000	0	105	80	120			
Potassium	54	1.0	50.00	0	109	80	120			
Selenium	0.53	0.050	0.5000	0	106	80	120			
Silver	0.11	0.0050	0.1000	0	112	80	120			
Thallium	0.53	0.050	0.5000	0	106	80	120			
Vanadium	0.57	0.050	0.5000	0	113	80	120			
Zinc	0.53	0.020	0.5000	0	106	80	120			

Sample ID **MB-14172**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **14172**	RunNo: **19829**
Prep Date: **7/10/2014**	Analysis Date: **7/11/2014**	SeqNo: **576105** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								

Sample ID **LCS-14172**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14172**	RunNo: **19829**
Prep Date: **7/10/2014**	Analysis Date: **7/11/2014**	SeqNo: **576106** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.48	0.020	0.5000	0	96.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19940**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **7/2/2014**	SeqNo: **579570** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R19940**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **7/2/2014**	SeqNo: **579571** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.512		0.5000	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19940**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579573** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R19940**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579574** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.20		0.2000	0	100	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563920**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563921**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	98.7	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563943**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563944**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	100	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-13798**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **561986** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-13798**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **561987** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Sample ID **1406935-001AMS**	SampType: **MS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **562008** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	6460	40.0	2000	4442	101	80	120			

Sample ID **1406935-001AMSD**	SampType: **MSD**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **562009** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	6460	40.0	2000	4442	101	80	120	0.124	5	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1406935 RcptNo: 1

Received by/date: AT 06/19/14

Logged By: Anne Thorne 6/19/2014 2:35:00 PM Anne Thorne

Completed By: Anne Thorne 6/19/2014 Anne Thorne

Reviewed By: AT 06/19/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.6	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.	Turn-Around Time: ☐ Standar ☐ **Rush**
	Project Name: WDW-1, 2, & 3 Qtrly Inj Well
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Dan Crawford
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler: Jerry Sosa
	On Ice: X Yes ☐ No
	Sample Temperature: 4/6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No 1406935	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
6/19/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
6/19/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
6/19/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
6/19/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
6/19/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
6/19/14	9:30	Liquid	Trip Blank	2	Neat	-002		X					
6/19/14	9:30	Liquid	Temperature Blank	1	Neat								

Date: 6/19/14	Time: 10:00	Relinquished by: Jerry Sosa	Received by:	Date 06/19/14	Time 14:35
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Page 3128 of 5828

Classification	Analyte name	Method	Units	RL
Volatile organics	Acetone	SW-846 Method 8260C	µg/L	10
Volatile organics	Acetonitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Acrolein	SW-846 Method 8260C	µg/L	
Volatile organics	Allyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Allyl chloride	SW-846 Method 8260C	µg/L	
Volatile organics	t-Amyl ethyl ether (TAEE)	SW-846 Method 8260C	µg/L	
Volatile organics	t-Amyl methyl ether (TAME)	SW-846 Method 8260C	µg/L	
Volatile organics	Benzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Benzyl chloride	SW-846 Method 8260C	µg/L	
Volatile organics	Bis(2-chloroethyl)sulfide	SW-846 Method 8260C	µg/L	
Volatile organics	Bromoacetone	SW-846 Method 8260C	µg/L	
Volatile organics	Bromobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Bromochloromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	Bromodichloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	4-Bromofluorobenzene (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	Bromoform	SW-846 Method 8260C	µg/L	4
Volatile organics	Bromomethane	SW-846 Method 8260C	µg/L	2
Volatile organics	n-Butanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Butanone (MEK)	SW-846 Method 8260C	µg/L	10
Volatile organics	n-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	sec-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	tert-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	t-Butyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Carbon disulfide	SW-846 Method 8260C	µg/L	2
Volatile organics	Carbon tetrachloride	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloral hydrate	SW-846 Method 8260C	µg/L	
Volatile organics	Chlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Chlorobenzene-d5 (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	1-Chlorobutane	SW-846 Method 8260C	µg/L	
Volatile organics	Chlorodibromomethane	SW-846 Method 8260C	µg/L	
Volatile organics	1-Chlorohexane	SW-846 Method 8260C	µg/L	
Volatile organics	Chloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	2-Chloroethanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Chloroethyl vinyl ether	SW-846 Method 8260C	µg/L	
Volatile organics	Chloroform	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloroprene	SW-846 Method 8260C	µg/L	
Volatile organics	4-Chlorotoluene	SW-846 Method 8260C	µg/L	
Volatile organics	Crotonaldehyde	SW-846 Method 8260C	µg/L	
Volatile organics	Cyclohexane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2-Dibromo-3-chloropropane	SW-846 Method 8260C	µg/L	10
Volatile organics	1,2-Dibromoethane	SW-846 Method 8260C	µg/L	2
Volatile organics	Dibromochloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Dibromomethane	SW-846 Method 8260C	µg/L	
Volatile organics	1,2-Dichlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,3-Dichlorobenzene	SW-846 Method 8260C	µg/L	1

Volatile organics	1,4-Dichlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,4-Dichlorobenzene-d4 (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	cis-1,4-Dichloro-2-butene	SW-846 Method 8260C	µg/L	
Volatile organics	trans-1,4-Dichloro-2-butene	SW-846 Method 8260C	µg/L	
Volatile organics	Dichlorodifluoromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1-Dichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloroethane-d4 (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	1,1-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	cis-1,2-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	trans-1,2-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloropropane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,3-Dichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	2,2-Dichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	1,1-Dichloropropene	SW-846 Method 8260C	µg/L	
Volatile organics	1,3-Dichloro-2-propanol	SW-846 Method 8260C	µg/L	
Volatile organics	cis-1,3-Dichloropropene	SW-846 Method 8260C	µg/L	1
Volatile organics	trans-1,3-Dichloropropene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2,3,4-Depoxybutane	SW-846 Method 8260C	µg/L	
Volatile organics	Diethyl ether	SW-846 Method 8260C	µg/L	
Volatile organics	Diisopropyl either (DIPE)	SW-846 Method 8260C	µg/L	
Volatile organics	1,4-Difluorobenzene (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	1,4-Dioxane	SW-846 Method 8260C	µg/L	130
Volatile organics	Epichlorohydrin	SW-846 Method 8260C	µg/L	
Volatile organics	Ethanol	SW-846 Method 8260C	µg/L	
Volatile organics	Ethyl acetate	SW-846 Method 8260C	µg/L	
Volatile organics	Ethylbenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Ethylene oxide	SW-846 Method 8260C	µg/L	
Volatile organics	Ethyl methacrylate	SW-846 Method 8260C	µg/L	
Volatile organics	Fluorobenzene (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	Freon 113	SW-846 Method 8260C	µg/L	5
Volatile organics	Ethyl tert-butyl ether (ETBE)	SW-846 Method 8260C	µg/L	
Volatile organics	Hexachlorobutadiene	SW-846 Method 8260C	µg/L	
Volatile organics	Hexachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	2-Hexanone	SW-846 Method 8260C	µg/L	5
Volatile organics	Iodomethane	SW-846 Method 8260C	µg/L	
Volatile organics	Isobutyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Isopropylbenzene	SW-846 Method 8260C	µg/L	2
Volatile organics	p-Isopropyltoluene	SW-846 Method 8260C	µg/L	
Volatile organics	Malononitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Methacrylonitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Methanol	SW-846 Method 8260C	µg/L	
Volatile organics	Methyl acetate	SW-846 Method 8260C	µg/L	5
Volatile organics	Methylcyclohexane	SW-846 Method 8260C	µg/L	5
Volatile organics	Methyl acrylate	SW-846 Method 8260C	µg/L	
Volatile organics	Methylene chloride	SW-846 Method 8260C	µg/L	2
Volatile organics	Methyl methacrylate	SW-846 Method 8260C	µg/L	

Volatile organics	4-Methyl-2-pentanone (MIBK)	SW-846 Method 8260C	µg/L	5
Volatile organics	Methyl tert-butyl ether (MTBE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Naphthalene	SW-846 Method 8260C	µg/L	
Volatile organics	Nitrobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	2-Nitropropane	SW-846 Method 8260C	µg/L	
Volatile organics	N-Nitroso-di-n-butylamine	SW-846 Method 8260C	µg/L	
Volatile organics	Paraldehyde	SW-846 Method 8260C	µg/L	
Volatile organics	Pentachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	Pentafluorobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	2-Pentanone	SW-846 Method 8260C	µg/L	
Volatile organics	2-Picoline	SW-846 Method 8260C	µg/L	
Volatile organics	1-Propanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Propanol	SW-846 Method 8260C	µg/L	
Volatile organics	Propargyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	beta-Propiolactone	SW-846 Method 8260C	µg/L	
Volatile organics	Propionitrile	SW-846 Method 8260C	µg/L	
Volatile organics	n-Propylamine	SW-846 Method 8260C	µg/L	
Volatile organics	n-Propylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Pyridine	SW-846 Method 8260C	µg/L	
Volatile organics	Styrene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1,1,2-Tetrachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	1,1,2,2-Tetrachloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Tetrachloroethene (PCE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Toluene	SW-846 Method 8260C	µg/L	1
Volatile organics	Toluene-d8 (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	o-Toluidine	SW-846 Method 8260C	µg/L	
Volatile organics	1,2,3-Trichlorobenzene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2,4-Trichlorobenzene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1,1-Trichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,1,2-Trichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Trichloroethene (TCE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Trichlorofluoromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2,3-Trichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	1,2,4-Trimethylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	1,3,5-Trimethylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Vinyl acetate	SW-846 Method 8260C	µg/L	
Volatile organics	Vinyl chloride	SW-846 Method 8260C	µg/L	1
Volatile organics	o-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	m-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	p-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	Xylene, total	SW-846 Method 8260C	µg/L	1

(surr) - Surrogate
(IS) - Internal Standard
Method 8260C Volatile Organic Compounds by Gas Chromatograhy/Mass Spectrometry (GC/MS) (EPA, Revision 3, August 2006)
Constituents with RLs are on the VOC Target Compound List (TCL) (SOMO 1.1)

Classification	Analyte name	Method	Units	RL
Semivolatile organics	1,1'-Biphenyl	SW-864 Method 8270B	µg/L	1
Semivolatile organics	1,2,4,5-Tetrachlorobenzene	SW-864 Method 8270B	µg/L	2
Semivolatile organics	2-Chloronaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Chlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Methylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2-Nitrophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,3,4,6-Tetrachlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dichlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dimethylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dinitrophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2,4-Dinitrotoluene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4,5-Trichlorophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2,4,6-Trichlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,6-Dinitrotoluene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	3-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	3,3'-Dichlrobenzidine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Bromophenyl-phenylether	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chloro-3-methylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chloroaniline	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chlorophenyl-phenyl ether	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	4-Nitrophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	4,6-Dinitro-2-methylphenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Acetophenone	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Acenaphthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Acenaphthylene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Atrazine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzaldehyde	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(a)anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(a)pyrene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(b)fluoranthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(g,h,i)perylene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(k)fluoranthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	bis(2-Chloroethoxy)-methane	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Chloroethyl) ether	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Chloroisopropyl) ether	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Ethylhexyl)phthalate	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Butylbenzylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Carbazole	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Caprolactam	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Chrysene	SW-864 Method 8270B	µg/L	0.1
Semivolatile organics	Di-n-butylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Di-n-octylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Dibenz(a,h)anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Dibenzofuran	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Diethylphthalate	SW-864 Method 8270B	µg/L	5

Semivolatile organics	Dimethylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Fluroanthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Fluorene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Hexachlorobenzene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Hexachlorobutadiene	SW-864 Method 8270B	µg/L	1
Semivolatile organics	Hexachlorocyclopentadiene	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Hexachloroethane	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Indeno(1,2,3-cd)peryline	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Isophorone	SW-864 Method 8270B	µg/L	5
Semivolatile organics	1-Methylnaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Methylnaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	N-Nitroso-di-n-propylamine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	N-Nitrosodiphenylamine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Napthtalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Nitrobenzene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Pentachlorophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Phenanthrene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Phenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Pyrene	SW-864 Method 8270B	µg/L	5

Target Compound List 1.5 for SVOCs by SW-846 Method 8270

Classification	Analyte name[1]	Method	Units	RL
Inorganics	Mercury	SW-846 Method 7470		
Inorganics	Arsenic	SW-846 Method 6010		
Inorganics	Silver	SW-846 Method 6010		
Inorganics	Aluminum	SW-846 Method 6010		
Inorganics	Barium	SW-846 Method 6010		
Inorganics	Beryllium	SW-846 Method 6010		
Inorganics	Calcium	SW-846 Method 6010		
Inorganics	Cadmium	SW-846 Method 6010		
Inorganics	Cobalt	SW-846 Method 6010		
Inorganics	Chromium	SW-846 Method 6010		
Inorganics	Copper	SW-846 Method 6010		
Inorganics	Iron	SW-846 Method 6010		
Inorganics	Mercury	SW-846 Method 6010		
Inorganics	Potassium	SW-846 Method 6010		
Inorganics	Magnesium	SW-846 Method 6010		
Inorganics	Manganese	SW-846 Method 6010		
Inorganics	Sodium	SW-846 Method 6010		
Inorganics	Nickel	SW-846 Method 6010		
Inorganics	Lead	SW-846 Method 6010		
Inorganics	Antimony	SW-846 Method 6010		
Inorganics	Selenium	SW-846 Method 6010		
Inorganics	Thallium	SW-846 Method 6010		
Inorganics	Vanadium	SW-846 Method 6010		
Inorganics	Zinc	SW-846 Method 6010		

** dilute elements only if necessary

[1] 23 TAL Metals

REFINING COMPANY, LLC

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(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
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(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

July 30, 2008

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2008 Second Quarterly Injection Report for Navajo Refining WDW-1, WDW-2 and WDW-3

Dear Mr. Chavez,

Enclosed, please find the sampling results for the second quarter of 2008 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on wells WDW-1 and WDW-2 continue to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level have found WDW-3 to have varied more than 5%. WDW-3 has an electronic gauging system that continually reports the fluid levels in a percentage of capacity. We are closely monitoring WDW-3, and a Mechanical Integrity Test (MIT) is scheduled for August 5, 2008. The volumes for these three tanks are reported in the attached table.

This report covers the period from April 1, 2008 to June 30, 2008. We have disposed a total of 38,972,716 barrels of fluid into the three wells as of June 30, 2008. This is broken down as follows: 25,550,339 barrels into WDW-1, 12,357,611 barrels into WDW-2 and 1,064,766 barrels into WDW-3.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Aaron Strange

Aaron Strange
Sr. Environmental Technician

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

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2008 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	25,013,505
Apr-08	234	303	115	165	192	135	117	168	75	5,656	6,580	4,619	169,694	25,183,198
May-08	264	322	194	171	186	151	142	222	55	5,872	6,394	5,170	182,018	25,365,217
Jun-08	297	338	231	180	192	158	203	416	29	6,171	6,592	5,403	185,122	25,550,339
WDW-2													**Previous Quarter**	12,126,440
Apr-08	293	400	239	81	123	55	467	500	330	2,774	4,221	1,883	83,219	12,209,659
May-08	314	376	245	70	99	33	411	500	165	2,409	3,400	1,142	74,669	12,284,329
Jun-08	348	394	285	71	92	19	500	500	498	2,443	3,143	660	73,282	12,357,611
WDW-3													**Previous Quarter**	1,049,409
Apr-08	473	588	326	148	228	79	676	915	530	5,086	7,818	2,707	152,578	727,836
May-08	502	622	388	150	179	112	678	901	540	5,131	6,133	3,852	159,072	886,908
Jun-08	559	642	415	173	189	132	761	998	564	5,929	6,497	4,539	177,858	1,064,766
													Total Injected fluids:	38,972,716

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2nd 08 qtrly rpt
Injection fluids

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2008 SECOND QUARTER WEEKLY WHAMS LEVEL TABLE

	4/2/200	4/11/08	4/17/08	4/25/08	4/30/08	5/8/08	5/14/08	5/21/08	5/30/08	6/5/08	6/11/08	6/17/08	6/27/08
WDW -1[1]	190	190	190	190	190	200	200	200	200	200	200	200	200
WDW-2[1]	160	160	160	160	160	160	160	160	160	160	160	200	200
WDW-3[2]	67%	66%	66%	65%	65%	64%	63%	60%	59%	58%	58%	58%	55%

[1] Graduated tank gauged weekly in the field.

[2] Reading measured directly, and reported as percentage capacity.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

04-Jun-08

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5468
Fax: (505) 746-5421

Re: Injection Well Qrtly. Work Order : **0805558**

Dear Jeff,

ALS Laboratory Group received 2 samples on 5/23/2008 08:40 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 36.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Glenda H. Ramos

Jeffrey L Croston
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Certificate No: T104704231-08-TX

ALS Group USA, Corp.
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A Campbell Brothers Limited Company

ALS Laboratory Group

Date: 04-Jun-08

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Work Order: **0805558**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0805558-01	Injection Well	Water		5/22/2008 14:10	5/23/2008 08:40	☐
0805558-02	Trip Blank	Water		5/22/2008 14:10	5/23/2008 08:40	☑

ALS Laboratory Group *Date: 04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Work Order: 0805558

Case Narrative

Batch pH (sample Injection Well) was analyzed outside of the recommended holding time, but was analyzed immediately upon receipt of the laboratory.

Batch 30049 Metals MS/MSD was an unrelated sample.

Batch 29950 Semivolatiles LCS/LCSD RPD recovery was above the control limits for Benzidine (37.1%). Recoveries met method criteria in both LCS/LCSD.

Batch R63837 Volatiles MS/MSD was an unrelated sample.

Batch R64025 Anions MS was an unrelated sample.

ALS Laboratory Group

Date: 04-Jun-08

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL - SW 7470A			**SW7470**		Prep Date: **6/3/2008**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	6/4/2008 12:11 PM
ICP METALS, TOTAL - SW6020A			**SW6020**		Prep Date: **6/2/2008**	Analyst: **ALR**
Aluminum	**0.0846**		**0.0100**	**mg/L**	1	6/2/2008 11:43 PM
Arsenic	**0.0474**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Barium	**0.0229**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Beryllium	ND		0.00200	mg/L	1	6/2/2008 11:43 PM
Boron	**0.0839**		**0.0200**	**mg/L**	1	6/2/2008 11:43 PM
Cadmium	ND		0.00200	mg/L	1	6/2/2008 11:43 PM
Calcium	**121**		**0.500**	**mg/L**	1	6/2/2008 11:43 PM
Chromium	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Cobalt	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Copper	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Iron	ND		0.200	mg/L	1	6/2/2008 11:43 PM
Lead	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Magnesium	**41.0**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Manganese	**0.100**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Molybdenum	**0.0505**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Nickel	**0.00601**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Potassium	**3.78**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Selenium	**0.0152**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Silver	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Sodium	**136**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Vanadium	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Zinc	**0.0384**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **5/28/2008**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Methylphenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Nitrophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
3-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
4-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
4-Nitrophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Acenaphthene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Acenaphthylene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM

Qualifiers:

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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
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ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Anthracene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Benzidine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Hexachloroethane	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Isophorone	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Naphthalene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Nitrobenzene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Pentachlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Phenanthrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Phenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Pyrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Surr: 2,4,6-Tribromophenol	*69.4*		*42-124*	*%REC*	1	5/31/2008 03:57 PM
Surr: 2-Fluorobiphenyl	*71.2*		*48-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: 2-Fluorophenol	*64.5*		*20-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: 4-Terphenyl-d14	*75.7*		*51-135*	*%REC*	1	5/31/2008 03:57 PM
Surr: Nitrobenzene-d5	*66.4*		*41-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: Phenol-d6	*70.6*		*20-120*	*%REC*	1	5/31/2008 03:57 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
2-Butanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	5/28/2008 04:38 PM
2-Hexanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Acetone	**0.13**		**0.010**	**mg/L**	1	5/28/2008 04:38 PM
Benzene	**0.034**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
Bromodichloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Bromoform	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Bromomethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Carbon disulfide	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	5/28/2008 04:38 PM

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ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloroform	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Dibromochloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Ethylbenzene	**0.011**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
m,p-Xylene	**0.052**		**0.010**	**mg/L**	1	5/28/2008 04:38 PM
Methylene chloride	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Styrene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Tetrachloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Toluene	**0.039**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Trichloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Vinyl acetate	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Vinyl chloride	ND		0.0020	mg/L	1	5/28/2008 04:38 PM
Xylenes, Total	**0.081**		**0.015**	**mg/L**	1	5/28/2008 04:38 PM
Surr: 1,2-Dichloroethane-d4	*87.7*		*70-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: 4-Bromofluorobenzene	*86.3*		*72-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: Dibromofluoromethane	*87.6*		*71-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: Toluene-d8	*85.8*		*75-125*	*%REC*	1	5/28/2008 04:38 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	5/29/2008
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	5/29/2008
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **PV**
Chloride	**150**		**10.0**	**mg/L**	20	6/2/2008 04:59 PM
Sulfate	**497**		**10.0**	**mg/L**	20	6/2/2008 04:59 PM
Surr: Selenate (surr)	*94.7*		*85-115*	*%REC*	20	6/2/2008 04:59 PM
ALKALINITY			**E310.1**			Analyst: **MAM**
Alkalinity, Bicarbonate (As CaCO3)	**135**		**5.00**	**mg/L**	1	5/28/2008 02:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	5/28/2008 02:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	5/28/2008 02:00 PM
Alkalinity, Total (As CaCO3)	**135**		**5.00**	**mg/L**	1	5/28/2008 02:00 PM
CONDUCTIVITY			**E120.1**			Analyst: **MAM**
Specific Conductance	**1,590**		**1.00**	**µmhos/cm**	1	5/27/2008 03:00 PM
FLASHPOINT-SW1010A			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	5/28/2008 03:00 PM

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ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	7.15	H	0.100	pH units	1	5/23/2008 10:00 AM
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **KKP**
Total Dissolved Solids (Residue, Filterable)	1,240		10.0	mg/L	1	5/27/2008 03:00 PM

Qualifiers:

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ALS Laboratory Group

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

Date: *04-Jun-08*

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 11:11 PM**

Client ID: Run ID: **ICPMS02_080602A** SeqNo: **1410011** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.050								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 11:17 PM**
Client ID: Run ID: **ICPMS02_080602A** SeqNo: **1410012** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05531	0.010	0.05	0	111	80-120	0			
Arsenic	0.05086	0.0050	0.05	0	102	80-120	0			
Barium	0.0515	0.0050	0.05	0	103	80-120	0			
Beryllium	0.04961	0.0020	0.05	0	99.2	80-120	0			
Boron	0.51	0.050	0.5	0	102	80-120	0			
Cadmium	0.05043	0.0020	0.05	0	101	80-120	0			
Calcium	5.085	0.50	5	0	102	80-120	0			
Chromium	0.04787	0.0050	0.05	0	95.7	80-120	0			
Cobalt	0.0505	0.0050	0.05	0	101	80-120	0			
Copper	0.04711	0.0050	0.05	0	94.2	80-120	0			
Iron	5.108	0.20	5	0	102	80-120	0			
Lead	0.05004	0.0050	0.05	0	100	80-120	0			
Magnesium	4.979	0.20	5	0	99.6	80-120	0			
Manganese	0.0499	0.0050	0.05	0	99.8	80-120	0			
Molybdenum	0.04938	0.0050	0.05	0	98.8	80-120	0			
Nickel	0.04953	0.0050	0.05	0	99.1	80-120	0			
Potassium	5.014	0.20	5	0	100	80-120	0			
Selenium	0.04986	0.0050	0.05	0	99.7	80-120	0			
Silver	0.04002	0.0050	0.05	0	80	80-120	0			
Sodium	4.943	0.20	5	0	98.9	80-120	0			
Vanadium	0.05043	0.0050	0.05	0	101	80-120	0			
Zinc	0.04926	0.0050	0.05	0	98.5	80-120	0			

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R - RPD outside accepted recovery limits
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E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0805606-08CMS** Units: **mg/L** Analysis Date: **6/3/2008 02:20 PM**

Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410745** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06189	0.010	0.05	0.01497	93.8	80-120	0			
Arsenic	0.06337	0.0050	0.05	0.01058	106	80-120	0			
Barium	0.09153	0.0050	0.05	0.03819	107	80-120	0			
Beryllium	0.04985	0.0020	0.05	-0.0001438	100	80-120	0			
Boron	1.165	0.050	0.5	0.6122	111	80-120	0			
Cadmium	0.05037	0.0020	0.05	-0.0004353	102	80-120	0			
Calcium	149.2	0.50	5	143.9	106	80-120	0			O
Chromium	0.04788	0.0050	0.05	0.0002614	95.2	80-120	0			
Cobalt	0.05154	0.0050	0.05	0.002614	97.9	80-120	0			
Copper	0.04456	0.0050	0.05	0.0004179	88.3	80-120	0			
Iron	5.507	0.20	5	0.5342	99.5	80-120	0			
Lead	0.05257	0.0050	0.05	-0.00002332	105	80-120	0			
Magnesium	85.42	0.20	5	80.06	107	80-120	0			O
Manganese	0.2299	0.0050	0.05	0.179	102	80-120	0			
Molybdenum	0.05753	0.0050	0.05	0.005355	104	80-120	0			
Nickel	0.05094	0.0050	0.05	0.002892	96.1	80-120	0			
Potassium	9.248	0.20	5	4.425	96.5	80-120	0			
Selenium	0.05288	0.0050	0.05	0.0005107	105	80-120	0			
Silver	0.04033	0.0050	0.05	-0.0003408	81.3	80-120	0			
Sodium	215.6	0.20	5	209.9	114	80-120	0			EO
Vanadium	0.05326	0.0050	0.05	0.001695	103	80-120	0			
Zinc	0.05312	0.0050	0.05	0.00839	89.5	80-120	0			

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0805606-08CMSD** Units: **mg/L** Analysis Date: **6/3/2008 02:26 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410746** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06039	0.010	0.05	0.01497	90.8	80-120	0.06189	2.45	15	
Arsenic	0.06377	0.0050	0.05	0.01058	106	80-120	0.06337	0.629	15	
Barium	0.09108	0.0050	0.05	0.03819	106	80-120	0.09153	0.493	15	
Beryllium	0.04878	0.0020	0.05	-0.0001438	97.8	80-120	0.04985	2.17	15	
Boron	1.186	0.050	0.5	0.6122	115	80-120	1.165	1.79	15	
Cadmium	0.04962	0.0020	0.05	-0.0004353	100	80-120	0.05037	1.5	15	
Calcium	150.7	0.50	5	143.9	136	80-120	149.2	1	15	SO
Chromium	0.04772	0.0050	0.05	0.0002614	94.9	80-120	0.04788	0.335	15	
Cobalt	0.05164	0.0050	0.05	0.002614	98.1	80-120	0.05154	0.194	15	
Copper	0.04497	0.0050	0.05	0.0004179	89.1	80-120	0.04456	0.916	15	
Iron	5.431	0.20	5	0.5342	97.9	80-120	5.507	1.39	15	
Lead	0.05227	0.0050	0.05	-0.00002332	105	80-120	0.05257	0.572	15	
Magnesium	84.25	0.20	5	80.06	83.8	80-120	85.42	1.38	15	O
Manganese	0.2326	0.0050	0.05	0.179	107	80-120	0.2299	1.17	15	
Molybdenum	0.0565	0.0050	0.05	0.005355	102	80-120	0.05753	1.81	15	
Nickel	0.04908	0.0050	0.05	0.002892	92.4	80-120	0.05094	3.72	15	
Potassium	9.267	0.20	5	4.425	96.8	80-120	9.248	0.205	15	
Selenium	0.05261	0.0050	0.05	0.0005107	104	80-120	0.05288	0.512	15	
Silver	0.04025	0.0050	0.05	-0.0003408	81.2	80-120	0.04033	0.199	15	
Sodium	212.4	0.20	5	209.9	50	80-120	215.6	1.5	15	SEO
Vanadium	0.05363	0.0050	0.05	0.001695	104	80-120	0.05326	0.692	15	
Zinc	0.05195	0.0050	0.05	0.00839	87.1	80-120	0.05312	2.23	15	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0805606-08CDUP** Units: **mg/L** Analysis Date: **6/3/2008 01:48 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410741** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01681	0.010	0	0	0	0-0	0.01497	11.6	25	
Arsenic	0.01089	0.0050	0	0	0	0-0	0.01058	2.89	25	
Barium	0.0393	0.0050	0	0	0	0-0	0.03819	2.86	25	
Beryllium	ND	0.0020	0	0	0	0-0	-0.0001438	0	25	
Boron	0.6411	0.050	0	0	0	0-0	0.6122	4.61	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.0004353	0	25	
Calcium	147	0.50	0	0	0	0-0	143.9	2.13	25	
Chromium	ND	0.0050	0	0	0	0-0	0.0002614	0	25	
Cobalt	0.002661	0.0050	0	0	0	0-0	0.002614	0	25	J
Copper	ND	0.0050	0	0	0	0-0	0.0004179	0	25	
Iron	0.545	0.20	0	0	0	0-0	0.5342	2	25	
Lead	ND	0.0050	0	0	0	0-0	-0.00002332	0	25	
Magnesium	82.64	0.20	0	0	0	0-0	80.06	3.17	25	
Manganese	0.1849	0.0050	0	0	0	0-0	0.179	3.24	25	
Molybdenum	0.005564	0.0050	0	0	0	0-0	0.005355	3.83	25	
Nickel	0.002742	0.0050	0	0	0	0-0	0.002892	0	25	J
Potassium	4.499	0.20	0	0	0	0-0	4.425	1.66	25	
Selenium	ND	0.0050	0	0	0	0-0	0.0005107	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003408	0	25	
Vanadium	0.001621	0.0050	0	0	0	0-0	0.001695	0	25	J
Zinc	0.004506	0.0050	0	0	0	0-0	0.00839	0	25	J

DUP Sample ID: **0805606-08CDUP** Units: **mg/L** Analysis Date: **6/3/2008 03:07 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410816** Prep Date: **6/2/2008** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	198.8	10	0	0	0	0-0	216.8	8.66	25	

The following samples were analyzed in this batch: 0805558-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30093** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:55 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411704** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000044	0.00020								J

LCS Sample ID: **GLCSW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:57 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411705** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00452	0.00020	0.005	0	90.4	85-115	0			

LCSD Sample ID: **GLCSDW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:59 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411706** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00438	0.00020	0.005	0	87.6	85-115	0.00452	3.15	20	

MS Sample ID: **0806044-01CMS** Units: **mg/L** Analysis Date: **6/4/2008 12:05 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411709** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00461	0.00020	0.005	-0.000049	93.2	85-115	0			

MSD Sample ID: **0806044-01CMSD** Units: **mg/L** Analysis Date: **6/4/2008 12:07 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411710** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00464	0.00020	0.005	-0.000049	93.8	85-115	0.00461	0.649	20	

DUP Sample ID: **0806044-01CDUP** Units: **mg/L** Analysis Date: **6/4/2008 12:03 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411708** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000049	0	20	

The following samples were analyzed in this batch: 0805558-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

MBLK Sample ID: **SBLKW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 04:45 PM**

Client ID: Run ID: **SV-5_080529C** SeqNo: **1408204** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*66.46*	5.0	*100*	0	*66.5*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*75.49*	5.0	*100*	0	*75.5*	*48-120*	0			
Surr: 2-Fluorophenol	*63.48*	5.0	*100*	0	*63.5*	*20-120*	0			
Surr: 4-Terphenyl-d14	*75.31*	5.0	*100*	0	*75.3*	*51-135*	0			
Surr: Nitrobenzene-d5	*78.24*	5.0	*100*	0	*78.2*	*41-120*	0			
Surr: Phenol-d6	*71.08*	5.0	*100*	0	*71.1*	*20-120*	0			

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E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

LCS Sample ID: **SLCSW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 11:50 AM**

Client ID: Run ID: **SV-5_080529C** SeqNo: **1408202** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.48	5.0	50	0	77	50-120	0			
2,4,5-Trichlorophenol	70.59	5.0	100	0	70.6	50-120	0			
2,4,6-Trichlorophenol	77.31	5.0	100	0	77.3	50-120	0			
2-Methylnaphthalene	39.73	5.0	50	0	79.5	55-120	0			
2-Methylphenol	72.4	5.0	100	0	72.4	50-120	0			
2-Nitroaniline	41.9	5.0	50	0	83.8	55-120	0			
2-Nitrophenol	77.95	5.0	100	0	78	55-120	0			
3&4-Methylphenol	112.7	5.0	150	0	75.1	55-120	0			
3-Nitroaniline	31.41	5.0	50	0	62.8	40-120	0			
4-Nitroaniline	37.07	5.0	50	0	74.1	50-120	0			
4-Nitrophenol	97.1	5.0	100	0	97.1	45-120	0			
Acenaphthene	40.42	5.0	50	0	80.8	55-120	0			
Acenaphthylene	41.2	5.0	50	0	82.4	55-120	0			
Aniline	30.83	5.0	50	0	61.7	30-120	0			
Anthracene	40.67	5.0	50	0	81.3	55-120	0			
Benz(a)anthracene	37.11	5.0	50	0	74.2	55-120	0			
Benzidine	15.02	5.0	50	0	30	10-120	0			
Hexachloroethane	38.38	5.0	50	0	76.8	55-120	0			
Indeno(1,2,3-cd)pyrene	36.31	5.0	50	0	72.6	55-120	0			
Isophorone	41.97	5.0	50	0	83.9	55-120	0			
N-Nitrosodi-n-propylamine	40.43	5.0	50	0	80.9	50-120	0			
N-Nitrosodimethylamine	37.79	5.0	50	0	75.6	45-120	0			
N-Nitrosodiphenylamine	40.24	5.0	50	0	80.5	55-120	0			
Naphthalene	40.25	5.0	50	0	80.5	55-120	0			
Nitrobenzene	39.48	5.0	50	0	79	55-120	0			
Pentachlorophenol	71.77	5.0	100	0	71.8	55-120	0			
Phenanthrene	39.92	5.0	50	0	79.8	55-120	0			
Phenol	77.57	5.0	100	0	77.6	50-120	0			
Pyrene	40.45	5.0	50	0	80.9	55-120	0			
Surr: 2,4,6-Tribromophenol	*72.66*	5.0	*100*	0	*72.7*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*77.75*	5.0	*100*	0	*77.7*	*48-120*	0			
Surr: 2-Fluorophenol	*68.18*	5.0	*100*	0	*68.2*	*20-120*	0			
Surr: 4-Terphenyl-d14	*76.16*	5.0	*100*	0	*76.2*	*51-135*	0			
Surr: Nitrobenzene-d5	*79.91*	5.0	*100*	0	*79.9*	*41-120*	0			
Surr: Phenol-d6	*72.59*	5.0	*100*	0	*72.6*	*20-120*	0			

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P - Dual Column results percent difference > 40%
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 12:16 PM**
Client ID: Run ID: **SV-5_080529C** SeqNo: **1408203** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.38	5.0	50	0	76.8	50-120	38.48	0.238	20	
2,4,5-Trichlorophenol	84.21	5.0	100	0	84.2	50-120	70.59	17.6	20	
2,4,6-Trichlorophenol	79.22	5.0	100	0	79.2	50-120	77.31	2.45	20	
2-Methylnaphthalene	40.87	5.0	50	0	81.7	55-120	39.73	2.83	20	
2-Methylphenol	75.67	5.0	100	0	75.7	50-120	72.4	4.42	20	
2-Nitroaniline	42.15	5.0	50	0	84.3	55-120	41.9	0.588	20	
2-Nitrophenol	79.6	5.0	100	0	79.6	55-120	77.95	2.1	20	
3&4-Methylphenol	117.5	5.0	150	0	78.3	55-120	112.7	4.17	20	
3-Nitroaniline	26.62	5.0	50	0	53.2	40-120	31.41	16.5	20	
4-Nitroaniline	36.41	5.0	50	0	72.8	50-120	37.07	1.79	20	
4-Nitrophenol	82.95	5.0	100	0	82.9	45-120	97.1	15.7	20	
Acenaphthene	41.82	5.0	50	0	83.6	55-120	40.42	3.42	20	
Acenaphthylene	41.46	5.0	50	0	82.9	55-120	41.2	0.614	20	
Aniline	31.37	5.0	50	0	62.7	30-120	30.83	1.74	20	
Anthracene	39.59	5.0	50	0	79.2	55-120	40.67	2.7	20	
Benz(a)anthracene	37.02	5.0	50	0	74	55-120	37.11	0.242	20	
Benzidine	10.32	5.0	50	0	20.6	10-120	15.02	37.1	20	R
Hexachloroethane	41.36	5.0	50	0	82.7	55-120	38.38	7.47	20	
Indeno(1,2,3-cd)pyrene	36.71	5.0	50	0	73.4	55-120	36.31	1.08	20	
Isophorone	43.01	5.0	50	0	86	55-120	41.97	2.46	20	
N-Nitrosodi-n-propylamine	41.81	5.0	50	0	83.6	50-120	40.43	3.36	20	
N-Nitrosodimethylamine	39.68	5.0	50	0	79.4	45-120	37.79	4.88	20	
N-Nitrosodiphenylamine	41.17	5.0	50	0	82.3	55-120	40.24	2.29	20	
Naphthalene	40.53	5.0	50	0	81.1	55-120	40.25	0.683	20	
Nitrobenzene	40.12	5.0	50	0	80.2	55-120	39.48	1.61	20	
Pentachlorophenol	75.95	5.0	100	0	76	55-120	71.77	5.66	20	
Phenanthrene	41.64	5.0	50	0	83.3	55-120	39.92	4.21	20	
Phenol	81.2	5.0	100	0	81.2	50-120	77.57	4.58	20	
Pyrene	42.21	5.0	50	0	84.4	55-120	40.45	4.27	20	
Surr: 2,4,6-Tribromophenol	*73.12*	5.0	*100*	0	*73.1*	*42-124*	72.66	*0.63*	*20*	
Surr: 2-Fluorobiphenyl	*77.94*	5.0	*100*	0	*77.9*	*48-120*	77.75	*0.241*	*20*	
Surr: 2-Fluorophenol	*70.82*	5.0	*100*	0	*70.8*	*20-120*	68.18	*3.8*	*20*	
Surr: 4-Terphenyl-d14	*74.56*	5.0	*100*	0	*74.6*	*51-135*	76.16	*2.12*	*20*	
Surr: Nitrobenzene-d5	*77.03*	5.0	*100*	0	*77*	*41-120*	79.91	*3.68*	*20*	
Surr: Phenol-d6	*77.02*	5.0	*100*	0	*77*	*20-120*	72.59	*5.92*	*20*	

The following samples were analyzed in this batch: 0805558-01E

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: R63837 Instrument ID VOA2 Method: SW8260

MBLK Sample ID: VBLKW-052808 Units: µg/L Analysis Date: 5/28/2008 12:10 PM
Client ID: Run ID: VOA2_080528B SeqNo: 1406315 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*43.9*	5.0	*50*	0	*87.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*39.58*	5.0	*50*	0	*79.2*	*72-125*	0			
Surr: Dibromofluoromethane	*44.48*	5.0	*50*	0	*89*	*71-125*	0			
Surr: Toluene-d8	*42.61*	5.0	*50*	0	*85.2*	*75-125*	0			

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J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63837** Instrument ID **VOA2** Method: **SW8260**

LCS Sample ID: **VLCSW-052808** Units: **µg/L** Analysis Date: **5/28/2008 10:32 AM**
Client ID: Run ID: **VOA2_080528B** SeqNo: **1406314** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.59	5.0	50	0	107	80-120	0			
1,1,2,2-Tetrachloroethane	43.21	5.0	50	0	86.4	72-120	0			
1,1,2-Trichloroethane	45.61	5.0	50	0	91.2	80-120	0			
1,1-Dichloroethane	57.72	5.0	50	0	115	76-120	0			
1,1-Dichloroethene	59.25	5.0	50	0	118	73-124	0			
1,2-Dichloroethane	50.06	5.0	50	0	100	78-120	0			
2-Butanone	105.4	10	100	0	105	58-132	0			
2-Chloroethyl vinyl ether	113.7	10	100	0	114	74-120	0			
2-Hexanone	90.16	10	100	0	90.2	61-130	0			
4-Methyl-2-pentanone	92.78	10	100	0	92.8	65-127	0			
Acetone	112.7	10	100	0	113	59-137	0			
Benzene	49.49	5.0	50	0	99	73-121	0			
Bromodichloromethane	56.85	5.0	50	0	114	80-120	0			
Bromoform	43.63	5.0	50	0	87.3	79-120	0			
Bromomethane	55.41	5.0	50	0	111	66-137	0			
Carbon disulfide	120.7	10	100	0	121	68-141	0			
Carbon tetrachloride	46.35	5.0	50	0	92.7	75-124	0			
Chlorobenzene	45.69	5.0	50	0	91.4	80-120	0			
Chloroethane	56.2	5.0	50	0	112	76-121	0			
Chloroform	51.36	5.0	50	0	103	80-120	0			
Chloromethane	52.26	5.0	50	0	105	67-123	0			
cis-1,3-Dichloropropene	51.11	5.0	50	0	102	80-120	0			
Dibromochloromethane	43.19	5.0	50	0	86.4	80-120	0			
Ethylbenzene	48.15	5.0	50	0	96.3	80-120	0			
m,p-Xylene	95.83	10	100	0	95.8	78-121	0			
Methylene chloride	54.74	10	50	0	109	65-133	0			
Styrene	47.23	5.0	50	0	94.5	80-120	0			
Tetrachloroethene	48.06	5.0	50	0	96.1	79-120	0			
Toluene	46.84	5.0	50	0	93.7	80-120	0			
trans-1,3-Dichloropropene	41.8	5.0	50	0	83.6	80-120	0			
Trichloroethene	54.59	5.0	50	0	109	80-120	0			
Vinyl acetate	116.5	10	100	0	117	67-139	0			
Vinyl chloride	55.86	2.0	50	0	112	70-127	0			
Xylenes, Total	144.1	15	150	0	96.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	*43.38*	5.0	*50*	0	*86.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*42.1*	5.0	*50*	0	*84.2*	*72-125*	0			
Surr: Dibromofluoromethane	*46.28*	5.0	*50*	0	*92.6*	*71-125*	0			
Surr: Toluene-d8	*41.88*	5.0	*50*	0	*83.8*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63837** Instrument ID **VOA2** Method: **SW8260**

MS Sample ID: **0805601-04AMS** Units: **µg/L** Analysis Date: **5/28/2008 03:25 PM**

Client ID: Run ID: **VOA2_080528B** SeqNo: **1406317** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.89	5.0	50	0	91.8	80-120	0			
1,1,2,2-Tetrachloroethane	47.3	5.0	50	0	94.6	72-120	0			
1,1,2-Trichloroethane	47.41	5.0	50	0	94.8	80-120	0			
1,1-Dichloroethane	44.83	5.0	50	0	89.7	76-120	0			
1,1-Dichloroethene	44.54	5.0	50	0	89.1	73-124	0			
1,2-Dichloroethane	47.57	5.0	50	0	95.1	78-120	0			
2-Butanone	102.3	10	100	0	102	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	108.8	10	100	0	109	61-130	0			
4-Methyl-2-pentanone	111.4	10	100	0	111	65-127	0			
Acetone	106.9	10	100	0	107	59-137	0			
Benzene	47.77	5.0	50	0	95.5	73-121	0			
Bromodichloromethane	49.32	5.0	50	0	98.6	80-120	0			
Bromoform	44.57	5.0	50	0	89.1	79-120	0			
Bromomethane	46.98	5.0	50	0	94	66-137	0			
Carbon disulfide	86.27	10	100	0	86.3	68-141	0			
Carbon tetrachloride	38.35	5.0	50	0	76.7	75-124	0			
Chlorobenzene	43.93	5.0	50	0	87.9	80-120	0			
Chloroethane	43.52	5.0	50	0	87	76-121	0			
Chloroform	47.36	5.0	50	0	94.7	80-120	0			
Chloromethane	44.75	5.0	50	0	89.5	67-123	0			
cis-1,3-Dichloropropene	44.26	5.0	50	0	88.5	80-120	0			
Dibromochloromethane	42.95	5.0	50	0	85.9	80-120	0			
Ethylbenzene	58.52	5.0	50	15.72	85.6	80-120	0			
m,p-Xylene	88.48	10	100	0	88.5	78-121	0			
Methylene chloride	46.9	10	50	0	93.8	65-133	0			
Styrene	45.6	5.0	50	0	91.2	80-120	0			
Tetrachloroethene	41.8	5.0	50	0	83.6	79-120	0			
Toluene	44.02	5.0	50	0	88	80-120	0			
trans-1,3-Dichloropropene	40.8	5.0	50	0	81.6	80-120	0			
Trichloroethene	47.16	5.0	50	0	94.3	80-120	0			
Vinyl acetate	109.4	10	100	0	109	67-139	0			
Vinyl chloride	42.03	2.0	50	0	84.1	70-127	0			
Xylenes, Total	133.6	15	150	0	89	80-120	0			
Surr: 1,2-Dichloroethane-d4	*41.93*	5.0	*50*	0	*83.9*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*42.08*	5.0	*50*	0	*84.2*	*72-125*	0			
Surr: Dibromofluoromethane	*44.57*	5.0	*50*	0	*89.1*	*71-125*	0			
Surr: Toluene-d8	*41*	5.0	*50*	0	*82*	*75-125*	0			

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: R63837 Instrument ID VOA2 Method: SW8260

MSD Sample ID: 0805601-04AMSD Units: µg/L Analysis Date: 5/28/2008 03:49 PM

Client ID: Run ID: VOA2_080528B SeqNo: 1406318 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.03	5.0	50	0	98.1	80-120	45.89	6.62	20	
1,1,2,2-Tetrachloroethane	50.56	5.0	50	0	101	72-120	47.3	6.65	20	
1,1,2-Trichloroethane	49.8	5.0	50	0	99.6	80-120	47.41	4.93	20	
1,1-Dichloroethane	47.18	5.0	50	0	94.4	76-120	44.83	5.1	20	
1,1-Dichloroethene	47.98	5.0	50	0	96	73-124	44.54	7.43	20	
1,2-Dichloroethane	49.81	5.0	50	0	99.6	78-120	47.57	4.62	20	
2-Butanone	106.7	10	100	0	107	58-132	102.3	4.28	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	115.9	10	100	0	116	61-130	108.8	6.33	20	
4-Methyl-2-pentanone	116.8	10	100	0	117	65-127	111.4	4.73	20	
Acetone	109.6	10	100	0	110	59-137	106.9	2.52	20	
Benzene	50.81	5.0	50	0	102	73-121	47.77	6.17	20	
Bromodichloromethane	52.54	5.0	50	0	105	80-120	49.32	6.33	20	
Bromoform	47.3	5.0	50	0	94.6	79-120	44.57	5.96	20	
Bromomethane	50.64	5.0	50	0	101	66-137	46.98	7.51	20	
Carbon disulfide	93.63	10	100	0	93.6	68-141	86.27	8.18	20	
Carbon tetrachloride	41.62	5.0	50	0	83.2	75-124	38.35	8.18	20	
Chlorobenzene	46.42	5.0	50	0	92.8	80-120	43.93	5.51	20	
Chloroethane	46.89	5.0	50	0	93.8	76-121	43.52	7.44	20	
Chloroform	48.94	5.0	50	0	97.9	80-120	47.36	3.27	20	
Chloromethane	48.35	5.0	50	0	96.7	67-123	44.75	7.73	20	
cis-1,3-Dichloropropene	47.47	5.0	50	0	94.9	80-120	44.26	6.99	20	
Dibromochloromethane	45.31	5.0	50	0	90.6	80-120	42.95	5.36	20	
Ethylbenzene	62.77	5.0	50	15.72	94.1	80-120	58.52	7.01	20	
m,p-Xylene	94.53	10	100	0	94.5	78-121	88.48	6.61	20	
Methylene chloride	49.02	10	50	0	98	65-133	46.9	4.41	20	
Styrene	48.13	5.0	50	0	96.3	80-120	45.6	5.4	20	
Tetrachloroethene	44.75	5.0	50	0	89.5	79-120	41.8	6.82	20	
Toluene	46.63	5.0	50	0	93.3	80-120	44.02	5.77	20	
trans-1,3-Dichloropropene	43.88	5.0	50	0	87.8	80-120	40.8	7.28	20	
Trichloroethene	50.02	5.0	50	0	100	80-120	47.16	5.89	20	
Vinyl acetate	115.9	10	100	0	116	67-139	109.4	5.83	20	
Vinyl chloride	45.4	2.0	50	0	90.8	70-127	42.03	7.71	20	
Xylenes, Total	142	15	150	0	94.6	80-120	133.6	6.11	20	
Surr: 1,2-Dichloroethane-d4	*42.81*	5.0	*50*	0	*85.6*	*70-125*	41.93	*2.06*	*20*	
Surr: 4-Bromofluorobenzene	*44.6*	5.0	*50*	0	*89.2*	*72-125*	42.08	*5.81*	*20*	
Surr: Dibromofluoromethane	*46.59*	5.0	*50*	0	*93.2*	*71-125*	44.57	*4.43*	*20*	
Surr: Toluene-d8	*43.46*	5.0	*50*	0	*86.9*	*75-125*	41	*5.83*	*20*	

The following samples were analyzed in this batch: 0805558-01A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63600** Instrument ID **SWetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-052308** Units: **pH units** Analysis Date: **5/23/2008 10:00 AM**
Client ID: Run ID: **SWETCHEM_080523D** SeqNo: **1401952** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.08	0.10	6	0	101	90-110	0			

DUP Sample ID: **0805529-01ADUP** Units: **pH units** Analysis Date: **5/23/2008 10:00 AM**
Client ID: Run ID: **SWETCHEM_080523D** SeqNo: **1401961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	13.17	0.10	0	0	0	0-0	13.14	0.228	20	H

The following samples were analyzed in this batch: 0805558-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63719** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-052708** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403637** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-052708** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403638** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1420	1.0	1413	0	100	80-120	0			

DUP Sample ID: **0805363-01FDUP** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403641** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	3550	1.0	0	0	0	0-0	3570	0.562	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63797** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-052808** Units: **°F** Analysis Date: **5/28/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080528C** SeqNo: **1405214** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID: **0805558-01DDUP** Units: **°F** Analysis Date: **5/28/2008 03:00 PM**
Client ID: **Injection Well** Run ID: **WETCHEM_080528C** SeqNo: **1405217** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch: 0805558-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63808** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-052808** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405421** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-052808** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405422** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1003	5.0	1000	0	100	80-120	0			
Alkalinity, Total (As CaCO3)	1003	5.0	1000	0	100	80-120	0			

DUP Sample ID: **0805543-01FDUP** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405442** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	538	5.0	0	0	0	0-0	530	1.5	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	538	5.0	0	0	0	0-0	530	1.5	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63822** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **BALANCE1_080527K** SeqNo: **1405748** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **BALANCE1_080527K** SeqNo: **1405750** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1004	10	1000	0	100	85-115	0			

DUP Sample ID: **0805531-21BDUP** Units: **mg/L** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **BALANCE1_080527K** SeqNo: **1405729** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	5874	10	0	0	0	0-0	5882	0.136	20	

DUP Sample ID: **0805558-01CDUP** Units: **mg/L** Analysis Date: **5/27/2008 03:00 PM**
Client ID: **Injection Well** Run ID: **BALANCE1_080527K** SeqNo: **1405743** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1232	10	0	0	0	0-0	1238	0.486	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R64025** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 12:00 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410755** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*4.751*	0.10	*5*	0	*95*	*85-115*	0			

LCS Sample ID: **WLCSW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 12:25 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410757** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.8	0.50	20	0	99	90-110	0			
Sulfate	20.2	0.50	20	0	101	90-110	0			
Surr: Selenate (surr)	*4.969*	0.10	*5*	0	*99.4*	*85-115*	0			

MS Sample ID: **0805556-01BMS** Units: **mg/L** Analysis Date: **6/2/2008 03:39 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410766** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	284.1	0.50	10	280.2	38.6	80-120	0			SEO
Sulfate	1394	0.50	10	1422	-279	80-120	0			SEO
Surr: Selenate (surr)	*4.656*	0.10	*5*	0	*93.1*	*85-115*	0			

DUP Sample ID: **0805556-01BDUP** Units: **mg/L** Analysis Date: **6/2/2008 03:14 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410765** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	272.4	0.50	0	0	0	0-0	280.2	2.84	20	E
Sulfate	1384	0.50	0	0	0	0-0	1422	2.7	20	E
Surr: Selenate (surr)	*4.517*	0.10	*5*	0	*90.3*	*85-115*	4.649	*2.88*	*20*	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Project Manager: | Work Order #: 880555

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Qrtly.	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Injection Well	5/22/08	1410	L	Y	9	X	X	X	X	X	X	X	X	X		
2	Trip Blank																
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Aaron Strange

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☐ Std 10 Wk Days ☐ 7 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
Aaron Strange	5/22/08	1615		10 Day TAT.
Relinquished by:	Date:	Time:	Received by (Laboratory): 5/22/08 05:40	
Logged by (Laboratory)	Date:	Time:	Checked by (Laboratory):	

Cooler ID | Cooler Temp:

QC Packages: (Check One Box Below)
- ☑ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other
- ☐ TRRP CheckList
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

Copyright 2007 by e-Lab Analytical, Inc.

e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 5/23/2008 08:40

Work Order Number 0805558 Received by: RNG

Checklist completed by [signature] Signature 5/23/08 Date Reviewed by [initials] Initials 5/27/08 Date

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ✓	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✓	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✓
Chain of custody present?	Yes ✓	No	
Chain of custody signed when relinquished and received?	Yes ✓	No	
Chain of custody agrees with sample labels?	Yes ✓	No	
Samples in proper container/bottle?	Yes ✓	No	
Sample containers intact?	Yes ✓	No	
Sufficient sample volume for indicated test?	Yes ✓	No	
All samples received within holding time?	Yes ✓	No	
Container/Temp Blank temperature in compliance?	Yes ✓	No	
Temperature(s)/Thermometer(s):	2.9c	002	
Cooler(s)/Kit(s):	2369		
Water - VOA vials have zero headspace?	Yes ✓	No	No VOA vials submitted
Water - pH acceptable upon receipt?	Yes ✓	No	N/A

Adjusted? Checked by

Login Notes:

Client contacted: Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action

D800250

ALS e-Lab Analytical
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

CUSTODY

Date: 5/27/08 Time

Name:

Company: Navajo Re

SEAL

1615

Seal Broken By:

Date:

ALS Laboratory Group

Date: 29-May-08

Client: ALS Laboratory Group
Project: 0805558
Work Order: **0805504**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0805504-01	0805558-01F	Water		5/22/2008 14:10	5/28/2008 09:40	☐

Released to Imaging: 7/12/2024 10:49:45 AM

ALS Laboratory Group

Date: *29-May-08*

Client: ALS Laboratory Group
Project: 0805558
Sample ID: 0805558-01F
Collection Date: 5/22/2008 02:10 PM
Work Order: 0805504
Lab ID: 0805504-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **DB**
Cyanide, Reactive	ND		40.0	mg/Kg	1	5/29/2008
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **DB**
Sulfide, Reactive	ND		40.0	mg/Kg	1	5/29/2008

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Client: ALS Laboratory Group
Work Order: 0805504
Project: 0805558

Date: *29-May-08*

QC BATCH REPORT

Batch ID: **R59003** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID: **WBLKS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977280** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: **WLCSS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977281** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	220.2	40	250	0	88.1	75-125	0			

LCSD Sample ID: **WLCSDS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977290** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	220.2	40	250	0	88.1	75-125	220.2	0	35	

MS Sample ID: **0805504-01A MS** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: **0805558-01F** Run ID: **WETCHEM_080529E** SeqNo: **977283** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	264.2	40	250	0	106	50-150	0			

MSD Sample ID: **0805504-01A MSD** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: **0805558-01F** Run ID: **WETCHEM_080529E** SeqNo: **977284** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	264.2	40	250	0	106	50-150	264.2	0	35	

The following samples were analyzed in this batch: 0805504-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: ALS Laboratory Group
Work Order: 0805504
Project: 0805558

QC BATCH REPORT

Batch ID: **R59004** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID: **WBLKS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529F** SeqNo: **977295** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0805504-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

0805504

Subcontractor:
e-Lab Analytical, Inc.
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 23-May-08
COC ID: 6398
Due Date 04-Jun-08

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	0805558	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jeff.croston@alsenviro.com	eMail CC	glenda.ramos@alsenviro.com	J

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
0805558-01F (Injection Well)	Water	5/22/2008 14:10	(1) 1LPNEAT	X	X								

Comments:

Please analyze for Reactive Cyanide & Reactive Sulfide.

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
					Std
Relinquished by:	Date/Time 5.27.08	Received by:	Date/Time 5/28/08 0940		

ALS Laboratory Group

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 5/28/2008 09:40

Work Order Number 0805504 Received by: AJK

Checklist completed by _____ 5/28/08 Reviewed by _____ 5/28/08
Signature Date Initials Date

Matrix: Water Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.0°C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

UPS Next Day Air Saver

WEIGHT 49 | DIMENSIONAL WEIGHT | LARGE PACKAGE | SHIPPER RELEASE

1P

Saver

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SHIPMENT FROM

UPS ACCOUNT NO. 698174

REFERENCE NUMBER
SUB CONTRACT

RICHARD SANCHEZ TELEPHONE 281-530-5656

ALS LABORATORY GROUP

1450 STANCLIFF RD STE # 210

HOUSTON TX 77099

DELIVERY TO

RECEIVING TELEPHONE 616-399-6070

ALS LABORATORY GROUP

3352 128TH AVE

HOLLAND MI 49424

(URC 1.72 5/30/2007)
0201952502609 1/07

United Parcel Service, Louisville, KY

MI 495 9-04

UPS Next Day Air Saver 1P

1Z 698 174 23 1005 3901

TRACKING NUMBER

SHIPMENT ID NUMBER 6981 7478 BCW

3352 128TH AVE

HOLLAND MI 49424

P: S: I:

M220-RDL

1500

1Z 698 174 23 1005 3901

1256391 SS3004 US 04959 May 28 08:06:53 2008 HIP 7.0.1 INT4420

HEAVY HEAVY HEAVY HEAVY

49 lbs.
FedEx M-1578
119686 3/00 WCS

49 lbs.
FedEx M-1578
119685 3/00 WCS

e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

QUALITY • INTEGRITY • SERVICE

CUSTODY SEAL

Date: 5-27-08 Time: 1640
Name: RICHARD SANCHEZ
Company: ALS

Seal Broken By:

Date: 5/28/08

08055504

REFINING COMPANY, LLC

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 ENV/PURCH/MKTG
(505) 746-5421 ENGINEERING

January 18, 2008

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 Fourth Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

While generating this report an error was found and corrected on the 2007 third quarter monthly injection pressures, rates and volumes spread sheet. Please see the enclosed corrected spread sheet.

Also enclosed, please find the sampling results for the fourth quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2007 to December 31, 2007. We have disposed a total of 36,349,675 barrels of fluid into the two wells as of December 31, 2007. This is broken down as follows: 24,507,561 barrels into WDW-1 and 11,842,114 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Aaron Strange

Aaron Strange
Sr. Environmental Technician

Encl.

cc: DGM
File: REF:ART: 4 A 02 D

RECEIVED
2008 JAN 23 PM 2 01

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													Previous Quarter	23,700,982
Oct-07	273	316	1	281	304	162	96	194	18	9,624	10,435	5,543	298,355	23,999,337
Nov-07	293	386	87	242	280	64	206	333	29	8,297	9,597	2,184	257,219	24,256,556
Dec-07	395	468	368	236	264	146	193	272	113	8,097	9,036	5,000	251,005	24,507,561
WDW-2													Previous Quarter	11,362,072
Oct-07	339	406	30	133	160	0	477	500	168	4,546	5,469	0	140,915	11,502,987
Nov-07	347	401	121	144	176	36	486	500	303	4,925	6,038	1,237	152,676	11,655,663
Dec-07	410	443	367	175	187	153	455	500	310	6,015	6,428	5,242	186,452	11,842,114
													Total Injected fluids:	36,349,675

Page 3175 of 5828

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2007 THIRD QUARTER WEEKLY WHAMS LEVEL TABLE

	10/2/07	10/9/07	10/15/07	10/23/07	10/30/07	11/6/07	11/12/07	11/20/07	11/27/07	12/3/07	12/11/07	12/18/07	12/25/07
WDW -1[1]	200	200	200	200	200	200	200	200	190	190	190	190	190
WDW-2[1]	160	160	160	160	160	160	160	160	160	160	160	160	160
WDW-3[2]	*	*	*	*	*	*	*	*	*	*	240	240	240

[1] Graduated 200 gallon tank.

[2] 300 gallon tank, filled the week of 12/10/07, no fluids were injected as of 12/31/07.

Received by OCD: 5/16/2022 2:12:41 PM

November 30, 2007

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Well Quarterly

Work Order : **0711312**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 1 sample on 11/14/2007 09:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 35.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Rebecca L. Hunt

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: November 30, 2007

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312

LELAP Certificate #03087

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Dat	Date Received	Hold
0711312-01	Inj. Well	Water		11/13/2007 09:15	11/14/2007 09:20	☐

e-Lab Analytical, Inc. *Date: November 30, 2007*

Client:	Navajo Refining Company	LELAP Certificate #03087
Project:	Injection Well Quarterly	**Case Narrative**
Work Order:	0711312	

Metals (sample Inj. Well) could not be reported at a lower dilution for all elements due the nature of the sample.

Batch 26751 Metals MS/MSD was an unrelated sample.

Batch 26771 Semivolatiles LCS/LCSD RPD recovery was above the control limits for Benzidine (23.7%). Recoveries met method criteria in both LCS/LCSD.

Batch R57123 Volatiles MS/MSD was an unrelated sample.

Batch R57038 Anions MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Inj. Well
Collection Date: 11/13/2007 9:15:00 AM

Work Order: 0711312
Lab ID: 0711312-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **11/24/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	11/25/2007 6:38:10 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **11/15/2007**	Analyst: **ALR**
Aluminum	**1.85**		**0.100**	**mg/L**	10	11/19/2007 8:55:00 PM
Arsenic	**0.147**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Barium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Beryllium	ND		0.00200	mg/L	1	11/19/2007 9:01:00 PM
Boron	**0.241**		**0.0200**	**mg/L**	1	11/19/2007 9:01:00 PM
Cadmium	ND		0.0200	mg/L	10	11/17/2007 12:10:00 AM
Calcium	**119**		**5.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Chromium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Cobalt	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Copper	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Iron	**4.17**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Lead	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Magnesium	**43.3**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Manganese	**0.117**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Molybdenum	**0.144**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Nickel	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Potassium	**27.4**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Selenium	**0.452**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Silver	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Sodium	**1,200**		**2.00**	**mg/L**	10	11/19/2007 8:55:00 PM
Vanadium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Zinc	**0.190**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **11/16/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Methylphenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Nitrophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
3-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
4-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
4-Nitrophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Acenaphthene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Acenaphthylene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Anthracene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Benzidine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Hexachloroethane	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Isophorone	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Naphthalene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Nitrobenzene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Pentachlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Phenanthrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Phenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Pyrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Surr: 2,4,6-Tribromophenol	*86.1*		*42-124*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 2-Fluorobiphenyl	*63.6*		*48-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 2-Fluorophenol	*64.9*		*20-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 4-Terphenyl-d14	*71.0*		*51-135*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: Nitrobenzene-d5	*65.9*		*41-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: Phenol-d6	*69.3*		*20-120*	*%REC*	1	11/19/2007 5:17:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
2-Butanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
2-Hexanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Acetone	**0.042**		**0.010**	**mg/L**	1	11/21/2007 5:00:00 PM
Benzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromodichloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromoform	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromomethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Carbon disulfide	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM

Qualifiers:
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e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloroform	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Dibromochloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Ethylbenzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
m,p-Xylene	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Methylene chloride	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Styrene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Tetrachloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Toluene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Trichloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Vinyl acetate	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Vinyl chloride	ND		0.0020	mg/L	1	11/21/2007 5:00:00 PM
Xylenes, Total	ND		0.015	mg/L	1	11/21/2007 5:00:00 PM
Surr: 1,2-Dichloroethane-d4	*87.0*		*70-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: 4-Bromofluorobenzene	*92.8*		*72-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: Dibromofluoromethane	*102*		*71-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: Toluene-d8	*102*		*75-125*	*%REC*	1	11/21/2007 5:00:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	11/16/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	11/16/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **RPM**
Chloride	**889**		**50.0**	**mg/L**	100	11/20/2007 7:10:00 PM
Sulfate	**1,650**		**50.0**	**mg/L**	100	11/20/2007 7:10:00 PM
Surr: Selenate (surr)	*113*		*85-115*	*%REC*	100	11/20/2007 7:10:00 PM
ALKALINITY			**E310.1**			Analyst: **DM**
Alkalinity, Bicarbonate (As CaCO3)	**334**		**5.00**	**mg/L**	1	11/19/2007 4:00:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	11/19/2007 4:00:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	11/19/2007 4:00:00 PM
Alkalinity, Total (As CaCO3)	**334**		**5.00**	**mg/L**	1	11/19/2007 4:00:00 PM
CONDUCTIVITY			**E120.1**			Analyst: **DM**
Specific Conductance	**5,980**		**1.00**	**µmhos/cm**	1	11/16/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	11/15/2007

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e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	**7.37**	H	**0.100**	**pH units**	1	11/14/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	**4,300**		**10.0**	***mg/L***	1	11/15/2007 3:00:00 PM

Qualifiers:

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e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

Date: *Nov 30 2007*

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID **MBLKW2-111507** Units: **mg/L** Analysis Date: **11/16/07 23:57**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264730** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	0.0003037	0.0020								J
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	0.0002719	0.0050								J
Copper	ND	0.0050								
Iron	0.05465	0.20								J
Lead	0.000386	0.0050								J
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	0.0004153	0.0050								J
Potassium	0.04252	0.20								J
Selenium	ND	0.0050								
Silver	ND	0.0050								
Vanadium	0.0006997	0.0050								J
Zinc	ND	0.0050								

MBLK Sample ID **MBLKW2-111507** Units: **mg/L** Analysis Date: **11/19/07 17:19**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265810** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.0003468	0.0020								J
Boron	ND	0.020								
Sodium	ND	0.20								

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O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID **MLCSW2-111507** Units: **mg/L** Analysis Date: **11/17/07 0:04**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264732** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04957	0.0050	0.05	0	99.1	80-120	0			
Barium	0.05136	0.0050	0.05	0	103	80-120	0			
Cadmium	0.05239	0.0020	0.05	0	105	80-120	0			
Calcium	5.456	0.50	5	0	109	80-120	0			
Chromium	0.05098	0.0050	0.05	0	102	80-120	0			
Cobalt	0.0535	0.0050	0.05	0	107	80-120	0			
Copper	0.05107	0.0050	0.05	0	102	80-120	0			
Iron	5.187	0.20	5	0	104	80-120	0			
Lead	0.05153	0.0050	0.05	0	103	80-120	0			
Magnesium	5.225	0.20	5	0	104	80-120	0			
Manganese	0.05052	0.0050	0.05	0	101	80-120	0			
Molybdenum	0.05028	0.0050	0.05	0	101	80-120	0			
Nickel	0.05157	0.0050	0.05	0	103	80-120	0			
Potassium	5.175	0.20	5	0	104	80-120	0			
Selenium	0.05426	0.0050	0.05	0	109	80-120	0			
Silver	0.04955	0.0050	0.05	0	99.1	80-120	0			
Vanadium	0.05257	0.0050	0.05	0	105	80-120	0			
Zinc	0.05273	0.0050	0.05	0	105	80-120	0			

LCS Sample ID **MLCSW2-111507** Units: **mg/L** Analysis Date: **11/19/07 17:26**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265811** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.05013	0.0020	0.05	0	100	80-120	0			
Boron	0.5145	0.020	0.5	0	103	80-120	0			
Sodium	4.668	0.20	5	0	93.4	80-120	0			

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P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID **0711313-06EMS** Units: **mg/L** Analysis Date: **11/17/07 3:00**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264759** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06728	0.0050	0.05	0.01503	104	80-120	0			
Barium	0.1102	0.0050	0.05	0.06018	100	80-120	0			
Beryllium	0.05128	0.0020	0.05	0.0006468	101	80-120	0			
Boron	0.8142	0.020	0.5	0.2942	104	80-120	0			
Cadmium	0.04984	0.0020	0.05	0.0003068	99.1	80-120	0			
Calcium	149.3	0.50	5	148.6	14	80-120	0			SO
Chromium	0.045	0.0050	0.05	0.0002828	89.4	80-120	0			
Cobalt	0.05518	0.0050	0.05	0.007226	95.9	80-120	0			
Copper	0.04599	0.0050	0.05	0.0007485	90.5	80-120	0			
Iron	5.172	0.20	5	0.6444	90.6	80-120	0			
Lead	0.04957	0.0050	0.05	0.0003491	98.4	80-120	0			
Magnesium	31.26	0.20	5	28.38	57.6	80-120	0			SO
Manganese	2.072	0.0050	0.05	2.124	-104	80-120	0			SEO
Molybdenum	0.05029	0.0050	0.05	0.002178	96.2	80-120	0			
Nickel	0.0611	0.0050	0.05	0.01618	89.8	80-120	0			
Potassium	21.17	0.20	5	17.18	79.8	80-120	0			S
Selenium	0.05263	0.0050	0.05	0.001845	102	80-120	0			
Silver	0.04467	0.0050	0.05	0.0003217	88.7	80-120	0			
Sodium	139	0.20	5	141.8	-56	80-120	0			SO
Vanadium	0.06015	0.0050	0.05	0.01373	92.8	80-120	0			
Zinc	0.05148	0.0050	0.05	0.002264	98.4	80-120	0			

MS Sample ID **0711313-06EMS** Units: **mg/L** Analysis Date: **11/19/07 18:55**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265940** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05348	0.010	0.05	0.007074	92.8	80-120	0			

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P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID **0711313-06EMSD** Units: **mg/L** Analysis Date: **11/17/07 3:06**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264760** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.07399	0.0050	0.05	0.01503	118	80-120	0.06728	9.5	15	
Barium	0.1087	0.0050	0.05	0.06018	97	80-120	0.1102	1.37	15	
Beryllium	0.04895	0.0020	0.05	0.0006468	96.6	80-120	0.05128	4.65	15	
Boron	0.7898	0.020	0.5	0.2942	99.1	80-120	0.8142	3.04	15	
Cadmium	0.04852	0.0020	0.05	0.0003068	96.4	80-120	0.04984	2.68	15	
Calcium	146	0.50	5	148.6	-52	80-120	149.3	2.24	15	SO
Chromium	0.04641	0.0050	0.05	0.0002828	92.3	80-120	0.045	3.09	15	
Cobalt	0.05651	0.0050	0.05	0.007226	98.6	80-120	0.05518	2.38	15	
Copper	0.04666	0.0050	0.05	0.0007485	91.8	80-120	0.04599	1.45	15	
Iron	5.181	0.20	5	0.6444	90.7	80-120	5.172	0.174	15	
Lead	0.0476	0.0050	0.05	0.0003491	94.5	80-120	0.04957	4.05	15	
Magnesium	30.78	0.20	5	28.38	48	80-120	31.26	1.55	15	SO
Manganese	2.107	0.0050	0.05	2.124	-34	80-120	2.072	1.68	15	SEO
Molybdenum	0.04949	0.0050	0.05	0.002178	94.6	80-120	0.05029	1.6	15	
Nickel	0.05928	0.0050	0.05	0.01618	86.2	80-120	0.0611	3.02	15	
Potassium	20.87	0.20	5	17.18	73.8	80-120	21.17	1.43	15	S
Selenium	0.05122	0.0050	0.05	0.001845	98.8	80-120	0.05263	2.72	15	
Silver	0.04655	0.0050	0.05	0.0003217	92.5	80-120	0.04467	4.12	15	
Sodium	137.8	0.20	5	141.8	-80	80-120	139	0.867	15	SO
Vanadium	0.06479	0.0050	0.05	0.01373	102	80-120	0.06015	7.43	15	
Zinc	0.05098	0.0050	0.05	0.002264	97.4	80-120	0.05148	0.976	15	

MSD Sample ID **0711313-06EMSD** Units: **mg/L** Analysis Date: **11/19/07 19:01**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265941** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05155	0.010	0.05	0.007074	89	80-120	0.05348	3.68	15	

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/17/07 2:47**
Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264757** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.01783	0.0050	0	0	0	0-0	0.01503	17	25	
Barium	0.06495	0.0050	0	0	0	0-0	0.06018	7.62	25	
Beryllium	0.0004054	0.0020	0	0	0	0-0	0.0006468	0	25	J
Boron	0.3056	0.020	0	0	0	0-0	0.2942	3.8	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.0003068	0	25	
Calcium	151.1	0.50	0	0	0	0-0	148.6	1.67	25	
Chromium	ND	0.0050	0	0	0	0-0	0.0002828	0	25	
Cobalt	0.007171	0.0050	0	0	0	0-0	0.007226	0.764	25	
Copper	0.0005842	0.0050	0	0	0	0-0	0.0007485	0	25	J
Iron	0.6462	0.20	0	0	0	0-0	0.6444	0.279	25	
Lead	ND	0.0050	0	0	0	0-0	0.0003491	0	25	
Magnesium	28.36	0.20	0	0	0	0-0	28.38	0.0705	25	
Molybdenum	0.002077	0.0050	0	0	0	0-0	0.002178	0	25	J
Nickel	0.0161	0.0050	0	0	0	0-0	0.01618	0.496	25	
Potassium	17.34	0.20	0	0	0	0-0	17.18	0.927	25	
Selenium	ND	0.0050	0	0	0	0-0	0.001845	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0003217	0	25	
Sodium	141.8	0.20	0	0	0	0-0	141.8	0	25	
Vanadium	0.01359	0.0050	0	0	0	0-0	0.01373	1.02	25	
Zinc	0.002235	0.0050	0	0	0	0-0	0.002264	0	25	J

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/19/07 17:38**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265813** Prep Date: **11/15/2007** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	2.195	0.25	0	0	0	0-0	2.163	1.47	25	

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/19/07 18:23**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265819** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.007846	0.010	0	0	0	0-0	0.007074	0	25	J

The following samples were analyzed in this batch: 0711312-01B

ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26874** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID **GBLKW3-112407** Units: **mg/L** Analysis Date: **11/25/07 17:44**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269056** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID **GLCSW3-112407** Units: **mg/L** Analysis Date: **11/25/07 17:48**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269057** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00475	0.00020	0.005	0	95	85-115	0			

LCSD Sample ID **GLCSDW3-11240** Units: **mg/L** Analysis Date: **11/25/07 17:50**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269058** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00498	0.00020	0.005	0	99.6	85-115	0.00475	4.73	20	

MS Sample ID **0711456-01DMS** Units: **mg/L** Analysis Date: **11/25/07 18:02**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269061** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00478	0.00020	0.005	0.000033	94.9	85-115	0			

MSD Sample ID **0711456-01DMSD** Units: **mg/L** Analysis Date: **11/25/07 18:04**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269062** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00519	0.00020	0.005	0.000033	103	85-115	0.00478	8.22	20	

DUP Sample ID **0711456-01DDUP** Units: **mg/L** Analysis Date: **11/25/07 17:57**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269060** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0.000033	0	20	

The following samples were analyzed in this batch: 0711312-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID **SBLKW1-071116** Units: **µg/L** Analysis Date: **11/19/07 14:34**

Client ID: Run ID: **SV-3_071119B** SeqNo: **1266313** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*92.41*	5.0	*100*	0	*92.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*69.89*	5.0	*100*	0	*69.9*	*48-120*	0			
Surr: 2-Fluorophenol	*68.99*	5.0	*100*	0	*69*	*20-120*	0			
Surr: 4-Terphenyl-d14	*74.64*	5.0	*100*	0	*74.6*	*51-135*	0			
Surr: Nitrobenzene-d5	*71.66*	5.0	*100*	0	*71.7*	*41-120*	0			
Surr: Phenol-d6	*75.26*	5.0	*100*	0	*75.3*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID **SLCSW1-071116** Units: **µg/L** Analysis Date: **11/19/07 15:01**
Client ID: Run ID: **SV-3_071119B** SeqNo: **1266314** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	39.4	5.0	50	0	78.8	54-118	0			
2,4,5-Trichlorophenol	89.6	5.0	100	0	89.6	52-115	0			
2,4,6-Trichlorophenol	81.96	5.0	100	0	82	56-115	0			
2-Methylnaphthalene	42.93	5.0	50	0	85.9	46-117	0			
2-Methylphenol	83.45	5.0	100	0	83.4	53-115	0			
2-Nitroaniline	54.19	5.0	50	0	108	53-123	0			
2-Nitrophenol	78.88	5.0	100	0	78.9	53-115	0			
3&4-Methylphenol	125.9	5.0	150	0	83.9	48-115	0			
3-Nitroaniline	43.56	5.0	50	0	87.1	26-115	0			
4-Nitroaniline	52.68	5.0	50	0	105	47-115	0			
4-Nitrophenol	116	5.0	100	0	116	26-133	0			
Acenaphthene	45.42	5.0	50	0	90.8	57-115	0			
Acenaphthylene	45.59	5.0	50	0	91.2	57-118	0			
Aniline	30.91	5.0	50	0	61.8	36-115	0			
Anthracene	45.48	5.0	50	0	91	65-115	0			
Benz(a)anthracene	47.55	5.0	50	0	95.1	53-115	0			
Benzidine	30.52	5.0	50	0	61	10-115	0			
Hexachloroethane	37.97	5.0	50	0	75.9	54-115	0			
Indeno(1,2,3-cd)pyrene	45.31	5.0	50	0	90.6	51-115	0			
Isophorone	40.34	5.0	50	0	80.7	55-115	0			
N-Nitrosodi-n-propylamine	40.38	5.0	50	0	80.8	55-115	0			
N-Nitrosodimethylamine	43.16	5.0	50	0	86.3	42-115	0			
N-Nitrosodiphenylamine	39.58	5.0	50	0	79.2	52-115	0			
Naphthalene	41.89	5.0	50	0	83.8	55-115	0			
Nitrobenzene	40.24	5.0	50	0	80.5	40-124	0			
Pentachlorophenol	105.5	5.0	100	0	106	45-125	0			
Phenanthrene	44.7	5.0	50	0	89.4	57-115	0			
Phenol	84.22	5.0	100	0	84.2	38-115	0			
Pyrene	47.35	5.0	50	0	94.7	51-115	0			
Surr: 2,4,6-Tribromophenol	*96.31*	5.0	*100*	0	*96.3*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*69.86*	5.0	*100*	0	*69.9*	*48-120*	0			
Surr: 2-Fluorophenol	*73.12*	5.0	*100*	0	*73.1*	*20-120*	0			
Surr: 4-Terphenyl-d14	*75.81*	5.0	*100*	0	*75.8*	*51-135*	0			
Surr: Nitrobenzene-d5	*68.53*	5.0	*100*	0	*68.5*	*41-120*	0			
Surr: Phenol-d6	*77.13*	5.0	*100*	0	*77.1*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID **SLCSDW1-071116** Units: **µg/L** Analysis Date: **11/19/07 15:28**
Client ID: Run ID: **SV-3_071119B** SeqNo: **1266315** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.11	5.0	50	0	82.2	54-118	39.4	4.25	20	
2,4,5-Trichlorophenol	86.98	5.0	100	0	87	52-115	89.6	2.97	20	
2,4,6-Trichlorophenol	82.98	5.0	100	0	83	56-115	81.96	1.24	20	
2-Methylnaphthalene	45.1	5.0	50	0	90.2	46-117	42.93	4.93	20	
2-Methylphenol	83.41	5.0	100	0	83.4	53-115	83.45	0.0409	20	
2-Nitroaniline	51.42	5.0	50	0	103	53-123	54.19	5.26	20	
2-Nitrophenol	78.43	5.0	100	0	78.4	53-115	78.88	0.58	20	
3&4-Methylphenol	125.5	5.0	150	0	83.7	48-115	125.9	0.277	20	
3-Nitroaniline	44.89	5.0	50	0	89.8	26-115	43.56	3	20	
4-Nitroaniline	52.11	5.0	50	0	104	47-115	52.68	1.1	20	
4-Nitrophenol	115.8	5.0	100	0	116	26-133	116	0.18	20	
Acenaphthene	45.35	5.0	50	0	90.7	57-115	45.42	0.16	20	
Acenaphthylene	44.43	5.0	50	0	88.9	57-118	45.59	2.57	20	
Aniline	33.59	5.0	50	0	67.2	36-115	30.91	8.32	20	
Anthracene	45.52	5.0	50	0	91	65-115	45.48	0.0854	20	
Benz(a)anthracene	47.71	5.0	50	0	95.4	53-115	47.55	0.352	20	
Benzidine	38.73	5.0	50	0	77.5	10-115	30.52	23.7	20	R
Hexachloroethane	38.39	5.0	50	0	76.8	54-115	37.97	1.1	20	
Indeno(1,2,3-cd)pyrene	47.31	5.0	50	0	94.6	51-115	45.31	4.32	20	
Isophorone	43.3	5.0	50	0	86.6	55-115	40.34	7.06	20	
N-Nitrosodi-n-propylamine	40.39	5.0	50	0	80.8	55-115	40.38	0.0315	20	
N-Nitrosodimethylamine	45.31	5.0	50	0	90.6	42-115	43.16	4.87	20	
N-Nitrosodiphenylamine	40.7	5.0	50	0	81.4	52-115	39.58	2.79	20	
Naphthalene	43.92	5.0	50	0	87.8	55-115	41.89	4.71	20	
Nitrobenzene	40.55	5.0	50	0	81.1	40-124	40.24	0.773	20	
Pentachlorophenol	105.6	5.0	100	0	106	45-125	105.5	0.116	20	
Phenanthrene	45.06	5.0	50	0	90.1	57-115	44.7	0.812	20	
Phenol	86.8	5.0	100	0	86.8	38-115	84.22	3.02	20	
Pyrene	46.74	5.0	50	0	93.5	51-115	47.35	1.29	20	
Surr: 2,4,6-Tribromophenol	*94.74*	5.0	*100*	0	*94.7*	*42-124*	96.31	*1.64*	*20*	
Surr: 2-Fluorobiphenyl	*74.74*	5.0	*100*	0	*74.7*	*48-120*	69.86	*6.75*	*20*	
Surr: 2-Fluorophenol	*72.8*	5.0	*100*	0	*72.8*	*20-120*	73.12	*0.433*	*20*	
Surr: 4-Terphenyl-d14	*80.54*	5.0	*100*	0	*80.5*	*51-135*	75.81	*6.05*	*20*	
Surr: Nitrobenzene-d5	*76.56*	5.0	*100*	0	*76.6*	*41-120*	68.53	*11.1*	*20*	
Surr: Phenol-d6	*83.03*	5.0	*100*	0	*83*	*20-120*	77.13	*7.37*	*20*	

The following samples were analyzed in this batch: 0711312-01E

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID **VBLKW-112107** Units: **µg/L** Analysis Date: **11/21/07 12:49**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269780** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*42.59*	5.0	*50*	0	*85.2*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*50.37*	5.0	*50*	0	*101*	*72-125*	0			
Surr: Dibromofluoromethane	*48.48*	5.0	*50*	0	*97*	*71-125*	0			
Surr: Toluene-d8	*52.5*	5.0	*50*	0	*105*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID **VLCSW-112107** Units: **µg/L** Analysis Date: **11/21/07 14:55**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269782** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	55.83	5.0	50	0	112	80-120	0			
1,1,2,2-Tetrachloroethane	47.95	5.0	50	0	95.9	72-120	0			
1,1,2-Trichloroethane	45.77	5.0	50	0	91.5	80-120	0			
1,1-Dichloroethane	51.82	5.0	50	0	104	76-120	0			
1,1-Dichloroethene	53.78	5.0	50	0	108	73-124	0			
1,2-Dichloroethane	47.67	5.0	50	0	95.3	78-120	0			
2-Butanone	96.44	10	100	0	96.4	58-132	0			
2-Chloroethyl vinyl ether	77.45	10	100	0	77.4	74-120	0			
2-Hexanone	92.5	10	100	0	92.5	61-130	0			
4-Methyl-2-pentanone	105.7	10	100	0	106	65-127	0			
Acetone	100.1	10	100	0	100	59-137	0			
Benzene	47.01	5.0	50	0	94	73-121	0			
Bromodichloromethane	49.86	5.0	50	0	99.7	80-120	0			
Bromoform	45.58	5.0	50	0	91.2	79-120	0			
Bromomethane	52.49	5.0	50	0	105	66-137	0			
Carbon disulfide	102.6	10	100	0	103	68-141	0			
Carbon tetrachloride	49.23	5.0	50	0	98.5	75-124	0			
Chlorobenzene	49.24	5.0	50	0	98.5	80-120	0			
Chloroethane	50.21	5.0	50	0	100	76-121	0			
Chloroform	52.01	5.0	50	0	104	80-120	0			
Chloromethane	47.41	5.0	50	0	94.8	67-123	0			
cis-1,3-Dichloropropene	47.12	5.0	50	0	94.2	80-120	0			
Dibromochloromethane	52.13	5.0	50	0	104	80-120	0			
Ethylbenzene	51.73	5.0	50	0	103	80-120	0			
m,p-Xylene	98.1	10	100	0	98.1	78-121	0			
Methylene chloride	51.91	10	50	0	104	65-133	0			
Styrene	47.17	5.0	50	0	94.3	80-120	0			
Tetrachloroethene	47.43	5.0	50	0	94.9	79-120	0			
Toluene	52.88	5.0	50	0	106	80-120	0			
trans-1,3-Dichloropropene	49.9	5.0	50	0	99.8	80-120	0			
Trichloroethene	48.46	5.0	50	0	96.9	80-120	0			
Vinyl acetate	103.4	10	100	0	103	67-139	0			
Vinyl chloride	45.7	2.0	50	0	91.4	70-127	0			
Xylenes, Total	151.2	15	150	0	101	80-120	0			
Surr: 1,2-Dichloroethane-d4	*47.3*	5.0	*50*	0	*94.6*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*53.8*	5.0	*50*	0	*108*	*72-125*	0			
Surr: Dibromofluoromethane	*54.15*	5.0	*50*	0	*108*	*71-125*	0			
Surr: Toluene-d8	*57.23*	5.0	*50*	0	*114*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID **0711374-01AMS** Units: **µg/L** Analysis Date: **11/21/07 15:45**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269783** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.34	5.0	50	0	90.7	80-120	0			
1,1,2,2-Tetrachloroethane	50.58	5.0	50	0	101	72-120	0			
1,1,2-Trichloroethane	48.75	5.0	50	0	97.5	80-120	0			
1,1-Dichloroethane	48.63	5.0	50	0	97.3	76-120	0			
1,1-Dichloroethene	42.15	5.0	50	0	84.3	73-124	0			
1,2-Dichloroethane	47.99	5.0	50	0	96	78-120	0			
2-Butanone	91.89	10	100	0	91.9	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	95.1	10	100	0	95.1	61-130	0			
4-Methyl-2-pentanone	88.3	10	100	0	88.3	65-127	0			
Acetone	80.5	10	100	0	80.5	59-137	0			
Benzene	45.31	5.0	50	0	90.6	73-121	0			
Bromodichloromethane	48.38	5.0	50	0	96.8	80-120	0			
Bromoform	45.61	5.0	50	0	91.2	79-120	0			
Bromomethane	46.08	5.0	50	0	92.2	66-137	0			
Carbon disulfide	86.95	10	100	0	86.9	68-141	0			
Carbon tetrachloride	44.61	5.0	50	0	89.2	75-124	0			
Chlorobenzene	48.03	5.0	50	0	96.1	80-120	0			
Chloroethane	41.13	5.0	50	0	82.3	76-121	0			
Chloroform	46.71	5.0	50	0	93.4	80-120	0			
Chloromethane	43.96	5.0	50	0	87.9	67-123	0			
cis-1,3-Dichloropropene	49.34	5.0	50	0	98.7	80-120	0			
Dibromochloromethane	49.82	5.0	50	0	99.6	80-120	0			
Ethylbenzene	45.49	5.0	50	0	91	80-120	0			
m,p-Xylene	93.74	10	100	0	93.7	78-121	0			
Methylene chloride	47.25	10	50	0	94.5	65-133	0			
Styrene	45.63	5.0	50	0	91.3	80-120	0			
Tetrachloroethene	42.09	5.0	50	0	84.2	79-120	0			
Toluene	46.81	5.0	50	0	93.6	80-120	0			
trans-1,3-Dichloropropene	48.76	5.0	50	0	97.5	80-120	0			
Trichloroethene	42.4	5.0	50	0	84.8	80-120	0			
Vinyl acetate	95.18	10	100	0	95.2	67-139	0			
Vinyl chloride	38.53	2.0	50	0	77.1	70-127	0			
Xylenes, Total	141.8	15	150	0	94.5	80-120	0			
Surr: 1,2-Dichloroethane-d4	*45.18*	5.0	*50*	0	*90.4*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.35*	5.0	*50*	0	*109*	*72-125*	0			
Surr: Dibromofluoromethane	*49.56*	5.0	*50*	0	*99.1*	*71-125*	0			
Surr: Toluene-d8	*48.8*	5.0	*50*	0	*97.6*	*75-125*	0			

ND - Not Detected at the Reporting Limit
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J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID **0711374-01AMSD** Units: **µg/L** Analysis Date: **11/21/07 16:10**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269784** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	36.97	5.0	50	0	73.9	80-120	45.34	20.3	20	SR
1,1,2,2-Tetrachloroethane	46.06	5.0	50	0	92.1	72-120	50.58	9.35	20	
1,1,2-Trichloroethane	48.66	5.0	50	0	97.3	80-120	48.75	0.18	20	
1,1-Dichloroethane	43.48	5.0	50	0	87	76-120	48.63	11.2	20	
1,1-Dichloroethene	37.02	5.0	50	0	74	73-124	42.15	13	20	
1,2-Dichloroethane	39.89	5.0	50	0	79.8	78-120	47.99	18.4	20	
2-Butanone	91.95	10	100	0	91.9	58-132	91.89	0.0642	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	90.33	10	100	0	90.3	61-130	95.1	5.15	20	
4-Methyl-2-pentanone	102.6	10	100	0	103	65-127	88.3	14.9	20	
Acetone	84.77	10	100	0	84.8	59-137	80.5	5.17	20	
Benzene	45.96	5.0	50	0	91.9	73-121	45.31	1.43	20	
Bromodichloromethane	45.05	5.0	50	0	90.1	80-120	48.38	7.11	20	
Bromoform	47.11	5.0	50	0	94.2	79-120	45.61	3.24	20	
Bromomethane	42.14	5.0	50	0	84.3	66-137	46.08	8.93	20	
Carbon disulfide	82.75	10	100	0	82.8	68-141	86.95	4.94	20	
Carbon tetrachloride	40.68	5.0	50	0	81.4	75-124	44.61	9.22	20	
Chlorobenzene	48.73	5.0	50	0	97.5	80-120	48.03	1.44	20	
Chloroethane	35.91	5.0	50	0	71.8	76-121	41.13	13.6	20	S
Chloroform	42.13	5.0	50	0	84.3	80-120	46.71	10.3	20	
Chloromethane	37.08	5.0	50	0	74.2	67-123	43.96	17	20	
cis-1,3-Dichloropropene	43.91	5.0	50	0	87.8	80-120	49.34	11.7	20	
Dibromochloromethane	49.4	5.0	50	0	98.8	80-120	49.82	0.863	20	
Ethylbenzene	44.2	5.0	50	0	88.4	80-120	45.49	2.88	20	
m,p-Xylene	89.45	10	100	0	89.4	78-121	93.74	4.68	20	
Methylene chloride	42.99	10	50	0	86	65-133	47.25	9.45	20	
Styrene	42.78	5.0	50	0	85.6	80-120	45.63	6.45	20	
Tetrachloroethene	40.99	5.0	50	0	82	79-120	42.09	2.64	20	
Toluene	48.43	5.0	50	0	96.9	80-120	46.81	3.41	20	
trans-1,3-Dichloropropene	47.67	5.0	50	0	95.3	80-120	48.76	2.24	20	
Trichloroethene	44.91	5.0	50	0	89.8	80-120	42.4	5.76	20	
Vinyl acetate	83.17	10	100	0	83.2	67-139	95.18	13.5	20	
Vinyl chloride	32.62	2.0	50	0	65.2	70-127	38.53	16.6	20	S
Xylenes, Total	137.4	15	150	0	91.6	80-120	141.8	3.11	20	
Surr: 1,2-Dichloroethane-d4	*45.7*	5.0	*50*	0	*91.4*	*70-125*	45.18	*1.15*	*20*	
Surr: 4-Bromofluorobenzene	*53.77*	5.0	*50*	0	*108*	*72-125*	54.35	*1.06*	*20*	
Surr: Dibromofluoromethane	*47.75*	5.0	*50*	0	*95.5*	*71-125*	49.56	*3.72*	*20*	
Surr: Toluene-d8	*52.29*	5.0	*50*	0	*105*	*75-125*	48.8	*6.9*	*20*	

The following samples were analyzed in this batch: 0711312-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56779** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID **WLCSW1-111407** Units: **pH units** Analysis Date: **11/14/07 0:00**
Client ID: Run ID: **WETCHEM_071114H** SeqNo: **1261403** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.09	0.10	6	0	102	90-110	0			

DUP Sample ID **0711312-01DDUP** Units: **pH units** Analysis Date: **11/14/07 0:00**
Client ID: **Inj. Well** Run ID: **WETCHEM_071114H** SeqNo: **1261406** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.35	0.10	0	0	0	0-0	7.35	0	20	H

The following samples were analyzed in this batch: 0711312-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56807** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID **WLCSW1-111507** Units: **°F** Analysis Date: **11/15/07 0:00**
Client ID: Run ID: **WETCHEM_071115B** SeqNo: **1262473** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID **0711154-02ADUP** Units: **°F** Analysis Date: **11/15/07 0:00**
Client ID: Run ID: **WETCHEM_071115B** SeqNo: **1262478** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	145	50	0	0	0	0-0	145	0	25	

The following samples were analyzed in this batch: 0711312-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56853** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID **WBLKW1-111607** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: Run ID: **WETCHEM_071116C** SeqNo: **1263505** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID **WLCSW1-111607** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: Run ID: **WETCHEM_071116C** SeqNo: **1263506** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1426	1.0	1413	0	101	80-120	0			

DUP Sample ID **0711312-01CDUP** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: **Inj. Well** Run ID: **WETCHEM_071116C** SeqNo: **1263508** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	6050	1.0	0	0	0	0-0	5980	1.16	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56862** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID **BLANK** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263615** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID **LCS** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263616** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	968	10	1000	0	96.8	85-115	0			

DUP Sample ID **0711341-01EDUP** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263614** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	12470	10	0	0	0	0-0	12930	3.61	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56944** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID **WBLKW1-111907** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265713** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID **WLCSW1-111907** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265714** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1019	5.0	1000	0	102	80-120	0			
Alkalinity, Total (As CaCO3)	1019	5.0	1000	0	102	80-120	0			

DUP Sample ID **0711358-01ADUP** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265732** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	740	5.0	0	0	0	0-0	740	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	740	5.0	0	0	0	0-0	740	0	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57038** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID **WBLKW1-112007** Units: **mg/L** Analysis Date: **11/20/07 13:01**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267862** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*5.461*	0.10	*5*	0	*109*	*85-115*	0			

LCS Sample ID **WLCSW1-112007** Units: **mg/L** Analysis Date: **11/20/07 13:24**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267863** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.27	0.50	20	0	96.3	90-110	0			
Sulfate	20.72	0.50	20	0	104	90-110	0			
Surr: Selenate (surr)	*5.413*	0.10	*5*	0	*108*	*85-115*	0			

MS Sample ID **0711459-01AMS** Units: **mg/L** Analysis Date: **11/20/07 14:34**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267866** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	52.76	0.50	10	43.85	89.1	80-120	0			EO
Sulfate	323.3	0.50	10	320.5	28.5	80-120	0			SEO
Surr: Selenate (surr)	*5.487*	0.10	*5*	0	*110*	*85-115*	0			

MSD Sample ID **0711459-01AMSD** Units: **mg/L** Analysis Date: **11/20/07 14:57**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267867** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	52.71	0.50	10	43.85	88.6	80-120	52.76	0.0834	20	EO
Sulfate	322.1	0.50	10	320.5	16.5	80-120	323.3	0.374	20	SEO
Surr: Selenate (surr)	*5.468*	0.10	*5*	0	*109*	*85-115*	5.487	*0.347*	*20*	

DUP Sample ID **0711459-01ADUP** Units: **mg/L** Analysis Date: **11/20/07 14:11**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267865** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	43.6	0.50	0	0	0	0-0	43.85	0.556	20	
Sulfate	318.5	0.50	0	0	0	0-0	320.5	0.629	20	E
Surr: Selenate (surr)	*5.317*	0.10	*5*	0	*106*	*85-115*	5.347	*0.563*	*20*	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

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e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 17132

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Quarterly	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Well	11/13/07	0915	L	4	9	X	X	X	X	X	X	X	X	X		
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: [signature]

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Other ☑ Std 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by: [signature] Date: 11/13/07 Time: 1615

Relinquished by: Date: Time:

Received by:

Received by (Laboratory): [signature] 11/14/07 09:20

Notes: 10 Day TAT.

Logged by (Laboratory): Date: Time:

Checked by (Laboratory):

e-Lab Analytical Cooler ID: Cooler Temp.:

QC Package: (Check One Box Below)
- ☑ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other
- ☐ TRRP CheckList
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 11/14/2007 9:20:00 AM

Work Order Number 0711312 Received by: RNG

Checklist completed by [signature] 11/14/07 Reviewed by [initials] 11/14/07
Signature Date Initials Date

Matrix: W Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.9c	002	
Cooler(s)/Kit(s):	1993		
Water - VOA vials have zero headspace?	Yes ☐	No ☑	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes: Voa vials have excessive headspace. Trip blanks logged in work order 0711305 (received in same kit).

Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab Analytical, Inc

Date: *November 16, 2007*

CLIENT: e-Lab Analytical, Inc
Project: 0711312
Work Order: **0711346**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0711346-01	0711312-01F	Water		11/13/2007 09:15	11/16/2007 09:30	☐

e-Lab Analytical, Inc

Date: *November 16, 2007*

CLIENT: e-Lab Analytical, Inc
Work Order: 0711346
Project: 0711312
Lab ID: 0711346-01

Client Sample ID: 0711312-01F
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **DB**
Cyanide, Reactive	ND	40.0		mg/Kg	1	11/16/2007
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **DB**
Sulfide, Reactive	ND	40.0		mg/Kg	1	11/16/2007

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

NAVAJO REFINING COMPANY, LLC

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 ENV/PURCH/MKTG
(505) 746-5421 ENGINEERING

October 30, 2007

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 Third Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the third quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the 200 gallon tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2007 to September 30, 2007. We have disposed a total of 45,570,021 barrels of fluid into the two wells as of September 30, 2007. This is broken down as follows: 34,648,931 barrels into WDW-1 and 10,921,089 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Environmental Scientist

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

RECEIVED
2007 NOV 1 PM 12 04

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Received by OCD: 5/16/2022 2:12:41 PM

2007 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	33,831,096
Jul-07	517	718	307	263	281	248	157	188	122	9,022	9,636	8,495	279,688	34,110,784
Aug-07	303	348	242	252	280	222	91	137	46	8,647	9,588	7,620	268,056	34,378,840
Sep-07	329	493	62	254	285	83	166	215	19	8,713	9,787	2,832	270,092	34,648,931
WDW-2													**Previous Quarter**	10,506,967
Jul-07	532	723	313	149	170	128	500	500	500	5,093	5,824	4,375	157,870	10,664,837
Aug-07	311	373	247	117	146	80	481	500	398	4,001	5,011	2,732	124,025	10,788,861
Sep-07	321	384	72	124	156	19	479	500	204	4,265	5,359	653	132,228	10,921,089
													Total Injected fluids:	45,570,021

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 THIRD QUARTER WEEKLY WHAMS LEVEL TABLE

	7/2/07	7/10/07	7/17/07	7/23/07	7/30/07	8/7/07	8/13/07	8/20/07	8/27/07	9/4/07	9/10/07	9/17/07	9/24/07
WDW -1	200	200	200	200	200	200	200	200	200	200	200	200	200
WDW-2	160	160	160	160	160	160	160	160	160	160	160	160	160

Page 3209 of 5828

October 09, 2007

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Well Quarterly

Work Order : **0709522**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 2 samples on 9/27/2007 09:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 34.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Rebecca L. Hunt

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: **0709522**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0709522-01	Effluent	Water		9/26/2007 13:15	9/27/2007 09:00	☐
0709522-02	Trip Blank	Water		9/26/2007 13:15	9/27/2007 09:00	☐

e-Lab Analytical, Inc. **Date:** *October 09, 2007*

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0709522

Case Narrative

pH samples were received outside of the recommended holding time, but the samples were analyzed immediately upon receipt of the laboratory.

Batch 25842 Metals Duplicate RPD was an unrelated sample.

Batch's R55052 and R55288 Volatiles MS/MSD were unrelated samples.

Batch R54877 Anions MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **10/5/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	10/5/2007 3:58:46 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **10/1/2007**	Analyst: **SA**
Aluminum	**2.46**		**0.100**	**mg/L**	10	10/2/2007 1:28:00 PM
Arsenic	**0.135**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Barium	**0.0535**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Beryllium	ND		0.00400	mg/L	2	10/2/2007 1:34:00 PM
Boron	**0.202**		**0.0400**	**mg/L**	2	10/2/2007 1:34:00 PM
Cadmium	ND		0.00200	mg/L	1	10/2/2007 4:06:00 AM
Calcium	**101**		**5.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Chromium	**0.00503**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Cobalt	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Copper	**0.0130**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Iron	**2.87**		**0.200**	**mg/L**	1	10/2/2007 4:06:00 AM
Lead	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Magnesium	**36.7**		**0.200**	**mg/L**	1	10/2/2007 4:06:00 AM
Manganese	**0.0869**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Molybdenum	**0.104**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Nickel	**0.0141**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Potassium	**48.2**		**2.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Selenium	**0.388**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Silver	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Sodium	**1,220**		**2.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Vanadium	**0.00709**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Zinc	**0.192**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **10/2/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2,4,5-Trichlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2,4,6-Trichlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Methylnaphthalene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Methylphenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Nitrophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
3&4-Methylphenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
3-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
4-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
4-Nitrophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Acenaphthene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Acenaphthylene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Anthracene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Benz(a)anthracene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Benzidine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Hexachloroethane	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Indeno(1,2,3-cd)pyrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Isophorone	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodi-n-propylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodimethylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodiphenylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Naphthalene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Nitrobenzene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Pentachlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Phenanthrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Phenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Pyrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Surr: 2,4,6-Tribromophenol	*69.7*		*42-124*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 2-Fluorobiphenyl	*64.0*		*48-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 2-Fluorophenol	*61.1*		*20-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 4-Terphenyl-d14	*71.6*		*51-135*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: Nitrobenzene-d5	*67.1*		*41-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: Phenol-d6	*71.0*		*20-120*	*%REC*	1	10/3/2007 2:31:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
2-Butanone	**23**		**10**	**µg/L**	1	10/8/2007 3:07:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	10/8/2007 3:07:00 PM
2-Hexanone	ND		10	µg/L	1	10/8/2007 3:07:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Acetone	**110**		**10**	**µg/L**	1	10/8/2007 3:07:00 PM
Benzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromoform	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromomethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Carbon disulfide	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloroform	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Ethylbenzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
m,p-Xylene	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Methylene chloride	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Styrene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Toluene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Trichloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Vinyl acetate	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Vinyl chloride	ND		2.0	µg/L	1	10/8/2007 3:07:00 PM
Xylenes, Total	ND		15	µg/L	1	10/8/2007 3:07:00 PM
Surr: 1,2-Dichloroethane-d4	*92.6*		*70-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: 4-Bromofluorobenzene	*96.6*		*72-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: Dibromofluoromethane	*95.9*		*71-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: Toluene-d8	*104*		*75-125*	*%REC*	1	10/8/2007 3:07:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	10/4/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	10/4/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **RPM**
Chloride	**1,010**		**50.0**	**mg/L**	100	9/27/2007 8:01:00 PM
Sulfate	**1,660**		**50.0**	**mg/L**	100	9/27/2007 8:01:00 PM
Surr: Selenate (surr)	*106*		*85-115*	*%REC*	100	9/27/2007 8:01:00 PM
ALKALINITY			**E310.1**			Analyst: **DM**
Alkalinity, Bicarbonate (As CaCO3)	**243**		**5.00**	**mg/L**	1	10/1/2007 10:00:00 AM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	10/1/2007 10:00:00 AM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	10/1/2007 10:00:00 AM
Alkalinity, Total (As CaCO3)	**243**		**5.00**	**mg/L**	1	10/1/2007 10:00:00 AM
CONDUCTIVITY			**E120.1**			Analyst: **DM**
Specific Conductance	**6,620**		**1.00**	**µmhos/cm**	1	10/4/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	10/3/2007

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	7.26	H	0.100	pH units	1	9/27/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	4,240		10.0	mg/L	1	9/28/2007 5:00:00 PM

Qualifiers:

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- S - Spike Recovery outside accepted recovery limits
- P - Dual Column results percent difference > 40%
- E - Value above quantitation range
- H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-02

Client Sample ID: Trip Blank
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
2-Butanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	10/2/2007 9:11:00 PM
2-Hexanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Acetone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Benzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromoform	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromomethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Carbon disulfide	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chlorobenzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloroform	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Ethylbenzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
m,p-Xylene	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Methylene chloride	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Styrene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Toluene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Trichloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Vinyl acetate	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Vinyl chloride	ND		2.0	µg/L	1	10/2/2007 9:11:00 PM
Xylenes, Total	ND		15	µg/L	1	10/2/2007 9:11:00 PM
Surr: 1,2-Dichloroethane-d4	*93.2*		*70-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: 4-Bromofluorobenzene	*103*		*72-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: Dibromofluoromethane	*101*		*71-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: Toluene-d8	*99.2*		*75-125*	*%REC*	1	10/2/2007 9:11:00 PM

Qualifiers:

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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

Date: *Oct 09 2007*

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MBLK Sample ID: **MBLKW1-100107** Units: **mg/L** Analysis Date: **10/02/07 13:16**

Client ID: Run ID: **ICP7500_071002A** SeqNo: **1223370** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	0.02979	0.20								J
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

LCS Sample ID: **MLCSW1-100107** Units: **mg/L** Analysis Date: **10/02/07 2:02**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222688** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04977	0.0050	0.05	0	99.5	80-120	0			
Barium	0.05117	0.0050	0.05	0	102	80-120	0			
Beryllium	0.04988	0.0020	0.05	0	99.8	80-120	0			
Boron	0.5115	0.020	0.5	0	102	80-120	0			
Cadmium	0.05125	0.0020	0.05	0	102	80-120	0			
Calcium	5.686	0.50	5	0	114	80-120	0			
Chromium	0.05016	0.0050	0.05	0	100	80-120	0			
Cobalt	0.05384	0.0050	0.05	0	108	80-120	0			
Copper	0.04738	0.0050	0.05	0	94.8	80-120	0			
Iron	5.179	0.20	5	0	104	80-120	0			
Lead	0.05113	0.0050	0.05	0	102	80-120	0			
Magnesium	5.396	0.20	5	0	108	80-120	0			
Manganese	0.05067	0.0050	0.05	0	101	80-120	0			
Molybdenum	0.04869	0.0050	0.05	0	97.4	80-120	0			
Nickel	0.0503	0.0050	0.05	0	101	80-120	0			
Potassium	5.29	0.20	5	0	106	80-120	0			
Selenium	0.05047	0.0050	0.05	0	101	80-120	0			
Silver	0.05062	0.0050	0.05	0	101	80-120	0			
Sodium	5.267	0.20	5	0	105	80-120	0			
Vanadium	0.05116	0.0050	0.05	0	102	80-120	0			
Zinc	0.0518	0.0050	0.05	0	104	80-120	0			

LCS Sample ID: **MLCSW1-100107** Units: **mg/L** Analysis Date: **10/02/07 13:22**

Client ID: Run ID: **ICP7500_071002A** SeqNo: **1223371** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05671	0.010	0.05	0	113	80-120	0			

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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MS Sample ID: **0709546-01CMS** Units: **mg/L** Analysis Date: **10/02/07 4:30**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222710** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05928	0.010	0.05	0.01003	98.5	80-120	0			
Arsenic	0.05069	0.0050	0.05	0.0002553	101	80-120	0			
Barium	0.05145	0.0050	0.05	0.00009868	103	80-120	0			
Beryllium	0.05116	0.0020	0.05	-0.00001769	102	80-120	0			
Boron	0.5303	0.020	0.5	0.0007129	106	80-120	0			
Cadmium	0.05218	0.0020	0.05	-0.00004231	104	80-120	0			
Calcium	5.928	0.50	5	0.1835	115	80-120	0			
Chromium	0.05106	0.0050	0.05	0.0002195	102	80-120	0			
Cobalt	0.05426	0.0050	0.05	-0.00003043	109	80-120	0			
Copper	0.04954	0.0050	0.05	-0.00257	104	80-120	0			
Iron	5.357	0.20	5	0.06073	106	80-120	0			
Lead	0.0523	0.0050	0.05	0.00004196	105	80-120	0			
Magnesium	5.389	0.20	5	0.03021	107	80-120	0			
Manganese	0.05263	0.0050	0.05	0.0005422	104	80-120	0			
Molybdenum	0.05117	0.0050	0.05	0.001057	100	80-120	0			
Nickel	0.0525	0.0050	0.05	-0.0005035	106	80-120	0			
Potassium	5.447	0.20	5	0.03845	108	80-120	0			
Selenium	0.05162	0.0050	0.05	0.0007415	102	80-120	0			
Silver	0.0526	0.0050	0.05	-0.0003616	106	80-120	0			
Sodium	5.548	0.20	5	0.7029	96.9	80-120	0			
Vanadium	0.05219	0.0050	0.05	0.00007382	104	80-120	0			
Zinc	0.05427	0.0050	0.05	0.001848	105	80-120	0			

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not deteeted
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MSD Sample ID: **0709546-01CMSD** Units: **mg/L** Analysis Date: **10/02/07 4:42**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222712** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.061	0.010	0.05	0.01003	102	80-120	0.05928	2.86	15	
Arsenic	0.04963	0.0050	0.05	0.0002553	98.7	80-120	0.05069	2.11	15	
Barium	0.05188	0.0050	0.05	0.00009868	104	80-120	0.05145	0.832	15	
Beryllium	0.05124	0.0020	0.05	-0.00001769	103	80-120	0.05116	0.156	15	
Boron	0.5277	0.020	0.5	0.0007129	105	80-120	0.5303	0.491	15	
Cadmium	0.0522	0.0020	0.05	-0.00004231	104	80-120	0.05218	0.0383	15	
Calcium	5.917	0.50	5	0.1835	115	80-120	5.928	0.186	15	
Chromium	0.05035	0.0050	0.05	0.0002195	100	80-120	0.05106	1.4	15	
Cobalt	0.05383	0.0050	0.05	-0.00003043	108	80-120	0.05426	0.796	15	
Copper	0.04969	0.0050	0.05	-0.00257	105	80-120	0.04954	0.302	15	
Iron	5.378	0.20	5	0.06073	106	80-120	5.357	0.391	15	
Lead	0.05116	0.0050	0.05	0.00004196	102	80-120	0.0523	2.2	15	
Magnesium	5.381	0.20	5	0.03021	107	80-120	5.389	0.149	15	
Manganese	0.05201	0.0050	0.05	0.0005422	103	80-120	0.05263	1.19	15	
Molybdenum	0.05122	0.0050	0.05	0.001057	100	80-120	0.05117	0.0977	15	
Nickel	0.05136	0.0050	0.05	-0.0005035	104	80-120	0.0525	2.2	15	
Potassium	5.405	0.20	5	0.03845	107	80-120	5.447	0.774	15	
Selenium	0.05111	0.0050	0.05	0.0007415	101	80-120	0.05162	0.993	15	
Silver	0.05207	0.0050	0.05	-0.0003616	105	80-120	0.0526	1.01	15	
Sodium	5.493	0.20	5	0.7029	95.8	80-120	5.548	0.996	15	
Vanadium	0.05168	0.0050	0.05	0.00007382	103	80-120	0.05219	0.982	15	
Zinc	0.05368	0.0050	0.05	0.001848	104	80-120	0.05427	1.09	15	

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

DUP Sample ID: **0709546-01CDUP** Units: **mg/L** Analysis Date: **10/02/07 4:24**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222709** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.008914	0.010	0	0	0	0-0	0.01003	0	25	J
Arsenic	ND	0.0050	0	0	0	0-0	0.0002553	0	25	
Barium	ND	0.0050	0	0	0	0-0	0.00009868	0	25	
Beryllium	ND	0.0020	0	0	0	0-0	-0.00001769	0	25	
Boron	ND	0.020	0	0	0	0-0	0.0007129	0	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.00004231	0	25	
Calcium	0.1347	0.50	0	0	0	0-0	0.1835	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0002195	0	25	
Cobalt	ND	0.0050	0	0	0	0-0	-0.00003043	0	25	
Copper	ND	0.0050	0	0	0	0-0	-0.00257	0	25	
Iron	0.05713	0.20	0	0	0	0-0	0.06073	0	25	J
Lead	ND	0.0050	0	0	0	0-0	0.00004196	0	25	
Magnesium	ND	0.20	0	0	0	0-0	0.03021	0	25	
Manganese	ND	0.0050	0	0	0	0-0	0.0005422	0	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.001057	0	25	
Nickel	ND	0.0050	0	0	0	0-0	-0.0005035	0	25	
Potassium	ND	0.20	0	0	0	0-0	0.03845	0	25	
Selenium	ND	0.0050	0	0	0	0-0	0.0007415	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003616	0	25	
Sodium	0.3724	0.20	0	0	0	0-0	0.7029	61.5	25	R
Vanadium	ND	0.0050	0	0	0	0-0	0.00007382	0	25	
Zinc	ND	0.0050	0	0	0	0-0	0.001848	0	25	

The following samples were analyzed in this batch: 0709522-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25937** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:12**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226768** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:14**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226769** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00564	0.00020	0.005	0	113	85-115	0			

LCSD Sample ID: **GLCSDW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:16**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226770** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00558	0.00020	0.005	0	112	85-115	0.00564	1.07	20	

MS Sample ID: **0710043-01DMS** Units: **mg/L** Analysis Date: **10/05/07 15:25**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226773** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00547	0.00020	0.005	-0.000019	110	85-115	0			

MSD Sample ID: **0710043-01DMSD** Units: **mg/L** Analysis Date: **10/05/07 15:27**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226774** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0054	0.00020	0.005	-0.000019	108	85-115	0.00547	1.29	20	

DUP Sample ID: **0710043-01DDUP** Units: **mg/L** Analysis Date: **10/05/07 15:23**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226772** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000019	0	20	

The following samples were analyzed in this batch: 0709522-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKW2-071002** Units: **µg/L** Analysis Date: **10/03/07 13:13**

Client ID: Run ID: **SV-3_071003A** SeqNo: **1224776** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*70.36*	5.0	*100*	0	*70.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*81.07*	5.0	*100*	0	*81.1*	*48-120*	0			
Surr: 2-Fluorophenol	*72.2*	5.0	*100*	0	*72.2*	*20-120*	0			
Surr: 4-Terphenyl-d14	*84.88*	5.0	*100*	0	*84.9*	*51-135*	0			
Surr: Nitrobenzene-d5	*80.2*	5.0	*100*	0	*80.2*	*41-120*	0			
Surr: Phenol-d6	*78.44*	5.0	*100*	0	*78.4*	*20-120*	0			

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID: **SLCSW2-071002** Units: **µg/L** Analysis Date: **10/03/07 13:39**
Client ID: Run ID: **SV-3_071003A** SeqNo: **1224777** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	40.57	5.0	50	0	81.1	54-118	0			
2,4,5-Trichlorophenol	79.26	5.0	100	0	79.3	52-115	0			
2,4,6-Trichlorophenol	82.62	5.0	100	0	82.6	56-115	0			
2-Methylnaphthalene	41.13	5.0	50	0	82.3	46-117	0			
2-Methylphenol	83.9	5.0	100	0	83.9	53-115	0			
2-Nitroaniline	51.02	5.0	50	0	102	53-123	0			
2-Nitrophenol	80.37	5.0	100	0	80.4	53-115	0			
3&4-Methylphenol	121.7	5.0	150	0	81.1	48-115	0			
3-Nitroaniline	34.34	5.0	50	0	68.7	26-115	0			
4-Nitroaniline	40.81	5.0	50	0	81.6	47-115	0			
4-Nitrophenol	84.47	5.0	100	0	84.5	26-133	0			
Acenaphthene	42.71	5.0	50	0	85.4	57-115	0			
Acenaphthylene	42.99	5.0	50	0	86	57-118	0			
Aniline	32.19	5.0	50	0	64.4	36-115	0			
Anthracene	45.41	5.0	50	0	90.8	65-115	0			
Benz(a)anthracene	43.8	5.0	50	0	87.6	53-115	0			
Benzidine	37.43	5.0	50	0	74.9	10-115	0			
Hexachloroethane	41.72	5.0	50	0	83.4	54-115	0			
Indeno(1,2,3-cd)pyrene	43.31	5.0	50	0	86.6	51-115	0			
Isophorone	42.31	5.0	50	0	84.6	55-115	0			
N-Nitrosodi-n-propylamine	43.02	5.0	50	0	86	55-115	0			
N-Nitrosodimethylamine	44.13	5.0	50	0	88.3	42-115	0			
N-Nitrosodiphenylamine	46.03	5.0	50	0	92.1	52-115	0			
Naphthalene	41.17	5.0	50	0	82.3	55-115	0			
Nitrobenzene	41.52	5.0	50	0	83	40-124	0			
Pentachlorophenol	87.37	5.0	100	0	87.4	45-125	0			
Phenanthrene	44.76	5.0	50	0	89.5	57-115	0			
Phenol	77.8	5.0	100	0	77.8	38-115	0			
Pyrene	45.47	5.0	50	0	90.9	51-115	0			
Surr: 2,4,6-Tribromophenol	*73.07*	5.0	*100*	0	*73.1*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*78.63*	5.0	*100*	0	*78.6*	*48-120*	0			
Surr: 2-Fluorophenol	*76.86*	5.0	*100*	0	*76.9*	*20-120*	0			
Surr: 4-Terphenyl-d14	*82.95*	5.0	*100*	0	*82.9*	*51-135*	0			
Surr: Nitrobenzene-d5	*77.13*	5.0	*100*	0	*77.1*	*41-120*	0			
Surr: Phenol-d6	*82.83*	5.0	*100*	0	*82.8*	*20-120*	0			

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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-071002** Units: **µg/L** Analysis Date: **10/03/07 14:05**
Client ID: Run ID: **SV-3_071003A** SeqNo: **1224778** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.1	5.0	50	0	86.2	54-118	40.57	6.06	20	
2,4,5-Trichlorophenol	84.74	5.0	100	0	84.7	52-115	79.26	6.68	20	
2,4,6-Trichlorophenol	82.76	5.0	100	0	82.8	56-115	82.62	0.165	20	
2-Methylnaphthalene	42.64	5.0	50	0	85.3	46-117	41.13	3.62	20	
2-Methylphenol	79.87	5.0	100	0	79.9	53-115	83.9	4.92	20	
2-Nitroaniline	55.31	5.0	50	0	111	53-123	51.02	8.07	20	
2-Nitrophenol	82.51	5.0	100	0	82.5	53-115	80.37	2.63	20	
3&4-Methylphenol	116.6	5.0	150	0	77.7	48-115	121.7	4.29	20	
3-Nitroaniline	34.18	5.0	50	0	68.4	26-115	34.34	0.475	20	
4-Nitroaniline	40	5.0	50	0	80	47-115	40.81	2.01	20	
4-Nitrophenol	85.01	5.0	100	0	85	26-133	84.47	0.637	20	
Acenaphthene	43.63	5.0	50	0	87.3	57-115	42.71	2.12	20	
Acenaphthylene	43.76	5.0	50	0	87.5	57-118	42.99	1.77	20	
Aniline	31.72	5.0	50	0	63.4	36-115	32.19	1.49	20	
Anthracene	44.26	5.0	50	0	88.5	65-115	45.41	2.57	20	
Benz(a)anthracene	43.37	5.0	50	0	86.7	53-115	43.8	0.974	20	
Benzidine	39.36	5.0	50	0	78.7	10-115	37.43	5.04	20	
Hexachloroethane	39.71	5.0	50	0	79.4	54-115	41.72	4.93	20	
Indeno(1,2,3-cd)pyrene	44.07	5.0	50	0	88.1	51-115	43.31	1.75	20	
Isophorone	43.22	5.0	50	0	86.4	55-115	42.31	2.13	20	
N-Nitrosodi-n-propylamine	41.5	5.0	50	0	83	55-115	43.02	3.59	20	
N-Nitrosodimethylamine	41.57	5.0	50	0	83.1	42-115	44.13	5.98	20	
N-Nitrosodiphenylamine	44.75	5.0	50	0	89.5	52-115	46.03	2.82	20	
Naphthalene	43.41	5.0	50	0	86.8	55-115	41.17	5.29	20	
Nitrobenzene	42.24	5.0	50	0	84.5	40-124	41.52	1.71	20	
Pentachlorophenol	84.38	5.0	100	0	84.4	45-125	87.37	3.48	20	
Phenanthrene	43.93	5.0	50	0	87.9	57-115	44.76	1.88	20	
Phenol	74.76	5.0	100	0	74.8	38-115	77.8	3.98	20	
Pyrene	44.4	5.0	50	0	88.8	51-115	45.47	2.38	20	
Surr: 2,4,6-Tribromophenol	*78.09*	5.0	*100*	0	*78.1*	*42-124*	73.07	*6.64*	*20*	
Surr: 2-Fluorobiphenyl	*80.06*	5.0	*100*	0	*80.1*	*48-120*	78.63	*1.8*	*20*	
Surr: 2-Fluorophenol	*76.52*	5.0	*100*	0	*76.5*	*20-120*	76.86	*0.439*	*20*	
Surr: 4-Terphenyl-d14	*84.19*	5.0	*100*	0	*84.2*	*51-135*	82.95	*1.48*	*20*	
Surr: Nitrobenzene-d5	*82.56*	5.0	*100*	0	*82.6*	*41-120*	77.13	*6.8*	*20*	
Surr: Phenol-d6	*81.29*	5.0	*100*	0	*81.3*	*20-120*	82.83	*1.87*	*20*	

The following samples were analyzed in this batch: 0709522-01E

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-100207** Units: **µg/L** Analysis Date: **10/02/07 11:55**

Client ID: Run ID: **VOA1_071002A** SeqNo: **1224017** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*46.56*	5.0	*50*	0	*93.1*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.31*	5.0	*50*	0	*109*	*72-125*	0			
Surr: Dibromofluoromethane	*49.81*	5.0	*50*	0	*99.6*	*71-125*	0			
Surr: Toluene-d8	*47.52*	5.0	*50*	0	*95*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-100207** Units: **µg/L** Analysis Date: **10/02/07 12:20**
Client ID: Run ID: **VOA1_071002A** SeqNo: **1224018** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.93	5.0	50	0	97.9	80-120	0			
1,1,2,2-Tetrachloroethane	47.7	5.0	50	0	95.4	72-120	0			
1,1,2-Trichloroethane	41.01	5.0	50	0	82	80-120	0			
1,1-Dichloroethane	46.59	5.0	50	0	93.2	76-120	0			
1,1-Dichloroethene	52.67	5.0	50	0	105	73-124	0			
1,2-Dichloroethane	47.28	5.0	50	0	94.6	78-120	0			
2-Butanone	94.24	10	100	0	94.2	58-132	0			
2-Chloroethyl vinyl ether	94.01	10	100	0	94	74-120	0			
2-Hexanone	90.75	10	100	0	90.7	61-130	0			
4-Methyl-2-pentanone	89.26	10	100	0	89.3	65-127	0			
Acetone	105.9	10	100	0	106	59-137	0			
Benzene	46.59	5.0	50	0	93.2	73-121	0			
Bromodichloromethane	47.71	5.0	50	0	95.4	80-120	0			
Bromoform	46.17	5.0	50	0	92.3	79-120	0			
Bromomethane	55.86	5.0	50	0	112	66-137	0			
Carbon disulfide	99.02	10	100	0	99	68-141	0			
Carbon tetrachloride	50.87	5.0	50	0	102	75-124	0			
Chlorobenzene	45.07	5.0	50	0	90.1	80-120	0			
Chloroethane	46.57	5.0	50	0	93.1	76-121	0			
Chloroform	47.49	5.0	50	0	95	80-120	0			
Chloromethane	42.38	5.0	50	0	84.8	67-123	0			
cis-1,3-Dichloropropene	47.68	5.0	50	0	95.4	80-120	0			
Dibromochloromethane	46.42	5.0	50	0	92.8	80-120	0			
Ethylbenzene	46.41	5.0	50	0	92.8	80-120	0			
m,p-Xylene	92.21	10	100	0	92.2	78-121	0			
Methylene chloride	48.44	10	50	0	96.9	65-133	0			
Styrene	49.6	5.0	50	0	99.2	80-120	0			
Tetrachloroethene	41.98	5.0	50	0	84	79-120	0			
Toluene	40.21	5.0	50	0	80.4	80-120	0			
trans-1,3-Dichloropropene	47.77	5.0	50	0	95.5	80-120	0			
Trichloroethene	47.94	5.0	50	0	95.9	80-120	0			
Vinyl acetate	105.4	10	100	0	105	67-139	0			
Vinyl chloride	48.49	2.0	50	0	97	74-122	0			
Xylenes, Total	140.1	15	150	0	93.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	*47.68*	5.0	*50*	0	*95.4*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*47.98*	5.0	*50*	0	*96*	*72-125*	0			
Surr: Dibromofluoromethane	*49.97*	5.0	*50*	0	*99.9*	*71-125*	0			
Surr: Toluene-d8	*43.91*	5.0	*50*	0	*87.8*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0710031-02AMS** Units: **µg/L** Analysis Date: **10/02/07 15:17**

Client ID: Run ID: **VOA1_071002A** SeqNo: **1224026** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.87	5.0	50	0	89.7	80-120	0			
1,1,2,2-Tetrachloroethane	45.96	5.0	50	0	91.9	72-120	0			
1,1,2-Trichloroethane	44.46	5.0	50	0	88.9	80-120	0			
1,1-Dichloroethane	42.73	5.0	50	0	85.5	76-120	0			
1,1-Dichloroethene	38.74	5.0	50	0	77.5	73-124	0			
1,2-Dichloroethane	44.47	5.0	50	0	88.9	78-120	0			
2-Butanone	89.25	10	100	0	89.3	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	92.96	10	100	0	93	61-130	0			
4-Methyl-2-pentanone	92.63	10	100	0	92.6	65-127	0			
Acetone	81.48	10	100	0	81.5	59-137	0			
Benzene	41.84	5.0	50	0	83.7	73-121	0			
Bromodichloromethane	40.9	5.0	50	0	81.8	80-120	0			
Bromoform	50.46	5.0	50	0	101	79-120	0			
Bromomethane	46.42	5.0	50	0	92.8	66-137	0			
Carbon disulfide	78.45	10	100	0	78.5	68-141	0			
Carbon tetrachloride	43.78	5.0	50	0	87.6	75-124	0			
Chlorobenzene	45.71	5.0	50	0	91.4	80-120	0			
Chloroethane	38.42	5.0	50	0	76.8	76-121	0			
Chloroform	44.35	5.0	50	0	88.7	80-120	0			
Chloromethane	33.49	5.0	50	0	67	67-123	0			S
cis-1,3-Dichloropropene	40.56	5.0	50	0	81.1	80-120	0			
Dibromochloromethane	46.35	5.0	50	0	92.7	80-120	0			
Ethylbenzene	43.12	5.0	50	0.2648	85.7	80-120	0			
m,p-Xylene	94.64	10	100	0	94.6	78-121	0			
Methylene chloride	42.23	10	50	0	84.5	65-133	0			
Styrene	51.99	5.0	50	0	104	80-120	0			
Tetrachloroethene	43.57	5.0	50	0	87.1	79-120	0			
Toluene	40.4	5.0	50	0	80.8	80-120	0			
trans-1,3-Dichloropropene	42.81	5.0	50	0	85.6	80-120	0			
Trichloroethene	41.14	5.0	50	0	82.3	80-120	0			
Vinyl acetate	95.38	10	100	0	95.4	67-139	0			
Vinyl chloride	41.2	2.0	50	0	82.4	74-122	0			
Xylenes, Total	145.3	15	150	0	96.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	*46.41*	5.0	*50*	0	*92.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*55.24*	5.0	*50*	0	*110*	*72-125*	0			
Surr: Dibromofluoromethane	*50.03*	5.0	*50*	0	*100*	*71-125*	0			
Surr: Toluene-d8	*46.33*	5.0	*50*	0	*92.7*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0710031-02AMSD** Units: **µg/L** Analysis Date: **10/02/07 15:43**

Client ID: Run ID: **VOA1_071002A** SeqNo: **1224028** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	40.38	5.0	50	0	80.8	80-120	44.87	10.5	20	
1,1,2,2-Tetrachloroethane	49.43	5.0	50	0	98.9	72-120	45.96	7.28	20	
1,1,2-Trichloroethane	42.67	5.0	50	0	85.3	80-120	44.46	4.1	20	
1,1-Dichloroethane	40.39	5.0	50	0	80.8	76-120	42.73	5.62	20	
1,1-Dichloroethene	36.01	5.0	50	0	72	73-124	38.74	7.3	20	S
1,2-Dichloroethane	46.55	5.0	50	0	93.1	78-120	44.47	4.57	20	
2-Butanone	88.95	10	100	0	88.9	58-132	89.25	0.338	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	105.3	10	100	0	105	61-130	92.96	12.5	20	
4-Methyl-2-pentanone	101.8	10	100	0	102	65-127	92.63	9.42	20	
Acetone	84.42	10	100	0	84.4	59-137	81.48	3.55	20	
Benzene	44.88	5.0	50	0	89.8	73-121	41.84	7	20	
Bromodichloromethane	41.71	5.0	50	0	83.4	80-120	40.9	1.96	20	
Bromoform	49.95	5.0	50	0	99.9	79-120	50.46	1.02	20	
Bromomethane	45.06	5.0	50	0	90.1	66-137	46.42	2.97	20	
Carbon disulfide	74.77	10	100	0	74.8	68-141	78.45	4.81	20	
Carbon tetrachloride	41.11	5.0	50	0	82.2	75-124	43.78	6.28	20	
Chlorobenzene	45.07	5.0	50	0	90.1	80-120	45.71	1.4	20	
Chloroethane	38.48	5.0	50	0	77	76-121	38.42	0.153	20	
Chloroform	40.32	5.0	50	0	80.6	80-120	44.35	9.52	20	
Chloromethane	33.29	5.0	50	0	66.6	67-123	33.49	0.601	20	S
cis-1,3-Dichloropropene	43.02	5.0	50	0	86	80-120	40.56	5.9	20	
Dibromochloromethane	46.49	5.0	50	0	93	80-120	46.35	0.299	20	
Ethylbenzene	43.09	5.0	50	0.2648	85.7	80-120	43.12	0.0729	20	
m,p-Xylene	85.85	10	100	0	85.9	78-121	94.64	9.74	20	
Methylene chloride	39.68	10	50	0	79.4	65-133	42.23	6.21	20	
Styrene	49.34	5.0	50	0	98.7	80-120	51.99	5.22	20	
Tetrachloroethene	41.09	5.0	50	0	82.2	79-120	43.57	5.86	20	
Toluene	40.47	5.0	50	0	80.9	80-120	40.4	0.192	20	
trans-1,3-Dichloropropene	44.01	5.0	50	0	88	80-120	42.81	2.78	20	
Trichloroethene	42.87	5.0	50	0	85.7	80-120	41.14	4.13	20	
Vinyl acetate	96.85	10	100	0	96.8	67-139	95.38	1.53	20	
Vinyl chloride	37.49	2.0	50	0	75	74-122	41.2	9.43	20	
Xylenes, Total	132.7	15	150	0	88.5	80-120	145.3	9.03	20	
Surr: 1,2-Dichloroethane-d4	*43.35*	5.0	*50*	0	*86.7*	*70-125*	46.41	*6.8*	*20*	
Surr: 4-Bromofluorobenzene	*53.6*	5.0	*50*	0	*107*	*72-125*	55.24	*3.02*	*20*	
Surr: Dibromofluoromethane	*46.35*	5.0	*50*	0	*92.7*	*71-125*	50.03	*7.63*	*20*	
Surr: Toluene-d8	*46.85*	5.0	*50*	0	*93.7*	*75-125*	46.33	*1.12*	*20*	

The following samples were analyzed in this batch: 0709522-02A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-100807** Units: **µg/L** Analysis Date: **10/08/07 12:11**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229041** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*46.74*	5.0	*50*	0	*93.5*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*47.18*	5.0	*50*	0	*94.4*	*72-125*	0			
Surr: Dibromofluoromethane	*46.65*	5.0	*50*	0	*93.3*	*71-125*	0			
Surr: Toluene-d8	*50.14*	5.0	*50*	0	*100*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-100807** Units: **µg/L** Analysis Date: **10/08/07 11:21**
Client ID: Run ID: **VOA1_071008A** SeqNo: **1229040** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.58	5.0	50	0	103	80-120	0			
1,1,2,2-Tetrachloroethane	45.6	5.0	50	0	91.2	72-120	0			
1,1,2-Trichloroethane	45.17	5.0	50	0	90.3	80-120	0			
1,1-Dichloroethane	48.34	5.0	50	0	96.7	76-120	0			
1,1-Dichloroethene	45.07	5.0	50	0	90.1	73-124	0			
1,2-Dichloroethane	47.89	5.0	50	0	95.8	78-120	0			
2-Butanone	103.6	10	100	0	104	58-132	0			
2-Chloroethyl vinyl ether	95.96	10	100	0	96	74-120	0			
2-Hexanone	98.25	10	100	0	98.3	61-130	0			
4-Methyl-2-pentanone	95.73	10	100	0	95.7	65-127	0			
Acetone	97.54	10	100	0	97.5	59-137	0			
Benzene	46.98	5.0	50	0	94	73-121	0			
Bromodichloromethane	48.6	5.0	50	0	97.2	80-120	0			
Bromoform	47.79	5.0	50	0	95.6	79-120	0			
Bromomethane	41.9	5.0	50	0	83.8	66-137	0			
Carbon disulfide	90.43	10	100	0	90.4	68-141	0			
Carbon tetrachloride	46.7	5.0	50	0	93.4	75-124	0			
Chlorobenzene	48.47	5.0	50	0	96.9	80-120	0			
Chloroethane	46.05	5.0	50	0	92.1	76-121	0			
Chloroform	47.6	5.0	50	0	95.2	80-120	0			
Chloromethane	53.25	5.0	50	0	106	67-123	0			
cis-1,3-Dichloropropene	49.92	5.0	50	0	99.8	80-120	0			
Dibromochloromethane	49.38	5.0	50	0	98.8	80-120	0			
Ethylbenzene	44.73	5.0	50	0	89.5	80-120	0			
m,p-Xylene	89.94	10	100	0	89.9	78-121	0			
Methylene chloride	48.19	10	50	0	96.4	65-133	0			
Styrene	51.09	5.0	50	0	102	80-120	0			
Tetrachloroethene	50.09	5.0	50	0	100	79-120	0			
Toluene	46.47	5.0	50	0	92.9	80-120	0			
trans-1,3-Dichloropropene	47.75	5.0	50	0	95.5	80-120	0			
Trichloroethene	47.13	5.0	50	0	94.3	80-120	0			
Vinyl acetate	114.5	10	100	0	115	67-139	0			
Vinyl chloride	51.35	2.0	50	0	103	70-127	0			
Xylenes, Total	140.4	15	150	0	93.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	*48.01*	5.0	*50*	0	*96*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*46.24*	5.0	*50*	0	*92.5*	*72-125*	0			
Surr: Dibromofluoromethane	*49.62*	5.0	*50*	0	*99.2*	*71-125*	0			
Surr: Toluene-d8	*50.57*	5.0	*50*	0	*101*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0710089-05AMS** Units: **µg/L** Analysis Date: **10/08/07 15:33**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229044** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	43.71	5.0	50	0	87.4	80-120	0			
1,1,2,2-Tetrachloroethane	48.37	5.0	50	0	96.7	72-120	0			
1,1,2-Trichloroethane	51.72	5.0	50	0	103	80-120	0			
1,1-Dichloroethane	44.38	5.0	50	0	88.8	76-120	0			
1,1-Dichloroethene	39.51	5.0	50	0	79	73-124	0			
1,2-Dichloroethane	45.58	5.0	50	0	91.2	78-120	0			
2-Butanone	105.2	10	100	0	105	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	124.7	10	100	0	125	61-130	0			
4-Methyl-2-pentanone	117.9	10	100	0	118	65-127	0			
Acetone	90.25	10	100	0	90.2	59-137	0			
Benzene	43.71	5.0	50	0	87.4	73-121	0			
Bromodichloromethane	44.59	5.0	50	0	89.2	80-120	0			
Bromoform	51.49	5.0	50	0	103	79-120	0			
Bromomethane	27.69	5.0	50	0	55.4	66-137	0			S
Carbon disulfide	77.05	10	100	0	77	68-141	0			
Carbon tetrachloride	41.6	5.0	50	0	83.2	75-124	0			
Chlorobenzene	48.23	5.0	50	0	96.5	80-120	0			
Chloroethane	40.79	5.0	50	0	81.6	76-121	0			
Chloroform	46.76	5.0	50	0	93.5	80-120	0			
Chloromethane	42.22	5.0	50	0	84.4	67-123	0			
cis-1,3-Dichloropropene	47.43	5.0	50	0	94.9	80-120	0			
Dibromochloromethane	52.32	5.0	50	0	105	80-120	0			
Ethylbenzene	47.27	5.0	50	0	94.5	80-120	0			
m,p-Xylene	95.43	10	100	0	95.4	78-121	0			
Methylene chloride	44.6	10	50	0	89.2	65-133	0			
Styrene	49.37	5.0	50	0	98.7	80-120	0			
Tetrachloroethene	46.3	5.0	50	0	92.6	79-120	0			
Toluene	47.75	5.0	50	0	95.5	80-120	0			
trans-1,3-Dichloropropene	46.71	5.0	50	0	93.4	80-120	0			
Trichloroethene	44.21	5.0	50	0	88.4	80-120	0			
Vinyl acetate	109.2	10	100	0	109	67-139	0			
Vinyl chloride	43.32	2.0	50	0	86.6	70-127	0			
Xylenes, Total	140.9	15	150	0	94	80-120	0			
Surr: 1,2-Dichloroethane-d4	*44.42*	5.0	*50*	0	*88.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*51.65*	5.0	*50*	0	*103*	*72-125*	0			
Surr: Dibromofluoromethane	*47.12*	5.0	*50*	0	*94.2*	*71-125*	0			
Surr: Toluene-d8	*52.33*	5.0	*50*	0	*105*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0710089-05AMSD** Units: **µg/L** Analysis Date: **10/08/07 15:58**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229045** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.14	5.0	50	0	92.3	80-120	43.71	5.4	20	
1,1,2,2-Tetrachloroethane	50.59	5.0	50	0	101	72-120	48.37	4.48	20	
1,1,2-Trichloroethane	50.33	5.0	50	0	101	80-120	51.72	2.72	20	
1,1-Dichloroethane	45.29	5.0	50	0	90.6	76-120	44.38	2.02	20	
1,1-Dichloroethene	42.57	5.0	50	0	85.1	73-124	39.51	7.46	20	
1,2-Dichloroethane	49.29	5.0	50	0	98.6	78-120	45.58	7.82	20	
2-Butanone	121.7	10	100	0	122	58-132	105.2	14.5	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	126.8	10	100	0	127	61-130	124.7	1.67	20	
4-Methyl-2-pentanone	123	10	100	0	123	65-127	117.9	4.26	20	
Acetone	99.42	10	100	0	99.4	59-137	90.25	9.67	20	
Benzene	47.35	5.0	50	0	94.7	73-121	43.71	8	20	
Bromodichloromethane	47.59	5.0	50	0	95.2	80-120	44.59	6.5	20	
Bromoform	52.33	5.0	50	0	105	79-120	51.49	1.62	20	
Bromomethane	35.73	5.0	50	0	71.5	66-137	27.69	25.4	20	R
Carbon disulfide	83.89	10	100	0	83.9	68-141	77.05	8.5	20	
Carbon tetrachloride	42.59	5.0	50	0	85.2	75-124	41.6	2.36	20	
Chlorobenzene	50.01	5.0	50	0	100	80-120	48.23	3.63	20	
Chloroethane	43.82	5.0	50	0	87.6	76-121	40.79	7.15	20	
Chloroform	47.52	5.0	50	0	95	80-120	46.76	1.6	20	
Chloromethane	47.83	5.0	50	0	95.7	67-123	42.22	12.5	20	
cis-1,3-Dichloropropene	50.18	5.0	50	0	100	80-120	47.43	5.64	20	
Dibromochloromethane	54.06	5.0	50	0	108	80-120	52.32	3.27	20	
Ethylbenzene	47.95	5.0	50	0	95.9	80-120	47.27	1.43	20	
m,p-Xylene	92	10	100	0	92	78-121	95.43	3.65	20	
Methylene chloride	47.01	10	50	0	94	65-133	44.6	5.25	20	
Styrene	47.6	5.0	50	0	95.2	80-120	49.37	3.66	20	
Tetrachloroethene	47	5.0	50	0	94	79-120	46.3	1.52	20	
Toluene	50.3	5.0	50	0	101	80-120	47.75	5.19	20	
trans-1,3-Dichloropropene	51.33	5.0	50	0	103	80-120	46.71	9.42	20	
Trichloroethene	44.95	5.0	50	0	89.9	80-120	44.21	1.64	20	
Vinyl acetate	119.1	10	100	0	119	67-139	109.2	8.74	20	
Vinyl chloride	45.65	2.0	50	0	91.3	70-127	43.32	5.22	20	
Xylenes, Total	137.9	15	150	0	91.9	80-120	140.9	2.16	20	
Surr: 1,2-Dichloroethane-d4	*49.08*	5.0	*50*	0	*98.2*	*70-125*	44.42	*9.98*	*20*	
Surr: 4-Bromofluorobenzene	*49.11*	5.0	*50*	0	*98.2*	*72-125*	51.65	*5.04*	*20*	
Surr: Dibromofluoromethane	*49.13*	5.0	*50*	0	*98.3*	*71-125*	47.12	*4.17*	*20*	
Surr: Toluene-d8	*51.14*	5.0	*50*	0	*102*	*75-125*	52.33	*2.3*	*20*	

The following samples were analyzed in this batch: 0709522-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54877** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-092707** Units: **mg/L** Analysis Date: **09/27/07 14:45**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220057** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*5.189*	0.10	*5*	0	*104*	*85-115*		0		

LCS Sample ID: **WLCSW1-092707** Units: **mg/L** Analysis Date: **09/27/07 15:09**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220058** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.38	0.50	20	0	102	90-110		0		
Sulfate	20.33	0.50	20	0	102	90-110		0		
Surr: Selenate (surr)	*5.072*	0.10	*5*	0	*101*	*85-115*		0		

MS Sample ID: **0709516-01BMS** Units: **mg/L** Analysis Date: **09/27/07 13:56**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220055** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	69.82	0.50	10	61.55	82.7	80-120		0		EO
Sulfate	342.8	0.50	10	340.2	26.4	80-120		0		SEO
Surr: Selenate (surr)	*5.168*	0.10	*5*	0	*103*	*85-115*		0		

MSD Sample ID: **0709516-01BMSD** Units: **mg/L** Analysis Date: **09/27/07 14:20**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220056** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	69.89	0.50	10	61.55	83.4	80-120	69.82	0.1	20	EO
Sulfate	343.2	0.50	10	340.2	30.8	80-120	342.8	0.126	20	SEO
Surr: Selenate (surr)	*5.176*	0.10	*5*	0	*104*	*85-115*	5.168	*0.155*	*20*	

DUP Sample ID: **0709516-01BDUP** Units: **mg/L** Analysis Date: **09/27/07 13:31**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220054** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	61.49	0.50	0	0	0	0-0	61.55	0.101	20	E
Sulfate	339.8	0.50	0	0	0	0-0	340.2	0.109	20	E
Surr: Selenate (surr)	*5.213*	0.10	*5*	0	*104*	*85-115*	5.216	*0.0575*	*20*	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54887** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW3-092707** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: Run ID: **WETCHEM_070927I** SeqNo: **1220276** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.07	0.10	6	0	101	90-110	0			

DUP Sample ID: **0709520-20EDUP** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: Run ID: **WETCHEM_070927I** SeqNo: **1220293** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.22	0.10	0	0	0	0-0	7.25	0.415	20	H

DUP Sample ID: **0709522-01DDUP** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: **Effluent** Run ID: **WETCHEM_070927I** SeqNo: **1220294** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.27	0.10	0	0	0	0-0	7.26	0.138	20	H

The following samples were analyzed in this batch: 0709522-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54965** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-100107** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222179** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-100107** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222180** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1055	5.0	1000	0	106	80-120	0			
Alkalinity, Total (As CaCO3)	1055	5.0	1000	0	106	80-120	0			

DUP Sample ID: **0709520-02FDUP** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222188** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	381.9	5.0	0	0	0	0-0	381.9	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	381.9	5.0	0	0	0	0-0	381.9	0	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54971** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222279** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222280** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	928	10	1000	0	92.8	85-115	0			

DUP Sample ID: **0709529-16CDUP** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222278** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	642	10	0	0	0	0-0	646	0.621	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55088** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-100307** Units: **°F** Analysis Date: **10/03/07 0:00**

Client ID: Run ID: **WETCHEM_071003H** SeqNo: **1224653** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120		0		

DUP Sample ID: **0709574-02EDUP** Units: **°F** Analysis Date: **10/03/07 0:00**

Client ID: Run ID: **WETCHEM_071003H** SeqNo: **1224657** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0		0	0	25	

The following samples were analyzed in this batch: 0709522-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55131** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **MBLKW1-100407** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225720** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-100407** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225721** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1425	1.0	1413	0	101	80-120	0			

DUP Sample ID: **0710048-01GDUP** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225724** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	3390	1.0	0	0	0	0-0	3400	0.295	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Chain of Custody Form

Page 1 of 1

e-Lab Project Manager: | e-Lab Work Order #: 5109522

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Quarterly	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Effluent	9/26/07	1315	L	Y	9	X	X	X	X	X	X	X	X	X		
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: [signature] B.E.D.

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☑ Std 10 WK Days ☐ 6 WK Days ☐ Other 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
[signature] Jeff Byrd	9/25/07	1615	[signature] 9/27/07	10 Day TAT.
Relinquished by:	Date:	Time:	Received by (Laboratory): [signature]	

Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):

e-Lab Analytical Cooler ID: | Cooler Temp.:

QC Package: (Check One Box Below)
☑ Level II Std QC
☐ Level III Std QC/Raw Data
☐ Level IV SW846/CLP
☐ Other
☐ TRRP CheckList
☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

Copyright 2004 by e-Lab Analytical, Inc.

e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 9/27/2007 9:00:00 AM

Work Order Number 0709522 Received by: RNG

Checklist completed by RMGM 9/27/07 (Signature / Date) Reviewed by QL 9/28/07 (Initials / Date)

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.3c	002	
Cooler(s)/Kit(s):	1447		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

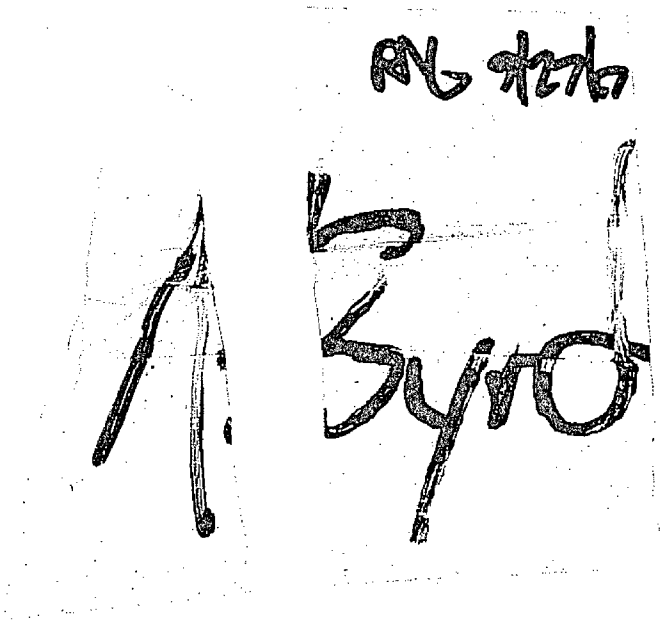
Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

P.O # 179522



NAVAJO REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P.O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
2007 SEP 20 AM 10 09

September 19, 2007

FedEx Overnight Delivery

Wayne Price
Environmental Bureau Chief
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Re: Navajo Refining Company, L.L.C., Class 1 Injection Well Discharge Permit WDW-3 UICCL-1-008-3 (I-008)

Dear Mr. Price:

Enclosed pursuant to your August 13, 2007 letter to Darrell Moore are (1) the signed copy of the above-referenced discharge permit for Navajo Refining Company, LLC ("Navajo") and (2) the permit fee in the amount of $4,500.00.

Navajo has agreed to sign the conditions listed in the permit based on your statements during our August 28, 2007 phone conversation that the conditions in the permit only apply to equipment at the site of the injection well covered by the permit (WDW-3), not the Artesia Refinery.

We strongly support your suggestion that we schedule a meeting with you and your staff to review the draft Navajo Refinery Discharge Permit that is currently in the renewal process to discuss certain conditions that may be included in the refinery permit which need further clarification and to address any concerns we may have prior to issuance of the final permit.

As we discussed, Navajo is concerned that the permit conditions, including conditions to retrofit storage tanks to include impermeable containment under all tanks and "bermed" areas, have not been thoroughly evaluated or discussed with Navajo prior to imposition. Navajo continues to believe that such evaluation and discussion prior to finalizing these conditions is necessary and appropriate.

Please contact me at 505-746-5490 if you have any questions.

Sincerely,

Johnny Lackey
Environmental Manager

Cc (w/enclosure): JER
Electronic cc (w/o enclosure): DGM, PLY
Environmental Files: REF.ART.07-4.A.02
(WDW-3 Discharge Permit)

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Check Date		09/13/2007
Check Amount	$	4,500.00
Vendor No		5102035
Payment Document		2000023164
Company Code		1020

Invoice Date	Invoice Number	Description	Invoice Amount	Discount Amount	Net Amount
08/13/2007	081307		4,500.00	0.00	4,500.00

Payment document	Check number	Date	Currency	Payment amount
2000023164	1000009940	09/13/2007	USD	*********4,500.00*

↓ PLEASE FOLD ON PERFORATION AND DETACH HERE ↓

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

ANTI-FRAUD PROTECTION - PATENTS 5,197,765

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

64-1278/611
1000009940
09/13/2007

PAY EXACTLY
*********4,500.00*USD

VOID AFTER 180 DAYS

PAY *** FOUR THOUSAND FIVE HUNDRED and 00 /100 USD***

TO THE
ORDER OF WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Stephen D Wise
AUTHORIZED SIGNATURE

⑈1000009940⑈ ⑆061112788⑆ 329905321?⑈

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

August 13, 2007

Mr. Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company
501 East Main Street, P.O. Drawer 159
Artesia, New Mexico 88211-0159

Re: **Approval of Class I Injection Well Discharge Permit WDW-3 UICCL1-008-3 (I-008)**
Class I Non-Hazardous Oil Field Waste Disposal Well
WDW-3, API No. 30-015-26575
790 FSL and 2250 FWL UL: N Section 1, T 18 S, R 27 E
Eddy County, New Mexico

Dear Mr. Moore:

Pursuant to all applicable parts of the Water Quality Control Commission (WQCC) Regulations 20.6.2 NMAC and more specifically 20.6.2.3104 - 20.6.2.3999 discharge permit, and 20.6.2.5000-.5299 Underground Injection Control, the Oil Conservation Division (OCD), the applicant is hereby authorized to utilize its Navajo Refining Company Class I WDW-3 Waste Disposal Well (API No. 30-015-26575) located 790 feet from the South line and 2250 feet from the West line in the SE/4, SW/4 of Section 1, Township 18 South, and Range27 East, NMPM, Eddy County, New Mexico, under the conditions specified in the enclosed **Attachment To The Class I Injection Well Discharge Permit**.

Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the New Mexico Oil Conservation Division (OCD) Santa Fe Office within 30 working days of receipt of this letter-including permit fees.**

Please be advised that approval of this permit does not relieve the Navajo Refining Company of responsibility should operations result in pollution of surface water, ground water or the environment. Nor does approval of the permit relieve the Navajo Refining Company of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If you have any questions, please contact Carl Chavez of my staff at (505-476-3491) or E-mail address: carlj.chavez@state.nm.us. On behalf of the staff of the OCD, I wish to thank you and your staff for your cooperation during this discharge permit review.

Sincerely,

Wayne Price
Environmental Bureau Chief

LWP/cc
Attachments-1
xc: OCD District Office

Released to Imaging: 7/12/2024 10:49:45 AM

ATTACHMENT TO THE DISCHARGE PERMIT
Navajo Refining Company WDW-3 Class I Waste Disposal Well UICCL1-008-3 (I-008)
DISCHARGE PERMIT APPROVAL CONDITIONS

August 13, 2007

Please remit a check for $4,500.00 made payable to Water Quality Management Fund:

Water Quality Management Fund
C/o: Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, New Mexico 87505

1. **Payment of Discharge Plan Fees:** All discharge permits are subject to WQCC Regulations. Every billable facility that submits a discharge permit application will be assessed a filing fee of $100.00, plus a renewal flat fee (*see* WQCC Regulation 20.6.2.3114 NMAC). The Oil Conservation Division ("OCD") has received the required $100.00 filing fee and the Navajo Refining Company still owes the required $4500.00 permit fee. The total fee amount due is $4500 for the Class I Well.

2. **Permit Expiration and Renewal Conditions and Penalties:** Pursuant to WQCC Regulation 20.6.2.3109.H.4 NMAC, this permit is valid for a period of five years. **The permit will expire on June 1, 2012** and an application for renewal should be submitted no later than 120 days before that expiration date. Pursuant to WQCC Regulation 20.6.2.3106.F NMAC, if a discharger submits a discharge permit renewal application at least 120 days before the discharge permit expires and is in compliance with the approved permit, then the existing discharge permit will not expire until the application for renewal has been approved or disapproved. ***Expired permits are a violation of the Water Quality Act (Chapter 74, Article 6, NMSA 1978) and civil penalties may be assessed accordingly.***

3. **Permit Terms and Conditions:** Pursuant to WQCC Regulation 20.6.2.3104 NMAC, when a permit has been issued, the Navajo Refining Company must ensure that all discharges shall be consistent with the terms and conditions of the permit. In addition, all facilities shall abide by the applicable rules and regulations administered by the OCD pursuant to the Oil and Gas Act, NMSA 1978, Sections 70-2-1 through 70-2-38. All injection operations related to oil and natural gas production in New Mexico are regulated under the provisions of the Oil and Gas Act, NMSA 1978, Sections 70-2-1 *et seq.* and the Water Quality Act, NMSA 1978, Sections 74-6-1 *et seq.* These Acts delegate authority for enforcement of their provisions relating to oil and natural gas drilling, production, processing, and transportation to the Oil Conservation Division (OCD) of the New Mexico Energy, Minerals and Natural Resources Department, and to the Oil Conservation Commission (OCC) and the Water Quality Control Commission (WQCC). To carry out its authority, the OCC has promulgated rules (19 NMAC) and numerous orders. Navajo Refining Company shall comply with WQCC Regulations 20.6.2 *et seq.* NMAC relating to Class I Waste Disposal Wells.

4. **Navajo Refining Company Commitments:** The Navajo Refining Company shall abide by all commitments submitted in its June 28, 2006 Application for Permit to Drill, Re-enter, Deepen, Plug back or Add a Zone API No. 30-015-26575" including subsequent attachments and amendments; letters and conditions herein for approval. Permit applications that reference previously approved plans on file with the division shall

be incorporated in this permit and the Navajo Refining Company shall abide by all previous commitments of such plans and these conditions for approval.

5. Modifications: WQCC Regulation 20.6.2.3107.C, 20.6.2.3109 and 20.6.2.5101.I NMAC addresses possible future modifications of a permit. The Navajo Refining Company (discharger) shall notify the OCD of any facility expansion, production increase or process modification that would result in any significant modification in the discharge of water contaminants. The Division Director may require a permit modification if any water quality standard specified at 20.6.2.3103 NMAC is or will be exceeded, or if a toxic pollutants as defined in WQCC Regulation 20.6.2.7 NMAC is present in ground water at any place of withdrawal for present or reasonably foreseeable future use, or that the Water Quality Standards for Interstate and Intrastate streams as specified in 20.6.4 NMAC are being or may be violated in surface water in New Mexico.

6. Waste Disposal and Storage: Navajo Refining Company shall dispose of all other non-injected wastes at an OCD-approved facility. Only oil field RCRA-exempt wastes may be disposed of by injection in a Class I well. RCRA non-hazardous, exempt and non-exempt oil field wastes may be disposed of at an OCD-approved facility upon proper waste determination pursuant to 40 CFR Part 261. Any waste stream that is not listed in the discharge permit application must be approved by the OCD on a case-by-case basis.

A. OCD Rule 712 Waste: Pursuant to OCD Rule 712 (19.15.9.712 NMAC) disposal of certain non-domestic waste without notification to the OCD is allowed at NMED permitted solid waste facilities if the waste stream has been identified in the discharge permit and existing process knowledge of the waste stream does not change.

B. Waste Storage: The Navajo Refining Company shall store all waste in an impermeable bermed area, except waste generated during emergency response operations for up to 72 hours. All waste storage areas shall be identified in the discharge permit application. Any waste storage area not identified in the permit shall be approved on a case-by-case basis only. The Navajo Refining Company shall not store oil field waste on-site for more than 180 days unless approved by the OCD.

7. Drum Storage: The Navajo Refining Company must store all drums, including empty drums, containing materials other than fresh water on an impermeable pad with curbing. The Navajo Refining Company must store empty drums on their sides with the bungs in place and lined up on a horizontal plane. The Navajo Refining Company must store chemicals in other containers, such as tote tanks, sacks, or buckets on an impermeable pad with curbing.

8. Process, Maintenance and Yard Areas: The Navajo Refining Company shall either pave and curb or have some type of spill collection device incorporated into the design at all process, maintenance, and yard areas which show evidence that water contaminants from releases, leaks and spills have reached the ground surface.

9. Above Ground Tanks: The Navajo Refining Company shall ensure that all aboveground tanks have impermeable secondary containment (e.g., liners and berms), which will contain a volume of at least one-third greater than the total volume of the largest tank or all interconnected tanks. The Navajo Refining Company shall retrofit all existing tanks before discharge permit renewal. Tanks that contain fresh water or fluids that are gases at atmospheric temperature and pressure are exempt from this condition.

10. Labeling: The Navajo Refining Company shall clearly label all tanks, drums, and containers to identify their contents and other emergency notification information. The Navajo Refining Company may use a tank code numbering system, which is incorporated into their emergency response plans.

11. Below-Grade Tanks/Sumps and Pits/Ponds.

A. All below-grade tanks and sumps must be approved by the OCD prior to installation and must incorporate secondary containment with leak detection into the design. The Navajo Refining Company shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal. All existing below-grade tanks and sumps without secondary containment and leak detection must be tested annually or as specified herein. Systems that have secondary containment with leak detection shall have a monthly inspection of the leak detection system to determine if the primary containment is leaking. Small sumps or depressions in secondary containment systems used to facilitate fluid removal are exempt from these requirements if fluids are removed within 72 hours.

B. All pits and ponds, including modifications and retrofits, shall be designed by a certified registered professional engineer and approved by the OCD prior to installation. In general, all pits or ponds shall have approved hydrologic and geologic reports, location, foundation, liners, and secondary containment with leak detection, monitoring and closure plans. All pits or ponds shall be designed, constructed and operated so as to contain liquids and solids in a manner that will protect fresh water, public health, safety and the environment for the foreseeable future. The Navajo Refining Company shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal.

C. The Navajo Refining Company shall ensure that all exposed pits, including lined pits and open top tanks (8 feet in diameter or larger) shall be fenced, screened, netted, or otherwise rendered non-hazardous to wildlife, including migratory birds.

D. The Navajo Refining Company shall maintain the results of tests and inspections at the facility covered by this discharge permit and available for OCD inspection. The Navajo Refining Company shall report the discovery of any system which is found to be leaking or has lost integrity to the OCD within 15 days. The Navajo Refining Company may propose various methods for testing such as pressure testing to 3 pounds per square inch greater than normal operating pressure and/or visual inspection of cleaned tanks and/or sumps, or other OCD-approved methods. The Navajo Refining Company shall notify the OCD at least 72 hours prior to all testing.

12. Underground Process/Wastewater Lines:

A. The Navajo Refining Company shall test all underground process/wastewater pipelines at least once every five (5) years to demonstrate their mechanical integrity, except lines containing fresh water or fluids that are gases at atmospheric temperature and pressure. Pressure rated pipe shall be tested by pressuring up to one and one-half times the normal operating pressure, if possible, or for atmospheric drain systems, to 3 pounds per square inch greater than normal operating pressure, and pressure held for a minimum of 30 minutes with no more

than a 1% loss/gain in pressure. The Navajo Refining Company may use other methods for testing if approved by the OCD.

B. Navajo Refining Company shall maintain underground process and wastewater pipeline schematic diagrams or plans showing all drains, vents, risers, valves, underground piping, pipe type, rating, size, and approximate location. All new underground piping must be approved by the OCD prior to installation. The Navajo Refining Company shall report any leaks or loss of integrity to the OCD within 15 days of discovery.

Navajo Refining Company shall maintain the results of all tests at the facility covered by this discharge permit and they shall be available for OCD inspection. The Navajo Refining Company shall notify the OCD at least 72 hours prior to all testing.

13. Class V Wells: The Navajo Refining Company shall close all Class V wells (e.g., septic systems, leach fields, dry wells, etc.) that inject non-hazardous industrial wastes or a mixture of industrial wastes and domestic wastes unless it can be demonstrated that ground water will not be impacted in the reasonably foreseeable future. Leach fields and other wastewater disposal systems at OCD-regulated facilities that inject non-hazardous fluid into or above an underground source of drinking water are considered Class V Waste Disposal Wells under the EPA UIC program. Class V wells that inject domestic waste only, must be permitted by the New Mexico Environment Department (NMED).

14. Housekeeping: The Navajo Refining Company shall inspect all systems designed for spill collection/prevention and leak detection at least monthly to ensure proper operation and to prevent over topping or system failure. All spill collection and/or secondary containment devices shall be emptied of fluids within 72 hours of discovery. The Navajo Refining Company shall maintain all records at the facility and available for OCD inspection.

15. Spill Reporting: The Navajo Refining Company shall report all unauthorized discharges, spills, leaks and releases and conduct corrective action pursuant to WQCC Regulation 20.5.12.1203 NMAC and OCD Rule 116 (19.15.3.116 NMAC). The Navajo Refining Company shall notify both the OCD District Office and the Santa Fe Office within 24 hours and file a written report within 15 days.

16. OCD Inspections: The OCD may place additional requirements on the facility and modify the permit conditions based on well emergencies, OCD inspections, and/or quarterly reporting information.

17. Storm Water: The Navajo Refining Company shall implement and maintain run-on and runoff plans and controls. The Navajo Refining Company shall not discharge any water contaminant that exceeds the WQCC standards specified in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) including any oil sheen in any stormwater run-off. The Navajo Refining Company shall notify the OCD within 24 hours of discovery of any releases and shall take immediate corrective action(s) to stop the discharge.

18. Unauthorized Discharges: The Navajo Refining Company shall not allow or cause water pollution, discharge or release of any water contaminant that exceeds the WQCC standards listed in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) unless specifically listed in the permit application approved herein.

An unauthorized discharge is a violation of this permit.

19. Vadose Zone and Water Pollution: The Navajo Refining Company shall address any contamination through the discharge permit process or pursuant to WQCC 20.6.2.4000-.4116 NMAC (Prevention and Abatement of Water Pollution). The OCD may require the Navajo Refining Company to modify its permit for investigation, remediation, abatement, and monitoring requirements for any vadose zone or water pollution. Failure to perform any required investigation, remediation, abatement and submit subsequent reports will be a violation of the permit.

20. Additional Site Specific Conditions: The Navajo Refining Company shall notify the OCD within 24 hours after having knowledge of ground water pollution complaints or well problems within a 1-mile radius of WDW-3.

21. Class I Injection Well(s) Construction Conditions.
All wells, except those municipal wells injection of non-corrosive wastes, shall inject fluids through tubing with a packer set immediately above the injection zone.

A. Construction: The tubing and packer shall be designed and maintained for the duration of expected service.

B. Logs or tests required for the following situations:

a. For surface casing intended to protect underground sources of drinking water:
   i. Resistivity, spontaneous potential, and caliper logs before the casing is installed; and
   ii. A cement bond, temperature, or density log after the casing is set and cemented.

b. For intermediate and long strings of casing intended to facilitate injection:
   i. Resistivity, spontaneous potential, porosity, and gamma ray logs before the casing is installed.
   ii. Fracture finder logs; and
   iii. A cement bond, temperature, or density log after the casing is set and cemented.
   iv. At a minimum, the following information concerning the injection formation shall be determined or calculated for new Class I wells:
      1. Fluid pressure;
      2. Temperature;
      3. Fracture pressure;
      4. Other physical and chemical characteristics of the injection matrix; and
      5. Physical and chemical characteristics of the formation fluids.

22. Class I Injection Well(s) Identification, Operation, Monitoring, Bonding and Reporting.

A. Well Identification: API # 30-015-26575

B. Well Work Over Operations: OCD approval will be obtained prior to performing remedial work, pressure test or any other work. Approval will be requested on OCD Form C-103 "Sundry Notices and Reports on Wells" (OCD Rule 1103.A) with appropriate copies sent to the OCD Environmental Bureau and District Office.

C. Injection Formation, Interval & Waste: Injected refinery exempt/non-exempt non-hazardous wastes will be injected into the Lower-Wolfcamp Formation at the interval 7650 ft to 8450 ft and 8450 ft to 8620 ft. Tubing shall be surrounded by surface casing set to a depth protective of fresh ground water (< 10,000 ppm TDS). The owner/operator shall take all steps necessary to ensure that the injected waste enters only the above specified injection interval and is not permitted to escape to other formations or onto the surface. The operator shall provide written notice of the date of commencement of injection to the Santa Fe Office of the Division.

D. Well Injection Pressure Limits: The wellhead injection pressure on the well shall be limited to no more than 1530 psig. In addition, the injection well or system shall be equipped with a pressure limiting device in workable condition, which shall, at all times, limit surface injection pressure to the maximum allowable pressure for this well. The maximum operating surface injection and/or test pressure measured at the wellhead shall not exceed 1530 psig unless otherwise approved by the OCD. The pressure-limiting device shall monthly be demonstrated and reported quarterly to the OCD. Navajo Refining Company shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the ground surface. Any pressure that causes new fractures or propagation in existing fractures or causes damage to the system shall be reported to OCD within 24 hours of discovery.

The Director of the OCD may authorize an increase in injection pressure upon demonstration by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formation. Such demonstration shall consist of a valid step-rate test run in accordance with and acceptable to the OCD.

E. Mechanical Integrity Testing (MIT):

The owner/operator shall complete an annual casing-tubing annulus pressure test from the surface to the approved injection depth and below the depth of fresh ground water (< 10,000 ppm TDS) to assess casing and tubing integrity. The MIT shall consist of a 30-minute test at a minimum pressure from 300 to 500 psig measured at the surface. A Bradenhead test(s) shall also be performed annually along with the casing-tubing annulus test. A Bradenhead test(s) shall be performed in all annular spaces including surface casing if not cemented.

The owner/operator shall complete an annual pressure fall-off test to monitor the pressure buildup in the injection zone. The well shall be shut down for a period sufficient to conduct the test and shall be submitted to the OCD in the annual report (see Section 22K (11)).

All well testing shall be performed annually or shall also be performed whenever the tubing is pulled or the packer reseated or when the injection formation will be isolated from the casing/tubing annuals.

The operator shall notify the supervisor of the Santa Fe Office of the Division of the date, time and time of the installation of disposal equipment and of any MIT so that it may be inspected and witnessed.

1. General Requirements:

   a. If the testing requires a packer then casing-tubing annulus must be loaded with inert fluid 24 hours prior to testing.
   b. Have manpower and equipment available for pressure test. Wellhead shall be prepared for test and all valves and gauges should be in good working order.
   c. Pumps, tanks, external lines etc. must be isolated from the wellhead during test.
   d. A continuous recording pressure device with a maximum 4-hour clock shall be installed on the casing-tubing annulus. The pressure range shall not be greater than 500 psig. The operator must provide proof that the pressure-recording device has been calibrated within the past 6 months.
   e. A minimum of one pressure gauge shall be installed on the casing/tubing annulus.
   f. OCD must witness the beginning of test (putting chart on) and ending of test (removing chart). At the end of test, the operator may be required to bleed-off well pressure to demonstrate recorder and gauge response.
   g. The Operator shall supply the following information on the pressure chart that the inspector will file in the well records:
      1. Company Name, Well Name, API #, Legal Location.
      2. Test Procedure with "Pass/Fail" designation.
      3. Testing Media: Water, Gas, Oil, Etc.
      4. Date, time started and ending.
      5. Name (printed) and signature of company representative and OCD Inspector

2. Test Acceptance:

The OCD will use the following criteria in determining if a well has passed the Mechanical Integrity Test:

   a. Passes if Zero Bleed-Off during the test.
   b. Passes if Final Test Pressure is within ± 10% of Starting Pressure, if approved by the OCD inspector.
   c. Fails if any Final Test Pressure is greater than ± 10% of Starting Pressure. Operators must investigate for leaks and demonstrate that mechanical integrity of the well(s) by ensuring there are no leaks in the tubing, casing, or packer, and injected/produced fluids are confined within the piping and/or injection zones. Wells shall not resume operations until approved by OCD.

   Note: OCD recognizes that different operations, well designs, formation characteristics and field conditions may cause variations in the above procedures. If the operator wishes to make or discuss anticipate changes, please notify the OCD for approval. All operators are responsible to notify OCD of any procedure that may cause harm to the well system or formation. Please be advised that OCD approval does not relieve any operator of liability should operations result in pollution of surface water, groundwater, or the environment.

d. When the MIT is not witnessed by an OCD Representative and fails, the owner/operator shall notify the OCD within 24 hours after having knowledge of well MIT failure.

F. Loss of Mechanical Integrity: The operator shall report within 24 hours of discovery any failure of the casing, tubing or packer, or movement of fluids outside of the injection zone. The operator shall cease operations until proper repairs are made and receive OCD approval to re-start injection operations. In addition, any associated fresh ground water monitor wells, which exhibit anomalous static water levels, detection of elevated general chemistry constituents, public health issues, etc. shall be immediately reported to the OCD.

G. Injection Record Volumes and Pressures: The owner/operator shall submit quarterly reports of its disposal, operation and well workovers provided herein. The minimum, maximum, average flow waste injection volumes (including total volumes) and annular pressures of waste (oil field exempt/non-exempt non-hazardous waste) injected will be recorded monthly and submitted to the OCD Santa Fe Office on a quarterly basis.

The casing-tubing annulus shall contain fluid and be equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. Due to pressure fluctuations observed at Navajo's other two nearby Class I Injection Wells, WDW-3 shall be equipped with an expansion tank under constant 100 psig pressure connected to the casing-annulus and maintained under constant pressure. The expansion tank shall initially be filled half-full (250 gallon expansion tank) with an approved fluid to establish an equilibrium volume and fluid level. Weekly monitoring of fluid levels in the expansion tank coupled with documented additions/ removals of fluids into or out of the expansion tank is required to maintain the equilibrium volume. Any loss or gain of fluids in the expansion tank shall be recorded, and if significant, reported to the OCD within 24 hours of discovery. The owner/operator shall provide the following information on a quarterly basis: weekly expansion tank volume readings shall be provided in a table in the cover letter of each quarterly report. Navajo shall monitor, record and note any fluid volume additions or removals from the expansion tank on a quarterly basis. In addition, any well activity (i.e., plugging, changing injection intervals, etc.) shall be conducted in accordance with all applicable New Mexico Oil Conservation Division regulations.

H. Analysis of Injected Waste: Provide an analytical data or test results summary of the injection waste water with each annual report. The analytical testing shall be conducted on a quarterly basis with any exceedence reported to the OCD within 24 hours after having knowledge of an exceedence(s). Records shall be maintained at Navajo for the life of the well. The required analytical test methods are:

a. Aromatic and halogenated volatile hydrocarbon scan by EPA Method 8260C GC/MS. Semi-volatile Organics GC/MS EPA Method 8270B including 1 and 2-methylnaphthalene.
b. General water chemistry (Method 40 CFR 136.3) to include calcium, potassium, magnesium, sodium, bicarbonate, carbonate, chloride, sulfate, total dissolved solids (TDS), pH, and conductivity.

c. Heavy metals using the ICP scan (EPA Method 6010) and Arsenic and Mercury using atomic absorption (EPA Methods 7060 and 7470).
d. EPA RCRA Characteristics for Ignitability, Corrosivity and Reactivity (40 CFR part 261 Subpart C Sections 261.21 – 261.23, July 1, 1992).

I. Area of Review (AOR): The operator shall report within 24 hours of discovery of any new wells, conduits, or any other device that penetrates or may penetrate the injection zone within a 1-mile radius from the Class I Well. Documentation of new wells shall be added to the existing AOR information in the well file within 30 days of the discovery.

J. Bonding or Financial Assurance: The operator shall maintain at a minimum, a one well plugging bond in the amount of $95,000 or the actual amount required to plug/abandon the well pursuant to OCD and WQCC rules and regulations. If warranted, OCD may require additional financial assurance to ensure adequate funding to plug and abandon the well or for any corrective actions.

K. Annual Report: All operators shall submit an annual report due on January 31 of each year. The report shall include the following information:

1. Cover sheet marked as "Annual Class I Well Report, name of operator, permit #, API# of well(s), date of report, and person submitting report.
2. Brief summary of Class I Well(s) operations including description and reason for any remedial or major work on the well with a copy of OCD Form C-103.
3. Production volumes as required above in 22.G. including a running total should be carried over to each year. The maximum and average injection pressure.
4. A copy of the chemical analysis as required above in 22.H.
5. A copy of any mechanical integrity test chart, including the type of test, i.e. duration, gauge pressure, etc.
6. Brief explanation describing deviations from normal production methods.
7. A copy of any expansion tank monitoring pressure, fluid removals/additions, well problems, drinking water impacts, leaks and spills reports.
8. If applicable, results of any groundwater monitoring.
9. An Area of Review (AOR) update summary.
10. Sign-off requirements pursuant to WQCC Subsection G 20.6.2.5101.
11. A summary with interpretation of MITs, Fall-Off Tests, etc., with conclusion(s) and recommendation(s).
12. Annual facility training.

23. Transfer of Discharge Permit: Pursuant to WQCC 20.6.2.5101.H the Navajo Refining Company and any new owner/operator shall provide written notice of any transfer of the permit in accordance with WQCC 20.6.2.3104 (Discharge Permit Required), 20.6.2.3111 (Transfer of Discharge Permit), 20.6.2.5101 (Discharge Permit and Other Requirements for Class I Non-Hazardous Waste Waste Disposal Wells, and Class III Wells). Both parties shall sign the notice 30 days prior to any transfer of ownership, control or possession of a Class I Well with an approved discharge permit. In addition, the purchaser shall include a written commitment to comply with the terms and conditions of the previously approved discharge permit. OCD will not transfer Class I Well operations until: correspondence between the transferor and transferee is submitted along with a signed

certification of acceptance by the transferee, and proper bonding or financial assurance is in place and approved by the division. OCD reserves the right to require a major modification of the permit during the transfer process.

24. Training: All personnel associated with operations at the Navajo Class I disposal well shall have appropriate training in accepting, processing, and disposing of Class I non exempt non-hazardous refinery waste to insure proper disposal. Provide training documentation in annual report under Section 22K(12).

25. Closure: The Navajo Refining Company shall notify the OCD when operations of the facility are to be discontinued for a period in excess of six months. Prior to closure of the facility, the operator shall submit for OCD approval, a closure plan including a completed C-103 form for plugging and abandonment of the well(s). Closure and waste disposal shall be in accordance with the statutes, rules and regulations in effect at the time of closure.

26. Certification: Navajo Refining Company, by the officer whose signature appears below, accepts this permit and agrees to comply with all submitted commitments, including these terms and conditions contained here. **Navajo Refining Company** further acknowledges that the OCD may, for good cause shown, as necessary to protect fresh water, public health, safety, and the environment, change the conditions and requirements of this permit administratively.

Conditions accepted by: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

Navajo Refining Company- print name above

JAMES RESINGER

Company Representative- print name

Company Representative- signature

Title VP - NAVAJO REFINERY

Date: 9/18/07

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Check Date		09/13/2007
Check Amount	$	4,500.00
Vendor No		5102035
Payment Document		2000023164
Company Code		1020

Invoice Date	Invoice Number	Description	Invoice Amount	Discount Amount	Net Amount
08/13/2007	081307		4,500.00	0.00	4,500.00

Payment document	Check number	Date	Currency	Payment amount
2000023164	1000009940	09/13/2007	USD	*********4,500.00*

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. 1000009940 dated 9/13/07

or cash received on _____ in the amount of $ 4500 00

from Navajo Refining Co LP

for WDW-3 UICCL-1-008-3 (CI-008)

Submitted by: Lawrence Romero Date: 9/24/07

Submitted to ASD by: Lawrence Romero Date: 9/24/07

Received in ASD by: _____ Date: _____

Filing Fee _____ New Facility _____ Renewal _____

Modification _____ Other _____

Organization Code 521.07 Applicable FY 2004

To be deposited in the Water Quality Management Fund.

Full Payment ✓ or Annual Increment _____

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

64-1278/611 1000009940
09/13/2007

PAY EXACTLY
*********4,500.00*USD
VOID AFTER 180 DAYS

PAY *** FOUR THOUSAND FIVE HUNDRED and 00 /100 USD***

TO THE ORDER OF WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Stephen D Wise
AUTHORIZED SIGNATURE

⑈1000009940⑈ ⑆111278833⑆ 29905321⑈

NAVAJO REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

April 25, 2007

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 First Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the first quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the 200 gallon tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2007 to March 31, 2007. We have disposed a total of 32,545,353 barrels of fluid into the two wells as of March 31, 2007. This is broken down as follows: 22,038,386 barrels into WDW-1 and 10,506,967 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Sr. Environmental Specialist

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	21,268,940
Jan-07	374	417	339	199	263	40	82	143	33	6,821	9,002	1,370	211,459	21,480,399
Feb-07	290	388	222	250	351	17	250	381	38	8,574	12,032	580	265,809	21,746,208
Mar-07	284	340	221	275	295	234	427	500	319	9,425	10,101	8,019	292,178	22,038,386
WDW-2													**Previous Quarter**	10,091,491
Jan-07	223	455	28	119	129	105	0	2	0	4,090	4,415	3,583	126,789	10,218,280
Feb-07	315	500	0	123	158	75	0	0	0	4,219	5,410	2,556	130,779	10,349,059
Mar-07	36	188	0	149	170	124	0	0	0	5,094	5,819	4,238	157,907	10,506,967
													Total Injected fluids:	32,545,353

Page 3260 of 5828

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 FIRST QUARTER WEEKLY WHAMS LEVEL TABLE

	1/1/07	1/8/07	1/15/07	1/22/07	1/29/07	2/5/07	2/12/07	2/19/07	2/26/07	3/5/07	3/12/07	3/19/07	3/26/07
WDW -1	300	300	300	300	200[1]	200	200	200	200	200	200	200	200
WDW-2	250	250	250	250	160[1]	160	160	160	160	160	160	160	160

[1] Removed material to ensure tanks don't overflow.

Page 3261 of 5828

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 (281) 530-5656 Fax (281) 530-5887

April 24, 2007

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj. Well Work Order : **0704309**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 1 sample on 4/17/2007 8:40:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 37.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Jeffrey L Croston

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Project: Inj. Well
Work Order: **0704309**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0704309-01	Inj. Well	Water		4/16/2007 13:30	4/17/2007 08:40	☐

e-Lab Analytical, Inc. **Date:** *April 24, 2007*

CLIENT: Navajo Refining Company
Project: Inj. Well
Work Order: 0704309

Case Narrative

pH sample was analyzed within 24 hours of collection.

Batch 22974 Metals MS/MSD was an unrelated sample.collection.

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **4/19/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	4/19/2007 5:03:37 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **4/19/2007**	Analyst: **ALR**
Aluminum	**2.63**		**1.00**	**mg/L**	100	4/20/2007 5:47:00 PM
Arsenic	**0.189**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Barium	**0.0462**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Beryllium	ND		0.00200	mg/L	1	4/20/2007 6:56:00 AM
Boron	**0.188**		**0.0200**	**mg/L**	1	4/20/2007 6:56:00 AM
Cadmium	ND		0.00200	mg/L	1	4/20/2007 6:56:00 AM
Calcium	**46.2**		**0.500**	**mg/L**	1	4/20/2007 6:56:00 AM
Chromium	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Cobalt	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Copper	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Iron	**0.286**		**0.200**	**mg/L**	1	4/20/2007 6:56:00 AM
Lead	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Magnesium	**43.0**		**1.00**	**mg/L**	5	4/23/2007 3:50:00 PM
Manganese	**0.0249**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Molybdenum	**0.0890**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Nickel	**0.00511**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Potassium	**82.8**		**1.00**	**mg/L**	5	4/23/2007 3:50:00 PM
Selenium	**0.170**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Silver	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Sodium	**2,000**		**20.0**	**mg/L**	100	4/20/2007 5:47:00 PM
Vanadium	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Zinc	**0.0201**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **4/20/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2,4,5-Trichlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2,4,6-Trichlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Methylnaphthalene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Methylphenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Nitrophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
3&4-Methylphenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
3-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
4-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
4-Nitrophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Acenaphthene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Acenaphthylene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Anthracene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Benz(a)anthracene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Benzidine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Hexachloroethane	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Indeno(1,2,3-cd)pyrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Isophorone	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodi-n-propylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodimethylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodiphenylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Naphthalene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Nitrobenzene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Pentachlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Phenanthrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Phenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Pyrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Surr: 2,4,6-Tribromophenol	*75.6*		*42-124*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 2-Fluorobiphenyl	*69.1*		*48-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 2-Fluorophenol	*65.6*		*20-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 4-Terphenyl-d14	*72.1*		*51-135*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: Nitrobenzene-d5	*76.7*		*41-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: Phenol-d6	*70.7*		*20-120*	*%REC*	1	4/20/2007 3:25:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
2-Butanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	4/20/2007 4:54:00 PM
2-Hexanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Acetone	**130**		**10**	**µg/L**	1	4/20/2007 4:54:00 PM
Benzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromoform	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromomethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Carbon disulfide	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM

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e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloroform	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Ethylbenzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
m,p-Xylene	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Methylene chloride	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Styrene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Toluene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Trichloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Vinyl acetate	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Vinyl chloride	ND		2.0	µg/L	1	4/20/2007 4:54:00 PM
Xylenes, Total	ND		15	µg/L	1	4/20/2007 4:54:00 PM
Surr: 1,2-Dichloroethane-d4	*98.9*		*70-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: 4-Bromofluorobenzene	*100*		*72-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: Dibromofluoromethane	*97.6*		*71-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: Toluene-d8	*101*		*75-125*	*%REC*	1	4/20/2007 4:54:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	4/18/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	4/18/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **LMD**
Chloride	**953**		**25.0**	**mg/L**	50	4/19/2007 12:47:00 AM
Sulfate	**2,420**		**50.0**	**mg/L**	50	4/19/2007 12:47:00 AM
Surr: Selenate (surr)	*100*		*85-115*	*%REC*	50	4/19/2007 12:47:00 AM
ALKALINITY			**E310.1**			Analyst: **PV**
Alkalinity, Bicarbonate (As CaCO3)	**846**		**5.00**	**mg/L**	1	4/18/2007
Alkalinity, Carbonate (As CaCO3)	**124**		**5.00**	**mg/L**	1	4/18/2007
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	4/18/2007
Alkalinity, Total (As CaCO3)	**970**		**5.00**	**mg/L**	1	4/18/2007
CONDUCTIVITY			**E120.1**			Analyst: **PV**
Specific Conductance	**8,030**		**1.00**	**µmhos/cm**	1	4/17/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>200**		**50.0**	**°F**	1	4/19/2007

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e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	**8.72**	H	**0.100**	**pH units**	1	4/17/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	**6,740**		**10.0**	**mg/L**	1	4/17/2007

Qualifiers:

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P - Dual Column results percent difference > 40%
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e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

Date: *Apr 24 2007*

QC BATCH REPORT

Batch ID: **22964** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:27**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095860** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:29**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095861** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00548	0.00020	0.005	0	110	85-115	0			

LCSD Sample ID: **GLCSDW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:31**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095862** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00553	0.00020	0.005	0	111	85-115	0.00548	0.908	20	

MS Sample ID: **0704314-01DMS** Units: **mg/L** Analysis Date: **04/19/07 16:41**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095865** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00536	0.00020	0.005	-0.000016	108	85-115	0			

MSD Sample ID: **0704314-01DMSD** Units: **mg/L** Analysis Date: **04/19/07 16:43**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095866** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00551	0.00020	0.005	-0.000016	111	85-115	0.00536	2.76	20	

DUP Sample ID: **0704314-01DDUP** Units: **mg/L** Analysis Date: **04/19/07 16:35**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095864** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000016	0	20	

The following samples were analyzed in this batch: 0704309-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW2-041907** Units: **mg/L** Analysis Date: **04/20/07 6:43**
Client ID: Run ID: **ICPMS02_070419A** SeqNo: **1096355** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	0.153	0.50								J
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	0.0004649	0.0050								J
Iron	ND	0.20								
Lead	ND	0.0050								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

MBLK Sample ID: **MBLKW2-041907** Units: **mg/L** Analysis Date: **04/20/07 17:35**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097433** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002384	0.010								J
Magnesium	ND	0.20								
Potassium	ND	0.20								
Sodium	ND	0.20								

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW2-041907** Units: **mg/L** Analysis Date: **04/20/07 6:50**
Client ID: Run ID: **ICPMS02_070419A** SeqNo: **1096356** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04694	0.0050	0.05	0	93.9	80-120	0			
Barium	0.0492	0.0050	0.05	0	98.4	80-120	0			
Beryllium	0.04661	0.0020	0.05	0	93.2	80-120	0			
Boron	0.4886	0.020	0.5	0	97.7	80-120	0			
Cadmium	0.04819	0.0020	0.05	0	96.4	80-120	0			
Calcium	4.432	0.50	5	0	88.6	80-120	0			
Chromium	0.04374	0.0050	0.05	0	87.5	80-120	0			
Cobalt	0.04761	0.0050	0.05	0	95.2	80-120	0			
Copper	0.04604	0.0050	0.05	0	92.1	80-120	0			
Iron	4.78	0.20	5	0	95.6	80-120	0			
Lead	0.04708	0.0050	0.05	0	94.2	80-120	0			
Manganese	0.04577	0.0050	0.05	0	91.5	80-120	0			
Molybdenum	0.04668	0.0050	0.05	0	93.4	80-120	0			
Nickel	0.04595	0.0050	0.05	0	91.9	80-120	0			
Selenium	0.04865	0.0050	0.05	0	97.3	80-120	0			
Silver	0.04866	0.0050	0.05	0	97.3	80-120	0			
Vanadium	0.04467	0.0050	0.05	0	89.3	80-119	0			
Zinc	0.04782	0.0050	0.05	0	95.6	80-118	0			

LCS Sample ID: **MLCSW2-041907** Units: **mg/L** Analysis Date: **04/20/07 17:41**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097434** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.04611	0.010	0.05	0	92.2	80-120	0			
Magnesium	4.742	0.20	5	0	94.8	80-120	0			
Potassium	4.78	0.20	5	0	95.6	80-120	0			
Sodium	4.681	0.20	5	0	93.6	80-120	0			

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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/20/07 23:33**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097709** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06546	0.0050	0.05	0.01224	106	80-120	0			
Barium	0.07401	0.0050	0.05	0.0219	104	80-120	0			
Cadmium	0.04766	0.0020	0.05	0.0003782	94.6	80-120	0			
Calcium	788.7	0.50	5	784.1	92	80-120	0			EO
Chromium	0.0485	0.0050	0.05	0.0001179	96.8	80-120	0			
Cobalt	0.04993	0.0050	0.05	-4.907E-05	100	80-120	0			
Copper	0.04552	0.0050	0.05	0.0001244	90.8	80-120	0			
Iron	7.65	0.20	5	2.781	97.4	80-120	0			
Lead	0.05079	0.0050	0.05	0.0001332	101	80-120	0			
Manganese	0.3215	0.0050	0.05	0.2683	106	80-120	0			O
Molybdenum	0.0586	0.0050	0.05	0.007029	103	80-120	0			
Nickel	0.04825	0.0050	0.05	0.0035	89.5	80-120	0			
Selenium	0.05793	0.0050	0.05	0.00277	110	80-120	0			
Silver	0.04486	0.0050	0.05	-0.0003654	90.5	80-120	0			
Sodium	ND	0.20	5	0	0	80-120	0			SX
Zinc	0.05858	0.0050	0.05	0.01406	89	80-118	0			

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/23/07 16:38**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098464** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04792	0.0040	0.05	-0.0001226	96.1	80-120	0			
Boron	1.713	0.040	0.5	1.21	100	80-120	0			
Vanadium	0.05208	0.010	0.05	-0.0005382	105	80-119	0			

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/23/07 18:54**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098605** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06834	0.020	0.05	0.01825	100	80-120	0			
Magnesium	258	0.40	5	259.2	-24	80-120	0			SEO
Potassium	39.84	0.40	5	35.54	86	80-120	0			O

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/20/07 23:39**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097710** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06506	0.0050	0.05	0.01224	106	80-120	0.06546	0.613	15	
Barium	0.07081	0.0050	0.05	0.0219	97.8	80-120	0.07401	4.42	15	
Cadmium	0.04533	0.0020	0.05	0.0003782	89.9	80-120	0.04766	5.01	15	
Calcium	751.3	0.50	5	784.1	-656	80-120	788.7	4.86	15	SEO
Chromium	0.04705	0.0050	0.05	0.0001179	93.9	80-120	0.0485	3.04	15	
Cobalt	0.04893	0.0050	0.05	-4.907E-05	98	80-120	0.04993	2.02	15	
Copper	0.04465	0.0050	0.05	0.0001244	89.1	80-120	0.04552	1.93	15	
Iron	7.313	0.20	5	2.781	90.6	80-120	7.65	4.5	15	
Lead	0.04983	0.0050	0.05	0.0001332	99.4	80-120	0.05079	1.91	15	
Manganese	0.3116	0.0050	0.05	0.2683	86.6	80-120	0.3215	3.13	15	O
Molybdenum	0.0569	0.0050	0.05	0.007029	99.7	80-120	0.0586	2.94	15	
Nickel	0.04624	0.0050	0.05	0.0035	85.5	80-120	0.04825	4.25	15	
Selenium	0.05633	0.0050	0.05	0.00277	107	80-120	0.05793	2.8	15	
Silver	0.04482	0.0050	0.05	-0.0003654	90.4	80-120	0.04486	0.0892	15	
Sodium	ND	0.20	5	0	0	80-120	0	0	15	SX
Zinc	0.04966	0.0050	0.05	0.01406	71.2	80-118	0.05858	16.5	15	SR

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/23/07 16:51**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098465** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04966	0.0040	0.05	-0.0001226	99.6	80-120	0.04792	3.57	15	
Boron	1.749	0.040	0.5	1.21	108	80-120	1.713	2.11	15	
Vanadium	0.05126	0.010	0.05	-0.0005382	104	80-119	0.05208	1.59	15	

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/23/07 19:06**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098606** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06672	0.020	0.05	0.01825	96.9	80-120	0.06834	2.4	15	
Magnesium	252.2	0.40	5	259.2	-140	80-120	258	2.27	15	SEO
Potassium	38.96	0.40	5	35.54	68.4	80-120	39.84	2.23	15	SO

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/20/07 18:18**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097442** Prep Date: **4/19/2007** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	746.2	50	0	0	0	0-0	738.2	1.08	25	
Magnesium	243.9	20	0	0	0	0-0	240.3	1.49	25	
Sodium	2752	20	0	0	0	0-0	2751	0.0363	25	

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/20/07 23:21**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097707** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.01246	0.0050	0	0	0	0-0	0.01224	1.78	25	
Barium	0.02203	0.0050	0	0	0	0-0	0.0219	0.592	25	
Cadmium	0.0002431	0.0020	0	0	0	0-0	0.0003782	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0001179	0	25	
Cobalt	ND	0.0050	0	0	0	0-0	-4.907E-05	0	25	
Copper	ND	0.0050	0	0	0	0-0	0.0001244	0	25	
Iron	2.77	0.20	0	0	0	0-0	2.781	0.396	25	
Lead	ND	0.0050	0	0	0	0-0	0.0001332	0	25	
Manganese	0.2679	0.0050	0	0	0	0-0	0.2683	0.149	25	
Molybdenum	0.00692	0.0050	0	0	0	0-0	0.007029	1.56	25	
Nickel	0.003014	0.0050	0	0	0	0-0	0.0035	0	25	J
Selenium	0.002389	0.0050	0	0	0	0-0	0.00277	0	25	J
Silver	ND	0.0050	0	0	0	0-0	-0.0003654	0	25	
Zinc	0.005127	0.0050	0	0	0	0-0	0.01406	93.1	25	R

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/23/07 16:07**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098409** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01785	0.020	0	0	0	0-0	0.01825	0	25	J
Beryllium	ND	0.0040	0	0	0	0-0	-0.0001226	0	25	
Boron	1.185	0.040	0	0	0	0-0	1.21	2.14	25	
Potassium	34.9	0.40	0	0	0	0-0	35.54	1.82	25	
Vanadium	ND	0.010	0	0	0	0-0	-0.0005382	0	25	

The following samples were analyzed in this batch: 0704309-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:09**

Client ID: Run ID: **SV-3_070420A** SeqNo: **1097700** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*76.15*	5.0	*100*	0	*76.1*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*81.66*	5.0	*100*	0	*81.7*	*48-120*	0			
Surr: 2-Fluorophenol	*74.34*	5.0	*100*	0	*74.3*	*20-120*	0			
Surr: 4-Terphenyl-d14	*87.27*	5.0	*100*	0	*87.3*	*51-135*	0			
Surr: Nitrobenzene-d5	*81.15*	5.0	*100*	0	*81.2*	*41-120*	0			
Surr: Phenol-d6	*76.4*	5.0	*100*	0	*76.4*	*20-120*	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID: **SLCSW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:34**
Client ID: Run ID: **SV-3_070420A** SeqNo: **1097701** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	40.98	5.0	50	0	82	54-118	0			
2,4,5-Trichlorophenol	82.74	5.0	100	0	82.7	52-115	0			
2,4,6-Trichlorophenol	85.08	5.0	100	0	85.1	56-115	0			
2-Methylnaphthalene	43.85	5.0	50	0	87.7	46-117	0			
2-Methylphenol	81.32	5.0	100	0	81.3	53-115	0			
2-Nitroaniline	45.33	5.0	50	0	90.7	53-123	0			
2-Nitrophenol	79.93	5.0	100	0	79.9	53-115	0			
3&4-Methylphenol	118.5	5.0	150	0	79	48-115	0			
3-Nitroaniline	36.53	5.0	50	0	73.1	26-115	0			
4-Nitroaniline	41.73	5.0	50	0	83.5	47-115	0			
4-Nitrophenol	94.88	5.0	100	0	94.9	26-133	0			
Acenaphthene	43.38	5.0	50	0	86.8	57-115	0			
Acenaphthylene	45.78	5.0	50	0	91.6	57-118	0			
Aniline	32.26	5.0	50	0	64.5	36-115	0			
Anthracene	44.87	5.0	50	0	89.7	65-115	0			
Benz(a)anthracene	38.95	5.0	50	0	77.9	53-115	0			
Benzidine	15.57	5.0	50	0	31.1	10-115	0			
Hexachloroethane	41.99	5.0	50	0	84	54-115	0			
Indeno(1,2,3-cd)pyrene	42.04	5.0	50	0	84.1	51-115	0			
Isophorone	41.19	5.0	50	0	82.4	55-115	0			
N-Nitrosodi-n-propylamine	40.8	5.0	50	0	81.6	55-115	0			
N-Nitrosodimethylamine	37.08	5.0	50	0	74.2	42-115	0			
N-Nitrosodiphenylamine	44.27	5.0	50	0	88.5	52-115	0			
Naphthalene	42.77	5.0	50	0	85.5	55-115	0			
Nitrobenzene	40.53	5.0	50	0	81.1	40-124	0			
Pentachlorophenol	90.61	5.0	100	0	90.6	45-125	0			
Phenanthrene	44.33	5.0	50	0	88.7	57-115	0			
Phenol	77.82	5.0	100	0	77.8	38-115	0			
Pyrene	41.57	5.0	50	0	83.1	51-115	0			
Surr: 2,4,6-Tribromophenol	*84.37*	5.0	*100*	0	*84.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*83.81*	5.0	*100*	0	*83.8*	*48-120*	0			
Surr: 2-Fluorophenol	*76*	5.0	*100*	0	*76*	*20-120*	0			
Surr: 4-Terphenyl-d14	*78.04*	5.0	*100*	0	*78*	*51-135*	0			
Surr: Nitrobenzene-d5	*81.76*	5.0	*100*	0	*81.8*	*41-120*	0			
Surr: Phenol-d6	*79.46*	5.0	*100*	0	*79.5*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:58**

Client ID: Run ID: **SV-3_070420A** SeqNo: **1097702** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	42.92	5.0	50	0	85.8	54-118	40.98	4.62	20	
2,4,5-Trichlorophenol	89.79	5.0	100	0	89.8	52-115	82.74	8.17	20	
2,4,6-Trichlorophenol	89.01	5.0	100	0	89	56-115	85.08	4.52	20	
2-Methylnaphthalene	45.67	5.0	50	0	91.3	46-117	43.85	4.07	20	
2-Methylphenol	85.68	5.0	100	0	85.7	53-115	81.32	5.22	20	
2-Nitroaniline	47.16	5.0	50	0	94.3	53-123	45.33	3.98	20	
2-Nitrophenol	86.43	5.0	100	0	86.4	53-115	79.93	7.81	20	
3&4-Methylphenol	126.7	5.0	150	0	84.5	48-115	118.5	6.72	20	
3-Nitroaniline	37.83	5.0	50	0	75.7	26-115	36.53	3.49	20	
4-Nitroaniline	42.27	5.0	50	0	84.5	47-115	41.73	1.29	20	
4-Nitrophenol	94.83	5.0	100	0	94.8	26-133	94.88	0.048	20	
Acenaphthene	45.32	5.0	50	0	90.6	57-115	43.38	4.39	20	
Acenaphthylene	48.52	5.0	50	0	97	57-118	45.78	5.82	20	
Aniline	36.05	5.0	50	0	72.1	36-115	32.26	11.1	20	
Anthracene	45.5	5.0	50	0	91	65-115	44.87	1.38	20	
Benz(a)anthracene	40.58	5.0	50	0	81.2	53-115	38.95	4.11	20	
Benzidine	18.35	5.0	50	0	36.7	10-115	15.57	16.4	20	
Hexachloroethane	44.99	5.0	50	0	90	54-115	41.99	6.9	20	
Indeno(1,2,3-cd)pyrene	44	5.0	50	0	88	51-115	42.04	4.55	20	
Isophorone	42.55	5.0	50	0	85.1	55-115	41.19	3.25	20	
N-Nitrosodi-n-propylamine	43.4	5.0	50	0	86.8	55-115	40.8	6.18	20	
N-Nitrosodimethylamine	41.08	5.0	50	0	82.2	42-115	37.08	10.2	20	
N-Nitrosodiphenylamine	46.04	5.0	50	0	92.1	52-115	44.27	3.92	20	
Naphthalene	45.39	5.0	50	0	90.8	55-115	42.77	5.93	20	
Nitrobenzene	42.89	5.0	50	0	85.8	40-124	40.53	5.65	20	
Pentachlorophenol	90.27	5.0	100	0	90.3	45-125	90.61	0.378	20	
Phenanthrene	45.7	5.0	50	0	91.4	57-115	44.33	3.04	20	
Phenol	82.62	5.0	100	0	82.6	38-115	77.82	5.98	20	
Pyrene	42.88	5.0	50	0	85.8	51-115	41.57	3.09	20	
Surr: 2,4,6-Tribromophenol	*81.47*	5.0	*100*	0	*81.5*	*42-124*	84.37	*3.5*	*20*	
Surr: 2-Fluorobiphenyl	*80.25*	5.0	*100*	0	*80.2*	*48-120*	83.81	*4.34*	*20*	
Surr: 2-Fluorophenol	*75.96*	5.0	*100*	0	*76*	*20-120*	76	*0.0635*	*20*	
Surr: 4-Terphenyl-d14	*74.62*	5.0	*100*	0	*74.6*	*51-135*	78.04	*4.48*	*20*	
Surr: Nitrobenzene-d5	*80.37*	5.0	*100*	0	*80.4*	*41-120*	81.76	*1.71*	*20*	
Surr: Phenol-d6	*83.42*	5.0	*100*	0	*83.4*	*20-120*	79.46	*4.86*	*20*	

The following samples were analyzed in this batch: 0704309-01D

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-042007** Units: **µg/L** Analysis Date: **04/20/07 11:51**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096817** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*48.6*	5.0	*50*	0	*97.2*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*50.22*	5.0	*50*	0	*100*	*72-125*	0			
Surr: Dibromofluoromethane	*49.42*	5.0	*50*	0	*98.8*	*71-125*	0			
Surr: Toluene-d8	*50.95*	5.0	*50*	0	*102*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-042007** Units: **µg/L** Analysis Date: **04/20/07 11:00**
Client ID: Run ID: **VOA1_070420A** SeqNo: **1096816** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.57	5.0	50	0	97.1	80-120	0			
1,1,2,2-Tetrachloroethane	50.18	5.0	50	0	100	72-120	0			
1,1,2-Trichloroethane	50.68	5.0	50	0	101	80-120	0			
1,1-Dichloroethane	48.74	5.0	50	0	97.5	76-120	0			
1,1-Dichloroethene	47.27	5.0	50	0	94.5	73-124	0			
1,2-Dichloroethane	49.42	5.0	50	0	98.8	78-120	0			
2-Butanone	105.8	10	100	0	106	58-132	0			
2-Chloroethyl vinyl ether	105.8	10	100	0	106	74-120	0			
2-Hexanone	103.7	10	100	0	104	61-130	0			
4-Methyl-2-pentanone	107.1	10	100	0	107	65-127	0			
Acetone	98.11	10	100	0	98.1	59-137	0			
Benzene	48.83	5.0	50	0	97.7	73-121	0			
Bromodichloromethane	48.22	5.0	50	0	96.4	80-120	0			
Bromoform	46.52	5.0	50	0	93	79-120	0			
Bromomethane	47.32	5.0	50	0	94.6	66-137	0			
Carbon disulfide	94.62	10	100	0	94.6	68-141	0			
Carbon tetrachloride	46.42	5.0	50	0	92.8	75-124	0			
Chlorobenzene	48.72	5.0	50	0	97.4	80-120	0			
Chloroethane	47.15	5.0	50	0	94.3	76-121	0			
Chloroform	48.82	5.0	50	0	97.6	80-120	0			
Chloromethane	42.92	5.0	50	0	85.8	67-123	0			
cis-1,3-Dichloropropene	49.93	5.0	50	0	99.9	80-120	0			
Dibromochloromethane	50.55	5.0	50	0	101	80-120	0			
Ethylbenzene	48.19	5.0	50	0	96.4	80-120	0			
m,p-Xylene	95.22	10	100	0	95.2	78-121	0			
Methylene chloride	46.36	10	50	0	92.7	65-133	0			
Styrene	49.71	5.0	50	0	99.4	80-120	0			
Tetrachloroethene	47.21	5.0	50	0	94.4	79-120	0			
Toluene	47.98	5.0	50	0	96	80-120	0			
trans-1,3-Dichloropropene	50.69	5.0	50	0	101	80-120	0			
Trichloroethene	48.41	5.0	50	0	96.8	80-120	0			
Vinyl acetate	108.6	10	100	0	109	67-139	0			
Vinyl chloride	43.31	2.0	50	0	86.6	74-122	0			
Xylenes, Total	143.3	15	150	0	95.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	*50.26*	5.0	*50*	0	*101*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*51.33*	5.0	*50*	0	*103*	*72-125*	0			
Surr: Dibromofluoromethane	*50.99*	5.0	*50*	0	*102*	*71-125*	0			
Surr: Toluene-d8	*51.95*	5.0	*50*	0	*104*	*75-125*	0			

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0704367-01AMS** Units: **µg/L** Analysis Date: **04/20/07 12:41**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096823** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.57	5.0	50	0	93.1	80-120		0		
1,1,2,2-Tetrachloroethane	51.33	5.0	50	0	103	72-120		0		
1,1,2-Trichloroethane	51.95	5.0	50	0	104	80-120		0		
1,1-Dichloroethane	48.37	5.0	50	0	96.7	76-120		0		
1,1-Dichloroethene	45.82	5.0	50	0	91.6	73-124		0		
1,2-Dichloroethane	50.11	5.0	50	0	100	78-120		0		
2-Butanone	110.2	10	100	0	110	58-132		0		
2-Chloroethyl vinyl ether	109.7	10	100	0	110	74-120		0		
2-Hexanone	111.7	10	100	0	112	61-130		0		
4-Methyl-2-pentanone	112.1	10	100	0	112	65-127		0		
Acetone	103.2	10	100	0.8797	102	59-137		0		
Benzene	47.63	5.0	50	0	95.3	73-121		0		
Bromodichloromethane	49.95	5.0	50	0	99.9	80-120		0		
Bromoform	47.58	5.0	50	0	95.2	79-120		0		
Bromomethane	43.93	5.0	50	0	87.9	66-137		0		
Carbon disulfide	90.67	10	100	0	90.7	68-141		0		
Carbon tetrachloride	44.69	5.0	50	0	89.4	75-124		0		
Chlorobenzene	47.56	5.0	50	0	95.1	80-120		0		
Chloroethane	43.04	5.0	50	0	86.1	76-121		0		
Chloroform	49.18	5.0	50	0	98.4	80-120		0		
Chloromethane	41.05	5.0	50	0	82.1	67-123		0		
cis-1,3-Dichloropropene	50.92	5.0	50	0	102	80-120		0		
Dibromochloromethane	52.39	5.0	50	0	105	80-120		0		
Ethylbenzene	46.46	5.0	50	0	92.9	80-120		0		
m,p-Xylene	94.12	10	100	0	94.1	78-121		0		
Methylene chloride	45.96	10	50	0	91.9	65-133		0		
Styrene	48.39	5.0	50	0	96.8	80-120		0		
Tetrachloroethene	45.71	5.0	50	0	91.4	79-120		0		
Toluene	46.08	5.0	50	0	92.2	80-120		0		
trans-1,3-Dichloropropene	50.97	5.0	50	0	102	80-120		0		
Trichloroethene	47.15	5.0	50	0	94.3	80-120		0		
Vinyl acetate	111.9	10	100	0	112	67-139		0		
Vinyl chloride	40.33	2.0	50	0	80.7	74-122		0		
Xylenes, Total	141	15	150	0	94	80-120		0		
Surr: 1,2-Dichloroethane-d4	*50.37*	5.0	*50*	0	*101*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*50.31*	5.0	*50*	0	*101*	*72-125*		0		
Surr: Dibromofluoromethane	*51.6*	5.0	*50*	0	*103*	*71-125*		0		
Surr: Toluene-d8	*51.99*	5.0	*50*	0	*104*	*75-125*		0		

ND - Not Detected at the Reporting Limit
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0704367-01AMSD** Units: **µg/L** Analysis Date: **04/20/07 13:06**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096824** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	43.74	5.0	50	0	87.5	80-120	46.57	6.27	20	
1,1,2,2-Tetrachloroethane	53.33	5.0	50	0	107	72-120	51.33	3.81	20	
1,1,2-Trichloroethane	52.88	5.0	50	0	106	80-120	51.95	1.78	20	
1,1-Dichloroethane	47.37	5.0	50	0	94.7	76-120	48.37	2.09	20	
1,1-Dichloroethene	42.93	5.0	50	0	85.9	73-124	45.82	6.51	20	
1,2-Dichloroethane	48.84	5.0	50	0	97.7	78-120	50.11	2.57	20	
2-Butanone	110.9	10	100	0	111	58-132	110.2	0.693	20	
2-Chloroethyl vinyl ether	111.3	10	100	0	111	74-120	109.7	1.44	20	
2-Hexanone	113	10	100	0	113	61-130	111.7	1.13	20	
4-Methyl-2-pentanone	116.9	10	100	0	117	65-127	112.1	4.23	20	
Acetone	99.56	10	100	0.8797	98.7	59-137	103.2	3.57	20	
Benzene	46.66	5.0	50	0	93.3	73-121	47.63	2.07	20	
Bromodichloromethane	50.08	5.0	50	0	100	80-120	49.95	0.258	20	
Bromoform	48.99	5.0	50	0	98	79-120	47.58	2.93	20	
Bromomethane	45.06	5.0	50	0	90.1	66-137	43.93	2.54	20	
Carbon disulfide	86.9	10	100	0	86.9	68-141	90.67	4.25	20	
Carbon tetrachloride	41.85	5.0	50	0	83.7	75-124	44.69	6.56	20	
Chlorobenzene	46.5	5.0	50	0	93	80-120	47.56	2.24	20	
Chloroethane	41.73	5.0	50	0	83.5	76-121	43.04	3.07	20	
Chloroform	48.58	5.0	50	0	97.2	80-120	49.18	1.21	20	
Chloromethane	40.89	5.0	50	0	81.8	67-123	41.05	0.403	20	
cis-1,3-Dichloropropene	50.77	5.0	50	0	102	80-120	50.92	0.297	20	
Dibromochloromethane	52.86	5.0	50	0	106	80-120	52.39	0.889	20	
Ethylbenzene	43.35	5.0	50	0	86.7	80-120	46.46	6.94	20	
m,p-Xylene	91.01	10	100	0	91	78-121	94.12	3.37	20	
Methylene chloride	46.2	10	50	0	92.4	65-133	45.96	0.53	20	
Styrene	47.29	5.0	50	0	94.6	80-120	48.39	2.29	20	
Tetrachloroethene	42.07	5.0	50	0	84.1	79-120	45.71	8.3	20	
Toluene	45.9	5.0	50	0	91.8	80-120	46.08	0.395	20	
trans-1,3-Dichloropropene	52.11	5.0	50	0	104	80-120	50.97	2.22	20	
Trichloroethene	45.17	5.0	50	0	90.3	80-120	47.15	4.29	20	
Vinyl acetate	108.9	10	100	0	109	67-139	111.9	2.66	20	
Vinyl chloride	38.59	2.0	50	0	77.2	74-122	40.33	4.41	20	
Xylenes, Total	135.2	15	150	0	90.1	80-120	141	4.21	20	
Surr: 1,2-Dichloroethane-d4	*49.77*	5.0	*50*	0	*99.5*	*70-125*	50.37	*1.18*	*20*	
Surr: 4-Bromofluorobenzene	*49.34*	5.0	*50*	0	*98.7*	*72-125*	50.31	*1.96*	*20*	
Surr: Dibromofluoromethane	*50.41*	5.0	*50*	0	*101*	*71-125*	51.6	*2.33*	*20*	
Surr: Toluene-d8	*50.95*	5.0	*50*	0	*102*	*75-125*	51.99	*2.03*	*20*	

The following samples were analyzed in this batch: 0704309-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48864** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-041707** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093574** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-041707** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093575** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1410	1.0	1413	0	99.8	80-120		0		

DUP Sample ID: **0704241-01BDUP** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093581** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	42.93	1.0	0	0	0	0-0	43.13	0.465	20	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48869** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-041707** Units: **pH units** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417G** SeqNo: **1093613** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.02	0.10	6	0	100	90-110	0			

DUP Sample ID: **0704322-01ADUP** Units: **pH units** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417G** SeqNo: **1093616** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.71	0.10	0	0	0	0-0	7.69	0.26	20	H

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48897** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094263** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094264** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	971	10	1000	0	97.1	85-115		0		

DUP Sample ID: **0704293-18CDUP** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094254** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1422	10	0	0	0	0-0	1347	5.42	20	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48926** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-041807** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094851** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-041807** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094852** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1006	5.0	1000	0	101	80-120	0			

DUP Sample ID: **0704260-04FDUP** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094866** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	371.5	5.0	0	0	0	0-0	356	4.26	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	371.5	5.0	0	0	0	0-0	356	4.26	20	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48945** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-041907** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095481** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID: **0704158-01EDUP** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095487** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

DUP Sample ID: **0704338-01ADUP** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095488** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48972** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-041707** Units: **mg/L** Analysis Date: **04/17/07 21:23**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096082** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Selenate (surr)	*4.803*	0.10	*5*	0	*96.1*	*85-115*		0		

LCS Sample ID: **WLCSW1-041707/** Units: **mg/L** Analysis Date: **04/17/07 21:47**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096083** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.12	0.50	20	0	101	90-110		0		
Sulfate	20.19	1.0	20	0	101	90-110		0		
Surr: Selenate (surr)	*5.152*	0.10	*5*	0	*103*	*85-115*		0		

MS Sample ID: **0704301-01FMS** Units: **mg/L** Analysis Date: **04/17/07 23:00**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096086** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	53.34	0.50	10	44.17	91.7	80-120		0		EO
Sulfate	87.46	1.0	10	78.84	86.2	80-120		0		EO
Surr: Selenate (surr)	*4.848*	0.10	*5*	0	*97*	*85-115*		0		

MSD Sample ID: **0704301-01FMSD** Units: **mg/L** Analysis Date: **04/17/07 23:25**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096087** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	53.3	0.50	10	44.17	91.3	80-120	53.34	0.0731	20	EO
Sulfate	87.29	1.0	10	78.84	84.5	80-120	87.46	0.195	20	EO
Surr: Selenate (surr)	*4.833*	0.10	*5*	0	*96.7*	*85-115*	4.848	*0.31*	*20*	

DUP Sample ID: **0704301-01FDUP** Units: **mg/L** Analysis Date: **04/17/07 22:36**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096085** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	44.13	0.50	0	0	0	0-0	44.17	0.0861	20	
Sulfate	78.82	1.0	0	0	0	0-0	78.84	0.019	20	E
Surr: Selenate (surr)	*4.843*	0.10	*5*	0	*96.9*	*85-115*	4.847	*0.0826*	*20*	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48972** Instrument ID **ICS3000** Method: **E300**

DUP Sample ID: **0704301-01FDUP** Units: **mg/L** Analysis Date: **04/18/07 9:33**

Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096131** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	43.19	5.0	0	0	0	0-0	43.34	0.337	20	
Sulfate	76.4	10	0	0	0	0-0	76.35	0.0615	20	
Surr: Selenate (surr)	*48.09*	1.0	*50*	0	*96.2*	*85-115*	47.96	*0.273*	*20*	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab
QUALITY • INTEGRITY • SERVICE

☐ e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

The Chain of Custody is a Legal Document. All information must be completed accurately.

☐ e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 0704309

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Well	A	Injection Well Quarterly
Work Order		Project Number		B	
Company Name	Navajo Refining	Bill To Company	Same	C	
Send Report To	Jeff Byrd	Invoice Attn		D	
Address		Address		E	
				F	
City/State/Zip	Artesia	City/State/Zip		G	
Phone		Phone		H	
Fax		Fax		I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Well	4/16/07	1330	L	Y	8	X										
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Jeff Byrd

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Other ☐ STD-10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour

Results Due Date:

Relinquished by: Jeff Byrd	Date: 4/16/07	Time: 1615	Received by:	Notes:	
Relinquished by:	Date:	Time:	Received by (Laboratory): 4/17/07 08:46	e-Lab Analytical Cooler ID	Trip Blank Number
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

Copyright 2006 by e-Lab Analytical, Inc.

e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 4/17/2007 8:40:00 AM

Work Order Number 0704309 Received by: RNG

Checklist completed by RMR 4-17-07 (Signature / Date) Reviewed by 9L 4/18/07 (Initials / Date)

Matrix: Liquid Carrier name: E-Lab

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.7c	002	
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

FedEx
Emp# 520550 01:01 17APR07

STANDARD OVERNIGHT

TUE

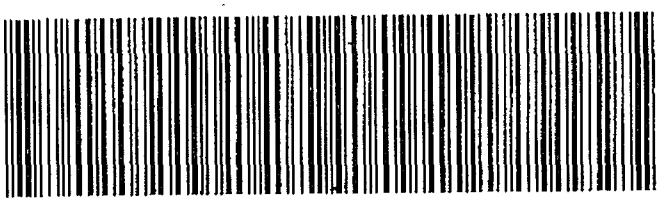
Deliver By:
17APR07

TRK# 9046 7991 1241 FORM 0201

IAH

77099 -TX-US

XH JGQA



e-Lab Analytical, Inc.
10460 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.6887

CUSTOD
Date: 4/16/07
Name:
Company:

DY SEAL
me: 1615

Seal Broken By:

Date: 4/17/07

e-Lab Analytical, Inc

Date: *April 20, 2007*

CLIENT: e-Lab Analytical, Inc
Project: 0704309
Work Order: **0704354**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0704354-01	0704309-01E	Water		4/16/2007 13:30	4/18/2007 10:00	☐

e-Lab Analytical, Inc

Date: *April 20, 2007*

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309
Lab ID: 0704354-01

Client Sample ID: 0704309-01E
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **RAR**
Cyanide, Reactive	ND	40.0		mg/Kg	1	4/18/2007
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **RAR**
Sulfide, Reactive	ND	40.0		mg/Kg	1	4/18/2007

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309

Date: *Apr 20 2007*

QC BATCH REPORT

Batch ID: **R48120** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID **WBLKW1-041707** Units: **mg/Kg** Analysis Date: **04/18/07 0:00**

Client ID: Run ID: **WETCHEM_070417P** SeqNo: **764493** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0704354-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309

QC BATCH REPORT

Batch ID: **R48121** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID **WBLKW1-041707** Units: **mg/Kg** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764522** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID **WLCSW1-041707** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764531** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	190.8	40	619	0	30.8	2.8-70	0			

LCSD Sample ID **WLCSDW1-04170** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764530** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	194.5	40	619	0	31.4	2.8-70	190.8	1.92	35	

MS Sample ID **0704315-01A MS** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764532** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	157	40	619	0	25.4	2.8-70	0			

MSD Sample ID **0704315-01A MSD** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764533** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	131	40	619	0	21.2	2.8-70	157	18.1	35	

The following samples were analyzed in this batch: 0704354-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

0704354

Subcontractor:
e-Lab Analytical, Inc.
3352 128th Ave.
Holland, MI 49424
TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

QUALITY • INTEGRITY • SERVICE

CHAIN-OF-CUSTODY RECORD

Date: Apr 17, 2007
COC ID: 4918
Due Date 4/23/2007

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	0704309	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jcroston@elabi.com	eMail CC	oelliston@elabi.com	J

Sample ID	Matrix	Collection Date	Bottle	A	B	C	D	E	F	G	H	I	J
0704309-01E (Inj. Well)	Water	4/16/2007 13:30	(1) 1LPNEAT	X	X								

Comments:

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
					Std
Relinquished by:	Date/Time	Received by:	Date/Time		
UPS	4-17-07/UPS 4/18/07 1000	UPS	4/17/07 4/18/07 1000		

e-Lab Analytical, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 4/18/2007 10:00:00 AM

Work Order Number 0704354 Received by: AJK

Checklist completed by Signature 4/18/07 Date Reviewed by Initials 4/18/07 Date

Matrix: Water Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.2 C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

UPS Next Day Air Saver

U.S. Domestic Shipping Document

WEIGHT 1 0 | DIMENSIONAL WEIGHT | LARGE AIR PACKAGE ☐ | SHIPPER RELEASE ☐

Saver

SHIPMENT FROM

UPS ACCOUNT NO. 698174

REFERENCE NUMBER SUB R2 SANCHEZ

TELEPHONE 281-530-5656

E-LAB, INC.

10450 STANCLIFF RD STE #210

HOUSTON TX 77099

MI 495 9-04

UPS Next Day Air Saver 1P

DELIVER TO

TELEPHONE 616-399-6070

RECEIVING

E-LAB, INC.

3352 128TH AVE

HOLLAND MI 49424

1Z 678 17[illegible] 23 1002 7565

(URC v.48.0A 10/2005)
0201952542609 1:05 S

United Parcel Service, Louisville, KY

SHIPMENT ID NUMBER 6981 7479 [illegible]

e-Lab Analytical, Inc.

10450 Stancliff Rd., Ste 210

Houston, [illegible]

Tel: 281-[illegible]

Fax: 281-[illegible]

QUALITY - INTEGRITY

CUSTODY SEAL

Date: 4-11-07

Time: [illegible]

Signature: [illegible]

0704350

OK cc. 5/17/07 Some Actions

NAVAJO REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

April 16, 2006

RECEIVED

APR 19 2007

Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2006 Fourth Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the fourth quarter of 2006 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2006 to December 31, 2006. We have disposed a total of 31,360,431 barrels of fluid into the two wells as of December 31, 2006. This is broken down as follows: 21,268,940 barrels into WDW-1 and 10,091,491 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Sr. Environmental Specialist

Encl.

ccc: DGM
File; REF:ART: 4 A 02 D

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2006 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													Previous Quarter	20,500,126
Oct-06	229	353	7	242	312	125	241	349	154	8,311	10,708	4,296	257,630	20,757,756
Nov-06	279	368	36	248	298	122	267	325	130	8,491	10,221	4,189	263,211	21,020,967
Dec-06	349	402	294	233	342	129	157	232	102	7,999	11,712	4,420	247,973	21,268,940
WDW-2													Previous Quarter	9,745,400
Oct-06	481	500	358	94	150	0	0	0	0	3,237	5,160	0	100,352	9,845,752
Nov-06	497	500	447	109	154	0	0	0	0	3,735	5,291	0	115,797	9,961,549
Dec-06	406	500	205	122	140	69	0	0	0	4,192	4,799	2,382	129,942	10,091,491
													Total Injected fluids:	31,360,431

Page 3300 of 5828

2006 FOURTH QUARTER WEEKLY WHAMS LEVEL TABLE

	12/4/06	12/11/06	12/18/06	12/25/06
	Gallons	Gallons	Gallons	Gallons
WDW-1	300	300	300	300
WDW-2	250	250	250	250

Released to Imaging: 7/12/2024 10:49:45 AM

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 (281) 530-5656 Fax (281) 530-5887

December 29, 2006

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Wells Work Order : **0612199**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 2 samples on 12/12/2006 10:35:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 45.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Odette E. Elliston

Jeffrey L Croston
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: **0612199**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0612199-01	Injection Wells	Water		12/11/2006 13:30	12/12/2006 10:35	☐
0612199-02	Trip Blank 1338	Trip Blank		12/11/2006	12/12/2006 10:35	☑

e-Lab Analytical, Inc. **Date:** *December 29, 2006*

CLIENT: Navajo Refining Company
Project: Injection Wells
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Case Narrative

Batch's 21185 and 21217 Metals MS/MSD were unrelated samples.

Batch's R44863 and R45027 Volatiles MS/MSD were unrelated samples.

Batch R44808 Anions (sample Injection Wells) MS/MSD recoveries were below the control limits for Sulfate (76.4% and 64.8%). Recoveries were E/O-flagged.

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **12/18/2006**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	12/18/2006 5:21:59 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **12/13/2006**	Analyst: **ALR**
Aluminum	**1.27**		**0.0100**	**mg/L**	1	12/15/2006 12:10:00 AM
Arsenic	**0.159**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Barium	**0.0250**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Beryllium	ND		0.00200	mg/L	1	12/15/2006 12:10:00 AM
Boron	**0.237**		**0.0200**	**mg/L**	1	12/19/2006 8:58:00 AM
Cadmium	ND		0.00100	mg/L	1	12/15/2006 12:10:00 AM
Calcium	**121**		**0.500**	**mg/L**	1	12/15/2006 12:10:00 AM
Chromium	**0.00234**		**0.00200**	**mg/L**	1	12/15/2006 12:10:00 AM
Cobalt	ND		0.00200	mg/L	1	12/15/2006 12:10:00 AM
Copper	**0.00417**		**0.00200**	**mg/L**	1	12/15/2006 12:10:00 AM
Iron	**0.802**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Lead	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Magnesium	**25.0**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Manganese	**0.0726**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Molybdenum	**0.0925**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Nickel	**0.0103**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Potassium	**18.8**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Selenium	**0.344**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Silver	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Sodium	**1,400**		**40.0**	**mg/L**	200	12/15/2006 4:58:00 PM
Vanadium	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Zinc	**0.159**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **12/13/2006**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2,4,5-Trichlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2,4,6-Trichlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Methylnaphthalene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Methylphenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Nitrophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
3&4-Methylphenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
3-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
4-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
4-Nitrophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Acenaphthene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Acenaphthylene	ND		10	µg/L	1	12/14/2006 5:22:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Anthracene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Benz(a)anthracene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Benzidine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Hexachloroethane	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Indeno(1,2,3-cd)pyrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Isophorone	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodi-n-propylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodimethylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodiphenylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Naphthalene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Nitrobenzene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Pentachlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Phenanthrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Phenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Pyrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Surr: 2,4,6-Tribromophenol	*69.3*		*42-124*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 2-Fluorobiphenyl	*65.2*		*48-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 2-Fluorophenol	*53.3*		*20-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 4-Terphenyl-d14	*66.0*		*51-135*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: Nitrobenzene-d5	*62.9*		*41-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: Phenol-d6	*61.1*		*20-120*	*%REC*	1	12/14/2006 5:22:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
2-Butanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	12/18/2006 7:17:00 PM
2-Hexanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Acetone	**53**		**10**	**µg/L**	1	12/18/2006 7:17:00 PM
Benzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromoform	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromomethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Carbon disulfide	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM

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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloroform	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Ethylbenzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
m,p-Xylene	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Methylene chloride	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Styrene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Toluene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Trichloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Vinyl acetate	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Vinyl chloride	ND		2.0	µg/L	1	12/18/2006 7:17:00 PM
Xylenes, Total	ND		15	µg/L	1	12/18/2006 7:17:00 PM
Surr: 1,2-Dichloroethane-d4	*107*		*70-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: 4-Bromofluorobenzene	*116*		*72.4-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: Dibromofluoromethane	*121*		*71.2-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: Toluene-d8	*123*		*75-125*	*%REC*	1	12/18/2006 7:17:00 PM
FLASHPOINT			**SW1010**			Analyst: **MAG**
Ignitability	**>180**		**50.0**	**°F**	1	12/15/2006
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	12/15/2006
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	12/15/2006
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **LMD**
Chloride	**907**		**25.0**	**mg/L**	50	12/13/2006 12:38:00 AM
Sulfate	**1,810**		**50.0**	**mg/L**	50	12/13/2006 12:38:00 AM
Surr: Selenate (surr)	*92.9*		*80-120*	*%REC*	50	12/13/2006 12:38:00 AM
ALKALINITY			**E310.1**			Analyst: **PV**
Alkalinity, Bicarbonate (As CaCO3)	**224**		**5.00**	**mg/L**	1	12/18/2006
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	12/18/2006
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	12/18/2006
Alkalinity, Total (As CaCO3)	**224**		**5.00**	**mg/L**	1	12/18/2006
CONDUCTIVITY			**E120.1**			Analyst: **RPM**
Specific Conductance	**5,800**		**1.00**	**µmhos/cm**	1	12/12/2006

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e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **RPM**
pH	7.32		0.100	pH units	1	12/12/2006
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	4,530		10.0	mg/L	1	12/13/2006

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-02

Client Sample ID: Trip Blank 1338
Collection Date: 12/11/2006
Matrix: TRIP BLANK

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
2-Butanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	12/13/2006 8:56:00 PM
2-Hexanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Acetone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Benzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromoform	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromomethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Carbon disulfide	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chlorobenzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloroform	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Ethylbenzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
m,p-Xylene	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Methylene chloride	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Styrene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Toluene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Trichloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Vinyl acetate	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Vinyl chloride	ND		2.0	µg/L	1	12/13/2006 8:56:00 PM
Xylenes, Total	ND		15	µg/L	1	12/13/2006 8:56:00 PM
Surr: 1,2-Dichloroethane-d4	*104*		*70-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: 4-Bromofluorobenzene	*80.6*		*72.4-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: Dibromofluoromethane	*99.8*		*71.2-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: Toluene-d8	*91.4*		*75-125*	*%REC*	1	12/13/2006 8:56:00 PM

Qualifiers:

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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
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e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

Date: *Dec 29 2006*

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW1-121306** Units: **mg/L** Analysis Date: **12/14/06 14:44**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014550** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	ND	0.0050								

MBLK Sample ID: **MBLKW1-121306** Units: **mg/L** Analysis Date: **12/14/06 18:48**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014885** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	0.02435	0.20								J
Selenium	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	0.00299	0.0050								J

LCS Sample ID: **MLCSW1-121306** Units: **mg/L** Analysis Date: **12/14/06 14:50**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014551** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	0.04857	0.0050	0.05	0	97.1	80-117		0		

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW1-121306** Units: **mg/L** Analysis Date: **12/14/06 18:54**

Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014886** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05627	0.010	0.05	0	113	79-126	0			
Arsenic	0.0495	0.0050	0.05	0	99	80-121	0			
Barium	0.05205	0.0050	0.05	0	104	79.8-119	0			
Beryllium	0.04927	0.0020	0.05	0	98.5	78.9-120	0			
Cadmium	0.05273	0.0020	0.05	0	105	79.1-119	0			
Calcium	5.374	0.50	5	0	107	80-121	0			
Chromium	0.05011	0.0050	0.05	0	100	79.3-121	0			
Cobalt	0.0542	0.0050	0.05	0	108	82-121	0			
Copper	0.04994	0.0050	0.05	0	99.9	81-120	0			
Iron	5.01	0.20	5	0	100	80-120	0			
Lead	0.0496	0.0050	0.05	0	99.2	80-118	0			
Magnesium	4.874	0.20	5	0	97.5	80-120	0			
Manganese	0.05128	0.0050	0.05	0	103	82-119	0			
Molybdenum	0.04974	0.0050	0.05	0	99.5	81-116	0			
Nickel	0.05207	0.0050	0.05	0	104	82-120	0			
Potassium	4.844	0.20	5	0	96.9	80-120	0			
Selenium	0.04976	0.0050	0.05	0	99.5	79.2-118	0			
Sodium	4.873	0.20	5	0	97.5	80.6-119	0			
Vanadium	0.05329	0.0050	0.05	0	107	82.1-119	0			
Zinc	0.05312	0.0050	0.05	0	106	79-118	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/14/06 6:12**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014199** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05019	0.0050	0.05	0.003835	92.7	80-121	0			
Barium	0.2575	0.0050	0.05	0.2123	90.4	79.8-119	0			O
Cadmium	0.04615	0.0020	0.05	-0.0003191	92.9	79.1-119	0			
Calcium	110.8	0.50	5	102.6	164	80-121	0			SO
Chromium	0.05279	0.0050	0.05	0.002521	101	79.3-121	0			
Cobalt	0.05119	0.0050	0.05	-0.0001729	103	82-121	0			
Copper	0.06686	0.0050	0.05	0.02236	89	80-120	0			
Iron	4.641	0.20	5	0.03176	92.2	80-120	0			
Lead	0.04808	0.0050	0.05	-0.00005234	96.3	80-118	0			
Manganese	0.04835	0.0050	0.05	-0.0001617	97	82-119	0			
Molybdenum	0.04822	0.0050	0.05	0.00133	93.8	81-116	0			
Nickel	0.04771	0.0050	0.05	0.0005055	94.4	82-120	0			
Potassium	87.71	0.20	5	79.47	165	80-120	0			SO
Selenium	0.04355	0.0050	0.05	0.001252	84.6	79.2-118	0			
Silver	0.04151	0.0050	0.05	-0.0003545	83.7	80-117	0			
Sodium	1377	0.20	5	1299	1560	80.6-119	0			SEO
Vanadium	0.06184	0.0050	0.05	0.008266	107	82.1-119	0			
Zinc	0.06342	0.0050	0.05	0.01872	89.4	79-118	0			

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/14/06 22:05**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014913** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04543	0.0020	0.05	0.00003426	90.8	78.9-120	0			

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/15/06 15:39**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015920** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.0583	0.010	0.05	0.007915	101	79-126	0			
Magnesium	7.084	0.20	5	2.247	96.7	80-120	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/14/06 6:42**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014202** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05268	0.0050	0.05	0.003835	97.7	80-121	0.05019	4.84	15	
Barium	0.2609	0.0050	0.05	0.2123	97.2	79.8-119	0.2575	1.31	15	O
Cadmium	0.04664	0.0020	0.05	-0.0003191	93.9	79.1-119	0.04615	1.06	15	
Calcium	111.3	0.50	5	102.6	174	80-121	110.8	0.45	15	SO
Chromium	0.05392	0.0050	0.05	0.002521	103	79.3-121	0.05279	2.12	15	
Cobalt	0.05257	0.0050	0.05	-0.0001729	105	82-121	0.05119	2.66	15	
Copper	0.06723	0.0050	0.05	0.02236	89.7	81-120	0.06686	0.552	15	
Iron	4.76	0.20	5	0.03176	94.6	80-120	4.641	2.53	15	
Lead	0.04907	0.0050	0.05	-0.00005234	98.2	80-118	0.04808	2.04	15	
Manganese	0.04982	0.0050	0.05	-0.0001617	100	82-119	0.04835	2.99	15	
Molybdenum	0.05058	0.0050	0.05	0.00133	98.5	81-116	0.04822	4.78	15	
Nickel	0.04836	0.0050	0.05	0.0005055	95.7	82-120	0.04771	1.35	15	
Potassium	88.86	0.20	5	79.47	188	80-120	87.71	1.3	15	SO
Selenium	0.04557	0.0050	0.05	0.001252	88.6	79.2-118	0.04355	4.53	15	
Silver	0.04232	0.0050	0.05	-0.0003545	85.3	80-117	0.04151	1.93	15	
Sodium	1368	0.20	5	1299	1380	80.6-119	1377	0.656	15	SEO
Vanadium	0.06322	0.0050	0.05	0.008266	110	82.1-119	0.06184	2.21	15	
Zinc	0.06534	0.0050	0.05	0.01872	93.2	79-118	0.06342	2.98	15	

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/14/06 22:11**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014914** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04628	0.0020	0.05	0.00003426	92.5	78.9-120	0.04543	1.85	15	

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/15/06 15:45**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015921** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05953	0.010	0.05	0.007915	103	79-126	0.0583	2.09	15	
Magnesium	7.342	0.20	5	2.247	102	80-120	7.084	3.58	15	

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 6:00**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014197** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.003896	0.0050	0	0	0	0-0	0.003835	0	25	J
Barium	0.2164	0.0050	0	0	0	0-0	0.2123	1.91	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.0003191	0	25	
Calcium	108.1	0.50	0	0	0	0-0	102.6	5.22	25	
Chromium	0.002547	0.0050	0	0	0	0-0	0.002521	0	25	J
Cobalt	ND	0.0050	0	0	0	0-0	-0.0001729	0	25	
Copper	0.02359	0.0050	0	0	0	0-0	0.02236	5.35	25	
Iron	ND	0.20	0	0	0	0-0	0.03176	0	25	
Lead	ND	0.0050	0	0	0	0-0	-0.00005234	0	25	
Manganese	ND	0.0050	0	0	0	0-0	-0.0001617	0	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.00133	0	25	
Nickel	ND	0.0050	0	0	0	0-0	0.0005055	0	25	
Potassium	84.36	0.20	0	0	0	0-0	79.47	5.97	25	
Selenium	ND	0.0050	0	0	0	0-0	0.001252	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003545	0	25	
Vanadium	0.008473	0.0050	0	0	0	0-0	0.008266	2.47	25	
Zinc	0.01981	0.0050	0	0	0	0-0	0.01872	5.66	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 19:12**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014889** Prep Date: **12/13/2006** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	1115	20	0	0	0	0-0	1159	3.87	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 21:53**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014911** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020	0	0	0	0-0	0.00003426	0	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/15/06 15:09**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015916** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.008813	0.010	0	0	0	0-0	0.007915	0	25	J
Magnesium	2.464	0.20	0	0	0	0-0	2.247	9.21	25	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW2-121406** Units: **mg/L** Analysis Date: **12/15/06 23:07**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016132** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Boron	ND	0.020								
Selenium	ND	0.0050								
Silver	ND	0.0050								

MBLK Sample ID: **MBLKW2-121406** Units: **mg/L** Analysis Date: **12/19/06 7:35**
Client ID: Run ID: **ICPMS02_061218A** SeqNo: **1017633** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.001537	0.0050								J
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Manganese	ND	0.0050								

LCS Sample ID: **MLCSW2-121406** Units: **mg/L** Analysis Date: **12/15/06 23:13**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016133** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04677	0.0050	0.05	0	93.5	80-121	0			
Boron	0.4806	0.020	0.5	0	96.1	80-120	0			
Selenium	0.04586	0.0050	0.05	0	91.7	79.2-118	0			
Silver	0.04708	0.0050	0.05	0	94.2	80-117	0			

LCS Sample ID: **MLCSW2-121406** Units: **mg/L** Analysis Date: **12/19/06 7:41**
Client ID: Run ID: **ICPMS02_061218A** SeqNo: **1017634** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.04922	0.0050	0.05	0	98.4	79.8-119	0			
Cadmium	0.05144	0.0020	0.05	0	103	79.1-119	0			
Chromium	0.04955	0.0050	0.05	0	99.1	79.3-121	0			
Iron	4.899	0.20	5	0	98	80-120	0			
Lead	0.04956	0.0050	0.05	0	99.1	80-118	0			
Manganese	0.04994	0.0050	0.05	0	99.9	82-119	0			

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0612242-05CMS** Units: **mg/L** Analysis Date: **12/15/06 23:43**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016138** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05464	0.0050	0.05	0.004181	101	80-121	0			
Barium	0.3228	0.0050	0.05	0.2688	108	79.8-119	0			O
Boron	0.65	0.020	0.5	0.1409	102	80-120	0			
Cadmium	0.05025	0.0020	0.05	0.0001167	100	79.1-119	0			
Chromium	0.06074	0.0050	0.05	0.00971	102	79.3-121	0			
Iron	5.036	0.20	5	0.1981	96.8	80-120	0			
Lead	0.05276	0.0050	0.05	0.0009405	104	80-118	0			
Manganese	0.6335	0.0050	0.05	0.554	159	82-119	0			SO
Selenium	0.05114	0.0050	0.05	0.00048	101	79.2-118	0			
Silver	0.04824	0.0050	0.05	-0.0003112	97.1	80-117	0			

MSD Sample ID: **0612242-05CMSD** Units: **mg/L** Analysis Date: **12/15/06 23:49**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016139** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05287	0.0050	0.05	0.004181	97.4	80-121	0.05464	3.29	15	
Barium	0.307	0.0050	0.05	0.2688	76.4	79.8-119	0.3228	5.02	15	SO
Boron	0.6264	0.020	0.5	0.1409	97.1	80-120	0.65	3.7	15	
Cadmium	0.04894	0.0020	0.05	0.0001167	97.6	79.1-119	0.05025	2.64	15	
Chromium	0.05741	0.0050	0.05	0.00971	95.4	79.3-121	0.06074	5.64	15	
Iron	4.782	0.20	5	0.1981	91.7	80-120	5.036	5.17	15	
Lead	0.05067	0.0050	0.05	0.0009405	99.5	80-118	0.05276	4.04	15	
Manganese	0.5899	0.0050	0.05	0.554	71.8	82-119	0.6335	7.13	15	SO
Selenium	0.04877	0.0050	0.05	0.00048	96.6	79.2-118	0.05114	4.74	15	
Silver	0.04559	0.0050	0.05	-0.0003112	91.8	80-117	0.04824	5.65	15	

ND - Not Dctected at the Reporting Limit
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0612242-05CDUP** Units: **mg/L** Analysis Date: **12/15/06 23:31**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016136** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.003997	0.0050	0	0	0	0-0	0.004181	0	25	J
Barium	0.257	0.0050	0	0	0	0-0	0.2688	4.49	25	
Boron	0.1321	0.020	0	0	0	0-0	0.1409	6.45	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.0001167	0	25	
Chromium	0.009143	0.0050	0	0	0	0-0	0.00971	6.01	25	
Iron	0.1797	0.20	0	0	0	0-0	0.1981	0	25	J
Lead	0.0008973	0.0050	0	0	0	0-0	0.0009405	0	25	J
Manganese	0.5385	0.0050	0	0	0	0-0	0.554	2.84	25	
Selenium	ND	0.0050	0	0	0	0-0	0.00048	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003112	0	25	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21263** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:07**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017389** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:09**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017390** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	0	101	85-115	0			

LCSD Sample ID: **GLCSDW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:11**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017391** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00527	0.00020	0.005	0	105	85-115	0.00506	4.07	20	

MS Sample ID: **0612163-01DMS** Units: **mg/L** Analysis Date: **12/18/06 17:17**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017394** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	-0.000011	101	85-115	0			

MSD Sample ID: **0612163-01DMSD** Units: **mg/L** Analysis Date: **12/18/06 17:19**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017395** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00532	0.00020	0.005	-0.000011	107	85-115	0.00506	5.01	20	

DUP Sample ID: **0612163-01DDUP** Units: **mg/L** Analysis Date: **12/18/06 17:15**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017393** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000011	0	20	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

MBLK Sample ID: **SBLKW2-061213** Units: **µg/L** Analysis Date: **12/14/06 9:34**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015216** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3&4-Methylphenol	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Surr: 2,4,6-Tribromophenol	*91.62*	10	*100*	0	*91.6*	*42-124*		0		
Surr: 2-Fluorobiphenyl	*91.9*	10	*100*	0	*91.9*	*48-120*		0		
Surr: 2-Fluorophenol	*79.87*	10	*100*	0	*79.9*	*20-120*		0		
Surr: 4-Terphenyl-d14	*94.4*	10	*100*	0	*94.4*	*51-135*		0		
Surr: Nitrobenzene-d5	*91.1*	10	*100*	0	*91.1*	*41-120*		0		
Surr: Phenol-d6	*85.53*	10	*100*	0	*85.5*	*20-120*		0		

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

LCS Sample ID: **SLCSW2-061213** Units: **µg/L** Analysis Date: **12/14/06 10:59**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015220** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	49.76	10	50	0	99.5	54-118	0			
2,4,5-Trichlorophenol	100.5	10	100	0	101	52-115	0			
2,4,6-Trichlorophenol	98.68	10	100	0	98.7	56-115	0			
2-Methylnaphthalene	48.02	10	50	0	96	46-117	0			
2-Methylphenol	88.15	10	100	0	88.2	53-115	0			
2-Nitroaniline	50.67	10	50	0	101	53-123	0			
2-Nitrophenol	96.62	10	100	0	96.6	53-115	0			
3&4-Methylphenol	131.3	10	150	0	87.5	48-115	0			
3-Nitroaniline	26.98	10	50	0	54	26-115	0			
4-Nitroaniline	47.99	10	50	0	96	47-115	0			
4-Nitrophenol	100.4	10	100	0	100	26-133	0			
Acenaphthene	50.39	10	50	0	101	57-115	0			
Acenaphthylene	50.97	10	50	0	102	57-118	0			
Aniline	27.7	10	50	0	55.4	36-115	0			
Anthracene	49.9	10	50	0	99.8	65-115	0			
Benz(a)anthracene	50.43	10	50	0	101	53-115	0			
Benzidine	16.61	10	50	0	33.2	10-115	0			
Hexachloroethane	46.18	10	50	0	92.4	54-115	0			
Indeno(1,2,3-cd)pyrene	49.6	10	50	0	99.2	51-115	0			
Isophorone	45.9	10	50	0	91.8	55-115	0			
N-Nitrosodi-n-propylamine	43.38	10	50	0	86.8	55-115	0			
N-Nitrosodimethylamine	37.69	10	50	0	75.4	42-115	0			
N-Nitrosodiphenylamine	50.13	10	50	0	100	52-115	0			
Naphthalene	47.53	10	50	0	95.1	55-115	0			
Nitrobenzene	48.39	10	50	0	96.8	40-124	0			
Pentachlorophenol	85.2	10	100	0	85.2	45-125	0			
Phenanthrene	50.15	10	50	0	100	57-115	0			
Phenol	91.85	10	100	0	91.8	38-115	0			
Pyrene	51.73	10	50	0	103	51-115	0			
Surr: 2,4,6-Tribromophenol	*99.22*	10	*100*	0	*99.2*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*90.57*	10	*100*	0	*90.6*	*48-120*	0			
Surr: 2-Fluorophenol	*87.64*	10	*100*	0	*87.6*	*20-120*	0			
Surr: 4-Terphenyl-d14	*95.5*	10	*100*	0	*95.5*	*51-135*	0			
Surr: Nitrobenzene-d5	*91.29*	10	*100*	0	*91.3*	*41-120*	0			
Surr: Phenol-d6	*90.94*	10	*100*	0	*90.9*	*20-120*	0			

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-061213** Units: **µg/L** Analysis Date: **12/14/06 11:24**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015222** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.01	10	50	0	86	54-118	49.76	14.5	20	
2,4,5-Trichlorophenol	89.8	10	100	0	89.8	52-115	100.5	11.3	20	
2,4,6-Trichlorophenol	92.36	10	100	0	92.4	56-115	98.68	6.62	20	
2-Methylnaphthalene	42.9	10	50	0	85.8	46-117	48.02	11.3	20	
2-Methylphenol	82.74	10	100	0	82.7	53-115	88.15	6.34	20	
2-Nitroaniline	46.15	10	50	0	92.3	53-123	50.67	9.35	20	
2-Nitrophenol	87.51	10	100	0	87.5	53-115	96.62	9.9	20	
3&4-Methylphenol	123.9	10	150	0	82.6	48-115	131.3	5.8	20	
3-Nitroaniline	24.38	10	50	0	48.8	26-115	26.98	10.1	20	
4-Nitroaniline	44.16	10	50	0	88.3	47-115	47.99	8.32	20	
4-Nitrophenol	91.73	10	100	0	91.7	26-133	100.4	9.03	20	
Acenaphthene	45.07	10	50	0	90.1	57-115	50.39	11.1	20	
Acenaphthylene	46.98	10	50	0	94	57-118	50.97	8.16	20	
Aniline	29.08	10	50	0	58.2	36-115	27.7	4.86	20	
Anthracene	43.31	10	50	0	86.6	65-115	49.9	14.1	20	
Benz(a)anthracene	44.44	10	50	0	88.9	53-115	50.43	12.6	20	
Benzidine	17.87	10	50	0	35.7	10-115	16.61	7.28	20	
Hexachloroethane	39.9	10	50	0	79.8	54-115	46.18	14.6	20	
Indeno(1,2,3-cd)pyrene	44.07	10	50	0	88.1	51-115	49.6	11.8	20	
Isophorone	39.52	10	50	0	79	55-115	45.9	14.9	20	
N-Nitrosodi-n-propylamine	41.77	10	50	0	83.5	55-115	43.38	3.8	20	
N-Nitrosodimethylamine	35.66	10	50	0	71.3	42-115	37.69	5.52	20	
N-Nitrosodiphenylamine	43.9	10	50	0	87.8	52-115	50.13	13.3	20	
Naphthalene	41.66	10	50	0	83.3	55-115	47.53	13.2	20	
Nitrobenzene	41.58	10	50	0	83.2	40-124	48.39	15.1	20	
Pentachlorophenol	83.42	10	100	0	83.4	45-125	85.2	2.11	20	
Phenanthrene	43.9	10	50	0	87.8	57-115	50.15	13.3	20	
Phenol	83.92	10	100	0	83.9	38-115	91.85	9.02	20	
Pyrene	44.47	10	50	0	88.9	51-115	51.73	15.1	20	
Surr: 2,4,6-Tribromophenol	*84.73*	10	*100*	0	*84.7*	*42-124*	99.22	*15.8*	*20*	
Surr: 2-Fluorobiphenyl	*81.48*	10	*100*	0	*81.5*	*48-120*	90.57	*10.6*	*20*	
Surr: 2-Fluorophenol	*80.36*	10	*100*	0	*80.4*	*20-120*	87.64	*8.67*	*20*	
Surr: 4-Terphenyl-d14	*81.65*	10	*100*	0	*81.6*	*51-135*	95.5	*15.6*	*20*	
Surr: Nitrobenzene-d5	*80.37*	10	*100*	0	*80.4*	*41-120*	91.29	*12.7*	*20*	
Surr: Phenol-d6	*85.36*	10	*100*	0	*85.4*	*20-120*	90.94	*6.33*	*20*	

The following samples were analyzed in this batch: 0612199-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MBLK Sample ID: **VBLKW-061213** Units: **µg/L** Analysis Date: **12/13/06 13:50**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014211** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*53.04*	5.0	*50*	0	*106*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*45.6*	5.0	*50*	0	*91.2*	*72.4-125*	0			
Surr: Dibromofluoromethane	*48.61*	5.0	*50*	0	*97.2*	*71.2-125*	0			
Surr: Toluene-d8	*45.8*	5.0	*50*	0	*91.6*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

LCS Sample ID: **VLCSW-061213** Units: **µg/L** Analysis Date: **12/13/06 12:58**
Client ID: Run ID: **VOA2_061213A** SeqNo: **1014210** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.96	5.0	50	0	108	79.6-120		0		
1,1,2,2-Tetrachloroethane	52.48	5.0	50	0	105	78.9-121		0		
1,1,2-Trichloroethane	51.25	5.0	50	0	103	80-120		0		
1,1-Dichloroethane	54.29	5.0	50	0	109	74.2-122		0		
1,1-Dichloroethene	55.19	5.0	50	0	110	75.8-122		0		
1,2-Dichloroethane	51.56	5.0	50	0	103	78.8-120		0		
2-Butanone	107.9	10	100	0	108	69.2-131		0		
2-Chloroethyl vinyl ether	110.7	10	100	0	111	60.6-128		0		
2-Hexanone	119	10	100	0	119	59.1-135		0		
4-Methyl-2-pentanone	115.7	10	100	0	116	71.6-124		0		
Acetone	125.8	10	100	0	126	60.1-141		0		
Benzene	51.03	5.0	50	0	102	80-120		0		
Bromodichloromethane	52.32	5.0	50	0	105	80-120		0		
Bromoform	55.1	5.0	50	0	110	78.1-120		0		
Bromomethane	50.42	5.0	50	0	101	52.8-147		0		
Carbon disulfide	110.6	10	100	0	111	78.8-120		0		
Carbon tetrachloride	46.71	5.0	50	0	93.4	76.8-120		0		
Chlorobenzene	49.19	5.0	50	0	98.4	80-120		0		
Chloroethane	55.82	5.0	50	0	112	74.2-120		0		
Chloroform	51.51	5.0	50	0	103	80-120		0		
Chloromethane	50.21	5.0	50	0	100	63.5-133		0		
cis-1,3-Dichloropropene	51.04	5.0	50	0	102	80-120		0		
Dibromochloromethane	53.73	5.0	50	0	107	80-120		0		
Ethylbenzene	53.35	5.0	50	0	107	80-120		0		
m,p-Xylene	100.4	10	100	0	100	80-120		0		
Methylene chloride	55.38	10	50	0	111	74.7-120		0		
Styrene	50.76	5.0	50	0	102	80-120		0		
Tetrachloroethene	49.54	5.0	50	0	99.1	80-120		0		
Toluene	52.61	5.0	50	0	105	80-120		0		
trans-1,3-Dichloropropene	52	5.0	50	0	104	80-120		0		
Trichloroethene	50.53	5.0	50	0	101	80-120		0		
Vinyl acetate	120	10	100	0	120	61.1-148		0		
Vinyl chloride	54.01	2.0	50	0	108	76.2-121		0		
Xylenes, Total	151.2	15	150	0	101	80-120		0		
Surr: 1,2-Dichloroethane-d4	*47.29*	5.0	*50*	0	*94.6*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*48.35*	5.0	*50*	0	*96.7*	*72.4-125*		0		
Surr: Dibromofluoromethane	*46.28*	5.0	*50*	0	*92.6*	*71.2-125*		0		
Surr: Toluene-d8	*44.74*	5.0	*50*	0	*89.5*	*75-125*		0		

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B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MS Sample ID: **0612207-06AMS** Units: **µg/L** Analysis Date: **12/13/06 15:31**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014213** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.13	5.0	50	0	94.3	79.6-120	0			
1,1,2,2-Tetrachloroethane	49.71	5.0	50	0	99.4	78.9-121	0			
1,1,2-Trichloroethane	49.93	5.0	50	0	99.9	80-120	0			
1,1-Dichloroethane	49.68	5.0	50	0	99.4	74.2-122	0			
1,1-Dichloroethene	42.37	5.0	50	0	84.7	75.8-122	0			
1,2-Dichloroethane	53.32	5.0	50	0	107	78.8-120	0			
2-Butanone	89.06	10	100	0	89.1	69.2-131	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0			S
2-Hexanone	99.21	10	100	0	99.2	59.1-135	0			
4-Methyl-2-pentanone	100.2	10	100	0	100	71.6-124	0			
Acetone	105.1	10	100	0	105	60.1-141	0			
Benzene	48.83	5.0	50	0	97.7	80-120	0			
Bromodichloromethane	57.77	5.0	50	0	116	80-120	0			
Bromoform	51.22	5.0	50	0	102	78.1-120	0			
Bromomethane	31.91	5.0	50	0	63.8	52.8-147	0			
Carbon disulfide	82.89	10	100	0	82.9	78.8-120	0			
Carbon tetrachloride	40.65	5.0	50	0	81.3	76.8-120	0			
Chlorobenzene	47.12	5.0	50	0	94.2	80-120	0			
Chloroethane	47.21	5.0	50	0	94.4	74.2-120	0			
Chloroform	66.8	5.0	50	15.69	102	80-120	0			
Chloromethane	68.5	5.0	50	0	137	63.5-133	0			S
cis-1,3-Dichloropropene	49.23	5.0	50	0	98.5	80-120	0			
Dibromochloromethane	54.19	5.0	50	0	108	80-120	0			
Ethylbenzene	47.77	5.0	50	0	95.5	80-120	0			
m,p-Xylene	88.72	10	100	0	88.7	80-120	0			
Methylene chloride	51.8	10	50	0	104	74.7-120	0			
Styrene	2.286	5.0	50	0	4.57	80-120	0			JS
Tetrachloroethene	41.24	5.0	50	0	82.5	80-120	0			
Toluene	48.44	5.0	50	0	96.9	80-120	0			
trans-1,3-Dichloropropene	50.31	5.0	50	0	101	80-120	0			
Trichloroethene	47.47	5.0	50	0	94.9	80-120	0			
Vinyl acetate	93.51	10	100	0	93.5	61.1-148	0			
Vinyl chloride	42.79	2.0	50	0	85.6	76.2-121	0			
Xylenes, Total	134.1	15	150	0	89.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	*48.63*	5.0	*50*	0	*97.3*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*45.72*	5.0	*50*	0	*91.4*	*72.4-125*	0			
Surr: Dibromofluoromethane	*48.38*	5.0	*50*	0	*96.8*	*71.2-125*	0			
Surr: Toluene-d8	*44.7*	5.0	*50*	0	*89.4*	*75-125*	*0*			

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MSD Sample ID: **0612207-06AMSD** Units: **µg/L** Analysis Date: **12/13/06 15:56**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014214** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.53	5.0	50	0	89.1	79.6-120	47.13	5.67	20	
1,1,2,2-Tetrachloroethane	47.84	5.0	50	0	95.7	78.9-121	49.71	3.83	20	
1,1,2-Trichloroethane	47.76	5.0	50	0	95.5	80-120	49.93	4.44	20	
1,1-Dichloroethane	48.57	5.0	50	0	97.1	74.2-122	49.68	2.25	20	
1,1-Dichloroethene	42.69	5.0	50	0	85.4	75.8-122	42.37	0.752	20	
1,2-Dichloroethane	50.65	5.0	50	0	101	78.8-120	53.32	5.13	20	
2-Butanone	91.28	10	100	0	91.3	69.2-131	89.06	2.47	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0	0	20	S
2-Hexanone	100.9	10	100	0	101	59.1-135	99.21	1.67	20	
4-Methyl-2-pentanone	98.83	10	100	0	98.8	71.6-124	100.2	1.41	20	
Acetone	109.4	10	100	0	109	60.1-141	105.1	4.06	20	
Benzene	49.12	5.0	50	0	98.2	80-120	48.83	0.601	20	
Bromodichloromethane	55.5	5.0	50	0	111	80-120	57.77	4	20	
Bromoform	49.93	5.0	50	0	99.9	78.1-120	51.22	2.54	20	
Bromomethane	36.1	5.0	50	0	72.2	52.8-147	31.91	12.3	20	
Carbon disulfide	83.36	10	100	0	83.4	78.8-120	82.89	0.565	20	
Carbon tetrachloride	40.16	5.0	50	0	80.3	76.8-120	40.65	1.2	20	
Chlorobenzene	47.19	5.0	50	0	94.4	80-120	47.12	0.141	20	
Chloroethane	47.51	5.0	50	0	95	74.2-120	47.21	0.645	20	
Chloroform	63.04	5.0	50	15.69	94.7	80-120	66.8	5.79	20	
Chloromethane	68.53	5.0	50	0	137	63.5-133	68.5	0.0443	20	S
cis-1,3-Dichloropropene	48.1	5.0	50	0	96.2	80-120	49.23	2.32	20	
Dibromochloromethane	52.7	5.0	50	0	105	80-120	54.19	2.79	20	
Ethylbenzene	49.24	5.0	50	0	98.5	80-120	47.77	3.04	20	
m,p-Xylene	90.84	10	100	0	90.8	80-120	88.72	2.36	20	
Methylene chloride	51.51	10	50	0	103	74.7-120	51.8	0.573	20	
Styrene	2.426	5.0	50	0	4.85	80-120	2.286	0	20	JS
Tetrachloroethene	43.42	5.0	50	0	86.8	80-120	41.24	5.17	20	
Toluene	49.39	5.0	50	0	98.8	80-120	48.44	1.95	20	
trans-1,3-Dichloropropene	49.57	5.0	50	0	99.1	80-120	50.31	1.48	20	
Trichloroethene	47.31	5.0	50	0	94.6	80-120	47.47	0.332	20	
Vinyl acetate	90.54	10	100	0	90.5	61.1-148	93.51	3.24	20	
Vinyl chloride	42.98	2.0	50	0	86	76.2-121	42.79	0.425	20	
Xylenes, Total	137.6	15	150	0	91.7	80-120	134.1	2.57	20	
Surr: 1,2-Dichloroethane-d4	*45.53*	5.0	*50*	0	*91.1*	*70-125*	48.63	*6.6*	*20*	
Surr: 4-Bromofluorobenzene	*45.59*	5.0	*50*	0	*91.2*	*72.4-125*	45.72	*0.305*	*20*	
Surr: Dibromofluoromethane	*46.89*	5.0	*50*	0	*93.8*	*71.2-125*	48.38	*3.13*	*20*	
Surr: Toluene-d8	*43.92*	5.0	*50*	0	*87.8*	*75-125*	44.7	*1.76*	*20*	

The following samples were analyzed in this batch: 0612199-02A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-061218** Units: **µg/L** Analysis Date: **12/18/06 11:35**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017955** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*49.84*	5.0	*50*	0	*99.7*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*48.43*	5.0	*50*	0	*96.9*	*72.4-125*		0		
Surr: Dibromofluoromethane	*55.4*	5.0	*50*	0	*111*	*71.2-125*		0		
Surr: Toluene-d8	*57.8*	5.0	*50*	0	*116*	*75-125*		0		

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-061218** Units: **µg/L** Analysis Date: **12/18/06 10:40**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017953** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.59	5.0	50	0	99.2	79.6-120	0			
1,1,2,2-Tetrachloroethane	46.95	5.0	50	0	93.9	78.9-121	0			
1,1,2-Trichloroethane	51.26	5.0	50	0	103	80-120	0			
1,1-Dichloroethane	50.01	5.0	50	0	100	74.2-122	0			
1,1-Dichloroethene	53.61	5.0	50	0	107	75.8-122	0			
1,2-Dichloroethane	50.67	5.0	50	0	101	78.8-120	0			
2-Butanone	108.4	10	100	0	108	69.2-131	0			
2-Chloroethyl vinyl ether	90.4	10	100	0	90.4	60.6-128	0			
2-Hexanone	96.82	10	100	0	96.8	59.1-135	0			
4-Methyl-2-pentanone	96.74	10	100	0	96.7	71.6-124	0			
Acetone	89.55	10	100	0	89.5	60.1-141	0			
Benzene	51.45	5.0	50	0	103	80-120	0			
Bromodichloromethane	52.4	5.0	50	0	105	80-120	0			
Bromoform	48.04	5.0	50	0	96.1	78.1-120	0			
Bromomethane	51.57	5.0	50	0	103	52.8-147	0			
Carbon disulfide	108.1	10	100	0	108	78.8-120	0			
Carbon tetrachloride	48.27	5.0	50	0	96.5	76.8-120	0			
Chlorobenzene	47.1	5.0	50	0	94.2	80-120	0			
Chloroethane	51.32	5.0	50	0	103	74.2-120	0			
Chloroform	50.1	5.0	50	0	100	80-120	0			
Chloromethane	50.91	5.0	50	0	102	63.5-133	0			
cis-1,3-Dichloropropene	51.02	5.0	50	0	102	80-120	0			
Dibromochloromethane	52.41	5.0	50	0	105	80-120	0			
Ethylbenzene	45.9	5.0	50	0	91.8	80-120	0			
m,p-Xylene	100.4	10	100	0	100	80-120	0			
Methylene chloride	46.84	10	50	0	93.7	74.7-120	0			
Styrene	48.4	5.0	50	0	96.8	80-120	0			
Tetrachloroethene	48.76	5.0	50	0	97.5	80-120	0			
Toluene	49.54	5.0	50	0	99.1	80-120	0			
trans-1,3-Dichloropropene	51.89	5.0	50	0	104	80-120	0			
Trichloroethene	50.07	5.0	50	0	100	80-120	0			
Vinyl acetate	117.2	10	100	0	117	61.1-148	0			
Vinyl chloride	47.07	2.0	50	0	94.1	76.2-121	0			
Xylenes, Total	148.2	15	150	0	98.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	*53.68*	5.0	*50*	0	*107*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.89*	5.0	*50*	0	*110*	*72.4-125*	0			
Surr: Dibromofluoromethane	*56.87*	5.0	*50*	0	*114*	*71.2-125*	0			
Surr: Toluene-d8	*58.04*	5.0	*50*	0	*116*	*75-125*	0			

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0612221-63AMS** Units: **µg/L** Analysis Date: **12/18/06 12:56**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.74	5.0	50	0	93.5	79.6-120	0			
1,1,2,2-Tetrachloroethane	51.25	5.0	50	0	103	78.9-121	0			
1,1,2-Trichloroethane	53.81	5.0	50	0	108	80-120	0			
1,1-Dichloroethane	50.99	5.0	50	0	102	74.2-122	0			
1,1-Dichloroethene	46.61	5.0	50	0	93.2	75.8-122	0			
1,2-Dichloroethane	49.45	5.0	50	0	98.9	78.8-120	0			
2-Butanone	118.5	10	100	0	118	69.2-131	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0			S
2-Hexanone	102.1	10	100	0	102	59.1-135	0			
4-Methyl-2-pentanone	113.1	10	100	0	113	71.6-124	0			
Acetone	99.9	10	100	0	99.9	60.1-141	0			
Benzene	50.89	5.0	50	0	102	80-120	0			
Bromodichloromethane	53.44	5.0	50	0	107	80-120	0			
Bromoform	48.91	5.0	50	0	97.8	78.1-120	0			
Bromomethane	47.75	5.0	50	0	95.5	52.8-147	0			
Carbon disulfide	105.7	10	100	0	106	78.8-120	0			
Carbon tetrachloride	76.78	5.0	50	26.11	101	76.8-120	0			
Chlorobenzene	47.77	5.0	50	0	95.5	80-120	0			
Chloroethane	48.53	5.0	50	0	97.1	74.2-120	0			
Chloroform	63.44	5.0	50	7.131	113	80-120	0			
Chloromethane	50.17	5.0	50	0	100	63.5-133	0			
cis-1,3-Dichloropropene	50.82	5.0	50	0	102	80-120	0			
Dibromochloromethane	51.3	5.0	50	0	103	80-120	0			
Ethylbenzene	44.98	5.0	50	0	90	80-120	0			
m,p-Xylene	85.39	10	100	0	85.4	80-120	0			
Methylene chloride	47.78	10	50	0	95.6	74.7-120	0			
Styrene	47.68	5.0	50	0	95.4	80-120	0			
Tetrachloroethene	48.1	5.0	50	2.298	91.6	80-120	0			
Toluene	49.69	5.0	50	0	99.4	80-120	0			
trans-1,3-Dichloropropene	53.57	5.0	50	0	107	80-120	0			
Trichloroethene	113.9	5.0	50	43.84	140	80-120	0			S
Vinyl acetate	124.3	10	100	0	124	61.1-148	0			
Vinyl chloride	48.86	2.0	50	0	97.7	76.2-121	0			
Xylenes, Total	133.6	15	150	0	89.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	*55.76*	5.0	*50*	0	*112*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*53.17*	5.0	*50*	0	*106*	*72.4-125*	0			
Surr: Dibromofluoromethane	*55.85*	5.0	*50*	0	*112*	*71.2-125*	0			
Surr: Toluene-d8	*56.03*	5.0	*50*	0	*112*	*75-125*	0			

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0612221-63AMSD** Units: **µg/L** Analysis Date: **12/18/06 13:24**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017962** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.56	5.0	50	0	91.1	79.6-120	46.74	2.56	20	
1,1,2,2-Tetrachloroethane	55.93	5.0	50	0	112	78.9-121	51.25	8.73	20	
1,1,2-Trichloroethane	51.55	5.0	50	0	103	80-120	53.81	4.3	20	
1,1-Dichloroethane	52.46	5.0	50	0	105	74.2-122	50.99	2.85	20	
1,1-Dichloroethene	45.52	5.0	50	0	91	75.8-122	46.61	2.36	20	
1,2-Dichloroethane	50.89	5.0	50	0	102	78.8-120	49.45	2.87	20	
2-Butanone	122.1	10	100	0	122	69.2-131	118.5	2.99	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0	0	20	S
2-Hexanone	104.3	10	100	0	104	59.1-135	102.1	2.07	20	
4-Methyl-2-pentanone	109.3	10	100	0	109	71.6-124	113.1	3.41	20	
Acetone	100.5	10	100	0	100	60.1-141	99.9	0.578	20	
Benzene	50.54	5.0	50	0	101	80-120	50.89	0.682	20	
Bromodichloromethane	50.75	5.0	50	0	101	80-120	53.44	5.17	20	
Bromoform	49.36	5.0	50	0	98.7	78.1-120	48.91	0.928	20	
Bromomethane	51.95	5.0	50	0	104	52.8-147	47.75	8.42	20	
Carbon disulfide	93.83	10	100	0	93.8	78.8-120	105.7	11.9	20	
Carbon tetrachloride	67.89	5.0	50	26.11	83.6	76.8-120	76.78	12.3	20	
Chlorobenzene	44.62	5.0	50	0	89.2	80-120	47.77	6.81	20	
Chloroethane	45.72	5.0	50	0	91.4	74.2-120	48.53	5.96	20	
Chloroform	59.96	5.0	50	7.131	106	80-120	63.44	5.65	20	
Chloromethane	47.45	5.0	50	0	94.9	63.5-133	50.17	5.58	20	
cis-1,3-Dichloropropene	51.8	5.0	50	0	104	80-120	50.82	1.9	20	
Dibromochloromethane	51.93	5.0	50	0	104	80-120	51.3	1.22	20	
Ethylbenzene	45.1	5.0	50	0	90.2	80-120	44.98	0.265	20	
m,p-Xylene	83.89	10	100	0	83.9	80-120	85.39	1.77	20	
Methylene chloride	50.37	10	50	0	101	74.7-120	47.78	5.29	20	
Styrene	46.6	5.0	50	0	93.2	80-120	47.68	2.29	20	
Tetrachloroethene	46.42	5.0	50	2.298	88.2	80-120	48.1	3.54	20	
Toluene	48.96	5.0	50	0	97.9	80-120	49.69	1.47	20	
trans-1,3-Dichloropropene	50.1	5.0	50	0	100	80-120	53.57	6.7	20	
Trichloroethene	96.42	5.0	50	43.84	105	80-120	113.9	16.7	20	
Vinyl acetate	112.7	10	100	0	113	61.1-148	124.3	9.8	20	
Vinyl chloride	44.32	2.0	50	0	88.6	76.2-121	48.86	9.74	20	
Xylenes, Total	129.1	15	150	0	86.1	80-120	133.6	3.42	20	
Surr: 1,2-Dichloroethane-d4	*56.27*	5.0	*50*	0	*113*	*70-125*	55.76	*0.915*	*20*	
Surr: 4-Bromofluorobenzene	*55.09*	5.0	*50*	0	*110*	*72.4-125*	53.17	*3.54*	*20*	
Surr: Dibromofluoromethane	*57.56*	5.0	*50*	0	*115*	*71.2-125*	55.85	*3.02*	*20*	
Surr: Toluene-d8	*57.05*	5.0	*50*	0	*114*	*75-125*	56.03	*1.8*	*20*	

The following samples were analyzed in this batch: 0612199-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44782** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-121206** Units: **pH units** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212C** SeqNo: **1012683** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	90-110		0		

DUP Sample ID: **0612199-01BDUP** Units: **pH units** Analysis Date: **12/12/06 0:00**
Client ID: **Injection Wells** Run ID: **WETCHEM_061212C** SeqNo: **1012685** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.34	0.10	0	0	0	0-0	7.32	0.273	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44783** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-121206** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012794** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-121206** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012795** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1413	1.0	1413	0	100	80-120	0			

DUP Sample ID: **0612142-01CDUP** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012800** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	767.3	1.0	0	0	0	0-0	765.3	0.261	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44808** Instrument ID **IC201** Method: **E300**

MBLK Sample ID: **WBLKW1-121206** Units: **mg/L** Analysis Date: **12/12/06 20:15**
Client ID: Run ID: **IC201_061212A** SeqNo: **1013297** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Selenate (surr)	*4.903*	0.10	*5*	0	*98.1*	*85-115*	0			

LCS Sample ID: **WLCSW1-364-33-** Units: **mg/L** Analysis Date: **12/12/06 20:37**
Client ID: Run ID: **IC201_061212A** SeqNo: **1013299** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.14	0.50	20	0	101	90-110	0			
Sulfate	20.12	1.0	20	0	101	90-110	0			
Surr: Selenate (surr)	*5.006*	0.10	*5*	0	*100*	*85-115*	0			

MS Sample ID: **0612199-01BMS** Units: **mg/L** Analysis Date: **12/12/06 23:54**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013307** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1005	5.0	100	916.6	88.5	80-120	0			EO
Sulfate	1888	10	100	1812	76.4	80-120	0			SEO
Surr: Selenate (surr)	*47.8*	1.0	*50*	0	*95.6*	*80-120*	0			

MSD Sample ID: **0612199-01BMSD** Units: **mg/L** Analysis Date: **12/13/06 0:16**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013308** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1011	5.0	100	916.6	94.4	80-120	1005	0.594	20	EO
Sulfate	1877	10	100	1812	64.8	80-120	1888	0.613	20	SEO
Surr: Selenate (surr)	*47.92*	1.0	*50*	0	*95.8*	*80-120*	47.8	*0.247*	*20*	

DUP Sample ID: **0612199-01BDUP** Units: **mg/L** Analysis Date: **12/12/06 23:32**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013305** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	924.3	5.0	0	0	0	0-0	916.6	0.835	20	E
Sulfate	1808	10	0	0	0	0-0	1812	0.23	20	E
Surr: Selenate (surr)	*47.29*	1.0	*50*	0	*94.6*	*80-120*	47.18	*0.231*	*20*	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44808** Instrument ID **IC201** Method: **E300**

DUP Sample ID: **0612199-01BDUP** Units: **mg/L** Analysis Date: **12/13/06 1:00**

Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013310** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	933.2	25	0	0	0	0-0	907.3	2.82	20	
Sulfate	1816	50	0	0	0	0-0	1811	0.274	20	
Surr: Selenate (surr)	*233.6*	5.0	*250*	0	*93.5*	*80-120*	232.3	*0.586*	*20*	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44894** Instrument ID **Balance1** Method: **E160.1**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014727** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014728** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	934	10	1000	0	93.4	85-115	0			

DUP Sample ID: **0612223-01DDUP** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014710** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1658	10	0	0	0	0-0	1483	11.1	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45013** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-R45013** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017499** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-R45013** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017500** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1012	5.0	1000	0	101	80-120	0			

DUP Sample ID: **0612285-01DDUP** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017520** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	276.9	5.0	0	0	0	0-0	276.9	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	276.9	5.0	0	0	0	0-0	276.9	0	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical
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Holland, Michigan 49424
(Tel) 616.399.6070
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Chain of Custody Form

Page 1 of 1

e-Lab Project Manager:

e-Lab Work Order #: 0612199

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	Injection Well Qrtly	A VOC (8260) Select
Work Order		Project Number		B Total Metals (6020/7000)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C SVOC (8270) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D Anions (300) Chloride, Sulfate
Address	PO Box 159	Address	PO Box 159	E Alkalinity
				F pH
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G Conductivity
Phone	(505) 748-3311	Phone	(505) 748-3311	H TDS
Fax	(505) 746-5421	Fax	(505) 746-5421	I RCI Profile
e-Mail Address		e-Mail Address		J

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Wells	12/11/06	1330	L	Y		X	X	X	X	X	X	X	X	X		
2	Trip blank			L	Y	2	X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Tyler Hall

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☑ Std 10 WK Days ☐ 5 WK Days ☐ Other ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by: Tyler Hall Date: 12/11/06 Time: 16:15 Received by:

Relinquished by: Date: Time: Received by (Laboratory): 12-12-06 1185

Logged by (Laboratory): Date: Time: Checked by (Laboratory):

Notes:

e-Lab Analytical Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 12/12/2006 10:35:00 AM

Work Order Number 0612199 Received by: RSZ

Checklist completed by Signature 12/12/06 Date Reviewed by Initials 12/13/06 Date

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.5 C	002	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? Checked by

Login Notes:

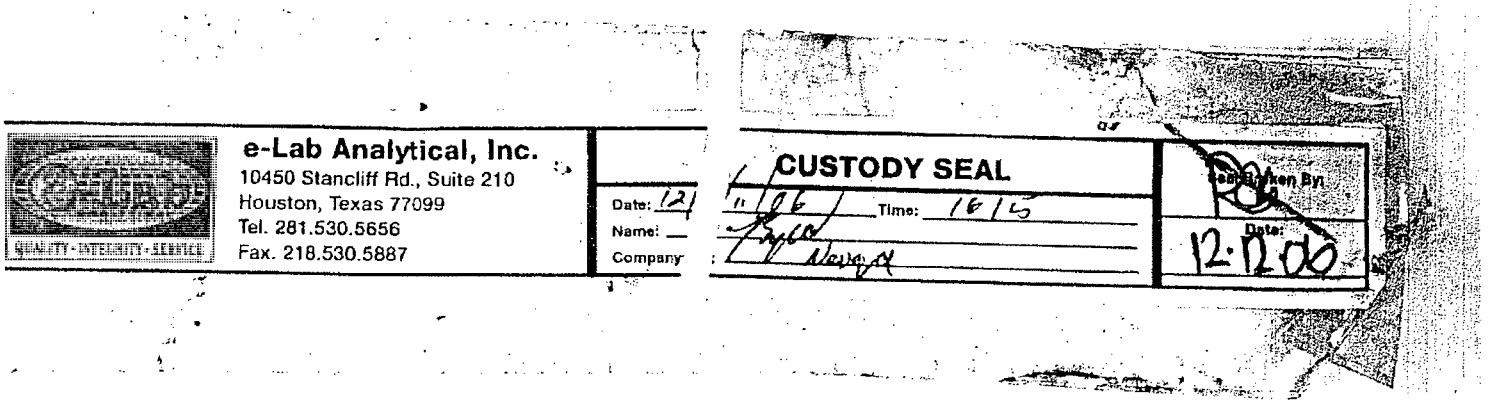
Client contacted: Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action:

062199



e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

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Date: 12/
Name: —
Company:

CUSTODY SEAL

Time: 1615

Relinquished By:

Date: 12.12.00

e-Lab Analytical, Inc

Date: *December 21, 2006*

CLIENT: e-Lab Analytical, Inc
Project: 0612199
Work Order: **0612274**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0612274-01	0612199-01E	Water		12/11/2006 13:30	12/13/2006 11:00	☐

e-Lab Analytical, Inc

Date: *December 21, 2006*

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199
Lab ID: 0612274-01

Client Sample ID: 0612199-01E
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **CES**
Cyanide, Reactive	ND	40.0		mg/Kg	1	12/15/2006
FLASHPOINT, P-M CLOSED-CUP			**ASTM D93**			Analyst: **CES**
Flashpoint, P-M Closed-cup	**>180**			**°F**	1	12/15/2006
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **CES**
Sulfide, Reactive	ND	40.0		mg/Kg	1	12/15/2006

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

Date: *Dec 21 2006*

QC BATCH REPORT

Batch ID: **R44830** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID **WBLKW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704189** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID **WLCSW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704190** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	293.6	40	619	0	47.4	2.8-70		0		

LCSD Sample ID **WLCSDW1-12150** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704196** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	337.7	40	619	0	54.6	2.8-70	293.6	14	35	

MS Sample ID **0612274-01A MS** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: **0612199-01E** Run ID: **WETCHEM_061215D** SeqNo: **704193** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	176.2	40	619	0	28.5	2.8-70		0		

MSD Sample ID **0612274-01A MSD** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: **0612199-01E** Run ID: **WETCHEM_061215D** SeqNo: **704194** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	205.5	40	619	0	33.2	2.8-70	176.2	15.4	35	

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

QC BATCH REPORT

Batch ID: **R44831** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID **WBLKW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**

Client ID: Run ID: **WETCHEM_061215E** SeqNo: **704197** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

QC BATCH REPORT

Batch ID: **R44839** Instrument ID **WETCHEM** Method: **ASTM D93**

LCS Sample ID **WLCSW1-121506** Units: **°F** Analysis Date: **12/15/06 0:00**

Client ID: Run ID: **WETCHEM_061215I** SeqNo: **704314** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	81	0	81	0	100	97-103		0		

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

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e-Lab Analytical, Inc
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
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Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: Dec 12, 2006
COC ID: 4464
Due Date 12/22/2006

0612274

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order	2111061	Project Name	0612199	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C Flashpoint (SW1010)
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd. Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jcroston@elabi.com	eMail CC	oelliston@elabi.com	J

Sample ID	Matrix	Collection Date	Bottle	A	B	C	D	E	F	G	H	I	J
0612199-01E (Inj. Well)	Water	12/11/2006 13:30	(2) 1LPNEAT	X	X	X							

Comments

Please analyze for Reactive Cyanide, Reactive Sulfide, and Ignitability. Results needed by 12/22/06. Please email results to Jeff Croston- jcroston@elabi.com and CC: O. Elliston- oelliston@elabi.com

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
			12/13/06 1100		Std
Relinquished by:	Date/Time	Received by:	Date/Time		

e-Lab Analytical, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 12/13/2006 11:00:00 AM

Work Order Number 0612274 Received by: WJC

Checklist completed by Signature 12/13/06 Date Reviewed by Initials 12/13/06 Date

Matrix: Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.6 C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked b _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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222 of 300

UPS Next Day Air

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QUALITY · INTEGRITY · RESPECT

e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

CUSTODY SEAL

Date: 12/2/20 Time: 1600

Name: [illegible]

Company: E-LAB

Seal Broken By:

Date:

Page 3346 of 5828

REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
OCT 25 2004
OIL CONSERVATION DIVISION

October 21, 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2004 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2004 to September 30, 2004. We have disposed a total of 20,939,501 bbls. of fluid into the two wells as of September 30, 2004. This is broken down as follows: 14,224,878 bbls. into WDW-1 and 6,714,623 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

2004 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jul-04	146	238	102	207	263	172	238	286	192	7110	9021	5901	220,420
Aug-04	175	250	51	216	269	124	254	345	143	7411	9221	4259	229,735
Sep-04	139	154	120	190	201	175	184.9	233.2	101.4	6509	6894	6003	201,778
WDW-2													
Jul-04	156	253	110	127	169	95	441	500	320	4362	5801	3244	135,207
Aug-04	185	266	47	131	176	32	469	500	225	4497	6045	1082	139,421
Sep-04	152	170	129	121	134	103.0	440	498	242	4154	4604	3532	128,764

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5887

July 23, 2004

Darrell Moore
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5281
Fax: (505) 746-5421

Re: Injection Wells Work Order : **0407074**

Dear Darrell Moore,

e-Lab Analytical, Inc. received 2 samples on 7/8/2004 8:40:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. The total number of pages in this report is 38.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Patrina A. Dathorne

Jeffrey L Croston

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0407074

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0407074-01	Inj Wells	Water		7/7/2004 09:00	7/8/2004 08:40	☐
0407074-02	Trip Blank	Water		7/7/2004	7/8/2004 08:40	☐

e-Lab Analytical, Inc. **Date:** *July 23, 2004*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0407074

Case Narrative

Semivolatile (sample Inj. Wells) Surrogates were outside of control limits due to a matrix interference. Sample was re-extracted and re-analyzed and surrogates recoveries were confirmed.

Batch 9539 Metals MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL		**SW7470**			Prep Date: **7/17/2004**	Analyst: **JCJ**
Mercury	ND	0.000200		mg/L	1	7/17/2004 6:08:25 PM
ICP METALS, TOTAL		**SW6020**			Prep Date: **7/9/2004**	Analyst: **ALR**
Aluminum	0.556	0.100		mg/L	10	7/9/2004 10:24:00 PM
Arsenic	0.171	0.0500		mg/L	10	7/9/2004 10:24:00 PM
Barium	0.0354	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Beryllium	ND	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Boron	0.240	0.200		mg/L	10	7/9/2004 10:24:00 PM
Cadmium	ND	0.00200		mg/L	2	7/23/2004 2:11:00 PM
Calcium	216	25.0		mg/L	50	7/9/2004 9:39:00 PM
Chromium	0.00818	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Cobalt	ND	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Copper	0.00655	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Iron	4.42	0.400		mg/L	2	7/23/2004 12:23:00 AM
Lead	ND	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Magnesium	34.1	2.00		mg/L	10	7/9/2004 10:24:00 PM
Manganese	0.116	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Molybdenum	ND	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Nickel	0.0195	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Potassium	24.9	0.400		mg/L	2	7/23/2004 12:23:00 AM
Selenium	0.432	0.0500		mg/L	10	7/9/2004 10:24:00 PM
Silver	ND	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Sodium	1,580	10.0		mg/L	50	7/9/2004 9:39:00 PM
Vanadium	ND	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Zinc	0.0677	0.0100		mg/L	2	7/23/2004 12:23:00 AM
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **7/12/2004**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2,4,5-Trichlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2,4,6-Trichlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Methylnaphthalene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Methylphenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Nitrophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
3-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Methylphenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Nitrophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Acenaphthene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Acenaphthylene	ND	12		µg/L	1	7/15/2004 1:53:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Aniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Anthracene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Benz(a)anthracene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Benzidine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Hexachloroethane	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Indeno(1,2,3-cd)pyrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Isophorone	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodi-n-propylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodimethylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodiphenylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Naphthalene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Nitrobenzene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Pentachlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Phenanthrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Phenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Pyrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Surr: 2,4,6-Tribromophenol	28.6	39-153	S	%REC	1	7/15/2004 1:53:00 AM
Surr: 2-Fluorobiphenyl	45.7	40-147		%REC	1	7/15/2004 1:53:00 AM
Surr: 2-Fluorophenol	12.1	21-110	S	%REC	1	7/15/2004 1:53:00 AM
Surr: 4-Terphenyl-d14	40.9	39-141		%REC	1	7/15/2004 1:53:00 AM
Surr: Nitrobenzene-d5	40.8	37-140		%REC	1	7/15/2004 1:53:00 AM
Surr: Phenol-d6	7.92	11-100	S	%REC	1	7/15/2004 1:53:00 AM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
2-Butanone	16	10		µg/L	1	7/19/2004 2:58:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	7/19/2004 2:58:00 PM
2-Hexanone	ND	10		µg/L	1	7/19/2004 2:58:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Acetone	87	10		µg/L	1	7/19/2004 2:58:00 PM
Benzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromoform	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromomethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Carbon disulfide	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloroform	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Ethylbenzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
m,p-Xylene	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Methylene chloride	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Styrene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Toluene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Trichloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Vinyl acetate	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Vinyl chloride	ND	2.0		µg/L	1	7/19/2004 2:58:00 PM
Xylenes, Total	ND	15		µg/L	1	7/19/2004 2:58:00 PM
Surr: 1,2-Dichloroethane-d4	85.9	71-126		%REC	1	7/19/2004 2:58:00 PM
Surr: 4-Bromofluorobenzene	93.8	74-125		%REC	1	7/19/2004 2:58:00 PM
Surr: Dibromofluoromethane	89.3	73-126		%REC	1	7/19/2004 2:58:00 PM
Surr: Toluene-d8	89.9	75-125		%REC	1	7/19/2004 2:58:00 PM
FLASHPOINT		**SW1010**				Analyst: **MAG**
Ignitability	>200	50		°F	1	7/16/2004
CYANIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Cyanide	ND	0.0300		mg/L	1	7/16/2004
SULFIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Sulfide	ND	40.0		mg/L	1	7/16/2004
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **MG**
Chloride	992	50.0		mg/L	100	7/13/2004 3:25:00 AM
Sulfate	2,270	100		mg/L	100	7/13/2004 3:25:00 AM
Surr: Dichloroacetic acid (surr)	107	80-120		%REC	100	7/13/2004 3:25:00 AM
ALKALINITY		**E310.1**				Analyst: **HDO**
Alkalinity, Bicarbonate (As CaCO3)	157	5.00		mg/L	1	7/12/2004
Alkalinity, Carbonate (As CaCO3)	ND	5.00		mg/L	1	7/12/2004
Alkalinity, Hydroxide (As CaCO3)	ND	5.00		mg/L	1	7/12/2004
Alkalinity, Total (As CaCO3)	157	5.00		mg/L	1	7/12/2004
CONDUCTIVITY		**E120.1**				Analyst: **HDO**
Specific Conductance	7,200	1.00		µmhos/cm	1	7/12/2004

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **LMD**
pH	6.92	0.100		pH units	1	7/8/2004
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **LMD**
Total Dissolved Solids (Residue, Filterable)	4,960	10.0		mg/L	1	7/8/2004

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

Date: *Jul 23 2004*

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MBLK Sample ID: **MBLKW3-070904** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/09/04 21:25**

Client ID: Run ID: **ICP4500_040709A** SeqNo: **505844** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.003459	0.010								J
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

LCS Sample ID: **MLCSW3-070904** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/09/04 21:29**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505845** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.04844	0.010	0.05	0	96.9	79-126	0			
Arsenic	0.04766	0.0050	0.05	0	95.3	80-121	0			
Barium	0.04274	0.0050	0.05	0	85.5	79.8-119	0			
Beryllium	0.04529	0.0020	0.05	0	90.6	78.9-120	0			
Boron	0.4936	0.020	0.5	0	98.7	80-120	0			
Cadmium	0.04849	0.0020	0.05	0	97	79.1-119	0			
Calcium	4.804	0.50	5	0	96.1	80-121	0			
Chromium	0.04798	0.0050	0.05	0	96	79.3-121	0			
Cobalt	0.04761	0.0050	0.05	0	95.2	82-121	0			
Copper	0.04535	0.0050	0.05	0	90.7	83-121	0			
Iron	4.902	0.20	5	0	98	80-120	0			
Lead	0.04454	0.0050	0.05	0	89.1	80-118	0			
Magnesium	5.139	0.20	5	0	103	80-120	0			
Manganese	0.04778	0.0050	0.05	0	95.6	82-119	0			
Molybdenum	0.04486	0.0050	0.05	0	89.7	84.6-115	0			
Nickel	0.04723	0.0050	0.05	0	94.5	85-120	0			
Potassium	4.953	0.20	5	0	99.1	80-120	0			
Selenium	0.0466	0.0050	0.05	0	93.2	79.2-118	0			
Silver	0.04787	0.0050	0.05	0	95.7	83-117	0			
Sodium	5.081	0.20	5	0	102	82.4-120	0			
Vanadium	0.04735	0.0050	0.05	0	94.7	82.1-119	0			
Zinc	0.04587	0.0050	0.05	0	91.7	83-118	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MS Sample ID: **0407028-83CMS** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:14**

Client ID: Run ID: **ICP4500_040709A** SeqNo: **505874** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05038	0.010	0.05	0.002733	95.3	79-126	0			
Arsenic	0.04968	0.0050	0.05	0.003932	91.5	80-121	0			
Barium	0.07232	0.0050	0.05	0.02595	92.7	79.8-119	0			
Beryllium	0.0509	0.0020	0.05	0.0005094	101	78.9-120	0			
Boron	0.623	0.020	0.5	0.09092	106	80-120	0			
Cadmium	0.04574	0.0020	0.05	0.0003332	90.8	79.1-119	0			
Calcium	90.82	0.50	5	84.69	123	80-121	0			SEO
Chromium	0.04515	0.0050	0.05	0	90.3	79.3-121	0			
Cobalt	0.04827	0.0050	0.05	0.004039	88.5	82-121	0			
Copper	0.04228	0.0050	0.05	0.0009502	82.7	83-121	0			S
Iron	5.002	0.20	5	0.2496	95	80-120	0			
Lead	0.04748	0.0050	0.05	0	95	80-118	0			
Magnesium	28.5	0.20	5	23.83	93.4	80-120	0			O
Manganese	0.1942	0.0050	0.05	0.1499	88.6	82-119	0			
Molybdenum	0.04699	0.0050	0.05	0	94	84.6-115	0			
Nickel	0.05298	0.0050	0.05	0.01094	84.1	85-120	0			S
Potassium	7.353	0.20	5	2.353	100	80-120	0			
Selenium	0.046	0.0050	0.05	0.003609	84.8	79.2-118	0			
Silver	0.04262	0.0050	0.05	0	85.2	83-117	0			
Sodium	164.1	0.20	5	161.8	46	82.4-120	0			SEO
Vanadium	0.0482	0.0050	0.05	0.0006576	95.1	82.1-119	0			
Zinc	0.04617	0.0050	0.05	0.004682	83	83-118	0			S

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MSD Sample ID: **0407028-83CMSD** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:19**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505875** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05215	0.010	0.05	0.002733	98.8	79-126	0.05038	3.45	15	
Arsenic	0.04869	0.0050	0.05	0.003932	89.5	80-121	0.04968	2.01	15	
Barium	0.07266	0.0050	0.05	0.02595	93.4	79.8-119	0.07232	0.469	15	
Beryllium	0.05198	0.0020	0.05	0.0005094	103	78.9-120	0.0509	2.1	15	
Boron	0.6325	0.020	0.5	0.09092	108	80-120	0.623	1.51	15	
Cadmium	0.04625	0.0020	0.05	0.0003332	91.8	79.1-119	0.04574	1.11	15	
Calcium	93.55	0.50	5	84.69	177	80-121	90.82	2.96	15	SEO
Chromium	0.04685	0.0050	0.05	0	93.7	79.3-121	0.04515	3.7	15	
Cobalt	0.04998	0.0050	0.05	0.004039	91.9	82-121	0.04827	3.48	15	
Copper	0.04371	0.0050	0.05	0.0009502	85.5	83-121	0.04228	3.33	15	
Iron	5.13	0.20	5	0.2496	97.6	80-120	5.002	2.53	15	
Lead	0.0471	0.0050	0.05	0	94.2	80-118	0.04748	0.804	15	
Magnesium	30.14	0.20	5	23.83	126	80-120	28.5	5.59	15	SO
Manganese	0.2008	0.0050	0.05	0.1499	102	82-119	0.1942	3.34	15	
Molybdenum	0.04735	0.0050	0.05	0	94.7	84.6-115	0.04699	0.763	15	
Nickel	0.05422	0.0050	0.05	0.01094	86.6	85-120	0.05298	2.31	15	
Potassium	7.483	0.20	5	2.353	103	80-120	7.353	1.75	15	
Selenium	0.04327	0.0050	0.05	0.003609	79.3	79.2-118	0.046	6.12	15	
Silver	0.04351	0.0050	0.05	0	87	83-117	0.04262	2.07	15	
Sodium	173.9	0.20	5	161.8	242	82.4-120	164.1	5.8	15	SEO
Vanadium	0.04997	0.0050	0.05	0.0006576	98.6	82.1-119	0.0482	3.61	15	
Zinc	0.04806	0.0050	0.05	0.004682	86.8	83-118	0.04617	4.01	15	

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

DUP Sample ID: **0407028-83CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:09**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505873** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002615	0.010	0	0	0	0-0	0.002733	0	25	J
Arsenic	0.003323	0.0050	0	0	0	0-0	0.003932	0	25	J
Barium	0.026	0.0050	0	0	0	0-0	0.02595	0.192	25	
Beryllium	0.000439	0.0020	0	0	0	0-0	0.0005094	0	25	J
Boron	0.08249	0.020	0	0	0	0-0	0.09092	9.72	25	
Cadmium	0.0002675	0.0020	0	0	0	0-0	0.0003332	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0003544	0	25	
Cobalt	0.003999	0.0050	0	0	0	0-0	0.004039	0	25	J
Copper	0.001006	0.0050	0	0	0	0-0	0.0009502	0	25	J
Iron	0.2425	0.20	0	0	0	0-0	0.2496	2.89	25	
Lead	ND	0.0050	0	0	0	0-0	0.0001737	0	25	
Magnesium	22.32	0.20	0	0	0	0-0	23.83	6.54	25	
Manganese	0.1501	0.0050	0	0	0	0-0	0.1499	0.133	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.0005272	0	25	
Nickel	0.01059	0.0050	0	0	0	0-0	0.01094	3.25	25	
Potassium	2.237	0.20	0	0	0	0-0	2.353	5.05	25	
Selenium	ND	0.0050	0	0	0	0-0	0.003609	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0001129	0	25	
Vanadium	0.0005641	0.0050	0	0	0	0-0	0.0006576	0	25	J
Zinc	0.00462	0.0050	0	0	0	0-0	0.004682	0	25	J

DUP Sample ID: **0407028-83CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/12/04 20:25**
Client ID: Run ID: **ICP4500_040712A** SeqNo: **506283** Prep Date: **7/9/2004** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	85.98	5.0	0	0	0	0-0	85.98	0	25	
Sodium	175.6	2.0	0	0	0	0-0	175.6	0	25	

The following samples were analyzed in this batch: 0407074-01B

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9641** InstrumentID: **Mercury**

MBLK Sample ID: **GBLKW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:39**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509754** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0			

LCS Sample ID: **GLCSW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:41**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509755** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00503	0.00020	0.005	0	101	83-115	0			

LCSD Sample ID: **GLCSDW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:43**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509756** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	0	101	83-115	0.00503	0.595	20	

MS Sample ID: **0407082-18CMS** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:50**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509759** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00482	0.00020	0.005	-0.000006	96.5	83-115	0			

MSD Sample ID: **0407082-18CMSD** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:51**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509760** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00484	0.00020	0.005	-0.000006	96.9	83-115	0.00482	0.414	20	

DUP Sample ID: **0407082-18CDUP** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:48**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509758** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000006	0	20	

The following samples were analyzed in this batch: 0407074-01B

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 15:58**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507356** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	82.25	10	100	0	82.2	39-153	0			
Surr: 2-Fluorobiphenyl	78.39	10	100	0	78.4	40-147	0			
Surr: 2-Fluorophenol	33.79	10	100	0	33.8	21-110	0			
Surr: 4-Terphenyl-d14	84.32	10	100	0	84.3	39-141	0			
Surr: Nitrobenzene-d5	70.65	10	100	0	70.7	37-140	0			
Surr: Phenol-d6	18.81	10	100	0	18.8	11-100	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 16:29**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507357** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	31.26	10	50	0	62.5	50-115	0			
2,4,5-Trichlorophenol	86.7	10	100	0	86.7	68-128	0			
2,4,6-Trichlorophenol	85.39	10	100	0	85.4	66-125	0			
2-Methylnaphthalene	34.79	10	50	0	69.6	47-122	0			
2-Methylphenol	61.44	10	100	0	61.4	51-115	0			
2-Nitroaniline	46.51	10	50	0	93	64-128	0			
2-Nitrophenol	76.92	10	100	0	76.9	60-119	0			
3-Nitroaniline	44.47	10	50	0	88.9	61-118	0			
4-Methylphenol	81.14	10	150	0	54.1	44-115	0			
4-Nitroaniline	44.56	10	50	0	89.1	61-123	0			
4-Nitrophenol	29.12	10	100	0	29.1	17-100	0			
Acenaphthene	40.9	10	50	0	81.8	68-115	0			
Acenaphthylene	40.88	10	50	0	81.8	67-116	0			
Aniline	32.02	10	50	0	64	40-130	0			
Anthracene	43.56	10	50	0	87.1	70-129	0			
Benz(a)anthracene	42.22	10	50	0	84.4	55-131	0			
Benzidine	30.17	10	50	0	60.3	10-115	0			
Hexachloroethane	30.87	10	50	0	61.7	46-115	0			
Indeno(1,2,3-cd)pyrene	48.4	10	50	0	96.8	42-123	0			
Isophorone	39.55	10	50	0	79.1	63-117	0			
N-Nitrosodi-n-propylamine	42.61	10	50	0	85.2	67-115	0			
N-Nitrosodimethylamine	21.15	10	50	0	42.3	28-115	0			
N-Nitrosodiphenylamine	46.31	10	50	0	92.6	72-144	0			
Naphthalene	33.4	10	50	0	66.8	52-115	0			
Nitrobenzene	38.35	10	50	0	76.7	65-115	0			
Pentachlorophenol	70.64	10	100	0	70.6	65-123	0			
Phenanthrene	41.84	10	50	0	83.7	69-119	0			
Phenol	23.79	10	100	0	23.8	16-115	0			
Pyrene	40.12	10	50	0	80.2	51-130	0			
Surr: 2,4,6-Tribromophenol	87.89	10	100	0	87.9	39-153	0			
Surr: 2-Fluorobiphenyl	82.26	10	100	0	82.3	40-147	0			
Surr: 2-Fluorophenol	40.23	10	100	0	40.2	21-110	0			
Surr: 4-Terphenyl-d14	86.41	10	100	0	86.4	39-141	0			
Surr: Nitrobenzene-d5	75.5	10	100	0	75.5	37-140	0			
Surr: Phenol-d6	23.26	10	100	0	23.3	11-100	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

LCSD Sample ID: **SLCSDW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 16:59**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507358** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	31.58	10	50	0	63.2	50-115	31.26	1.01	30	
2,4,5-Trichlorophenol	87.3	10	100	0	87.3	68-128	86.7	0.685	30	
2,4,6-Trichlorophenol	86.39	10	100	0	86.4	66-125	85.39	1.16	30	
2-Methylnaphthalene	33.56	10	50	0	67.1	47-122	34.79	3.61	30	
2-Methylphenol	60.16	10	100	0	60.2	51-115	61.44	2.11	30	
2-Nitroaniline	47.23	10	50	0	94.5	64-128	46.51	1.53	30	
2-Nitrophenol	75.92	10	100	0	75.9	60-119	76.92	1.32	30	
3-Nitroaniline	40.62	10	50	0	81.2	61-118	44.47	9.05	30	
4-Methylphenol	81.3	10	150	0	54.2	44-115	81.14	0.188	30	
4-Nitroaniline	42.15	10	50	0	84.3	61-123	44.56	5.54	30	
4-Nitrophenol	30.34	10	100	0	30.3	17-100	29.12	4.08	30	
Acenaphthene	39.88	10	50	0	79.8	68-115	40.9	2.52	30	
Acenaphthylene	39.7	10	50	0	79.4	67-116	40.88	2.93	30	
Aniline	31.01	10	50	0	62	40-130	32.02	3.2	30	
Anthracene	42.13	10	50	0	84.3	70-129	43.56	3.34	30	
Benz(a)anthracene	41.72	10	50	0	83.4	55-131	42.22	1.2	30	
Benzidine	28.39	10	50	0	56.8	10-115	30.17	6.06	30	
Hexachloroethane	29.4	10	50	0	58.8	46-115	30.87	4.89	30	
Indeno(1,2,3-cd)pyrene	44.19	10	50	0	88.4	42-123	48.4	9.1	30	
Isophorone	38.71	10	50	0	77.4	63-117	39.55	2.15	30	
N-Nitrosodi-n-propylamine	41.17	10	50	0	82.3	67-115	42.61	3.43	30	
N-Nitrosodimethylamine	22.1	10	50	0	44.2	28-115	21.15	4.41	30	
N-Nitrosodiphenylamine	44.6	10	50	0	89.2	72-144	46.31	3.77	30	
Naphthalene	32.74	10	50	0	65.5	52-115	33.4	1.99	30	
Nitrobenzene	38.2	10	50	0	76.4	65-115	38.35	0.387	30	
Pentachlorophenol	72.91	10	100	0	72.9	65-123	70.64	3.15	30	
Phenanthrene	40.12	10	50	0	80.2	69-119	41.84	4.2	30	
Phenol	24.22	10	100	0	24.2	16-115	23.79	1.79	30	
Pyrene	40.25	10	50	0	80.5	51-130	40.12	0.331	30	
Surr: 2,4,6-Tribromophenol	86.61	10	100	0	86.6	39-153	87.89	1.46	30	
Surr: 2-Fluorobiphenyl	81.97	10	100	0	82	40-147	82.26	0.35	30	
Surr: 2-Fluorophenol	39.11	10	100	0	39.1	21-110	40.23	2.82	30	
Surr: 4-Terphenyl-d14	85.17	10	100	0	85.2	39-141	86.41	1.45	30	
Surr: Nitrobenzene-d5	75.33	10	100	0	75.3	37-140	75.5	0.231	30	
Surr: Phenol-d6	23.6	10	100	0	23.6	11-100	23.26	1.46	30	

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MS Sample ID: **0407082-18DMS** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 18:00**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507360** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.77	11	53.19	0	72.9	50-115	0			
2,4,5-Trichlorophenol	91.48	11	106.4	0	86	68-128	0			
2,4,6-Trichlorophenol	92.28	11	106.4	0	86.7	66-125	0			
2-Methylnaphthalene	39.59	11	53.19	0	74.4	47-122	0			
2-Methylphenol	68.77	11	106.4	0	64.6	51-115	0			
2-Nitroaniline	49.37	11	53.19	0	92.8	64-128	0			
2-Nitrophenol	82.66	11	106.4	0	77.7	60-119	0			
3-Nitroaniline	39.84	11	53.19	0	74.9	61-118	0			
4-Methylphenol	95.14	11	159.6	0	59.6	44-115	0			
4-Nitroaniline	41.31	11	53.19	0	77.7	61-123	0			
4-Nitrophenol	36.34	11	106.4	0	34.2	17-100	0			
Acenaphthene	46.9	11	53.19	0	88.2	68-115	0			
Acenaphthylene	42.53	11	53.19	0	80	67-116	0			
Aniline	31.51	11	53.19	0	59.2	40-130	0			
Anthracene	45.14	11	53.19	0	84.9	70-129	0			
Benz(a)anthracene	44.52	11	53.19	0	83.7	55-131	0			
Benzidine	24.16	11	53.19	0	45.4	10-115	0			
Hexachloroethane	42.45	11	53.19	0	79.8	46-115	0			
Indeno(1,2,3-cd)pyrene	49.91	11	53.19	0	93.8	42-123	0			
Isophorone	41.24	11	53.19	0	77.5	63-117	0			
N-Nitrosodi-n-propylamine	46.57	11	53.19	0	87.5	67-115	0			
N-Nitrosodimethylamine	26.9	11	53.19	0	50.6	28-115	0			
N-Nitrosodiphenylamine	47.19	11	53.19	0	88.7	72-144	0			
Naphthalene	37.95	11	53.19	0	71.4	52-115	0			
Nitrobenzene	42.36	11	53.19	0	79.6	65-115	0			
Pentachlorophenol	71.64	11	106.4	0	67.3	65-123	0			
Phenanthrene	43.67	11	53.19	0	82.1	69-119	0			
Phenol	29.8	11	106.4	0	28	16-115	0			
Pyrene	41.73	11	53.19	0	78.4	51-130	0			
Surr: 2,4,6-Tribromophenol	88.29	11	106.4	0	83	39-153	0			
Surr: 2-Fluorobiphenyl	88.06	11	106.4	0	82.8	40-147	0			
Surr: 2-Fluorophenol	46.77	11	106.4	0	44	21-110	0			
Surr: 4-Terphenyl-d14	88.44	11	106.4	0	83.1	39-141	0			
Surr: Nitrobenzene-d5	81.74	11	106.4	0	76.8	37-140	0			
Surr: Phenol-d6	27.76	11	106.4	0	26.1	11-100	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MSD Sample ID: **0407082-18DMSD** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 18:30**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507361** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.35	11	53.19	0	72.1	50-115	38.77	1.09	30	
2,4,5-Trichlorophenol	95.8	11	106.4	0	90.1	68-128	91.48	4.61	30	
2,4,6-Trichlorophenol	92.06	11	106.4	0	86.5	66-125	92.28	0.244	30	
2-Methylnaphthalene	39.08	11	53.19	0	73.5	47-122	39.59	1.29	30	
2-Methylphenol	70.25	11	106.4	0	66	51-115	68.77	2.12	30	
2-Nitroaniline	48.77	11	53.19	0	91.7	64-128	49.37	1.21	30	
2-Nitrophenol	83.64	11	106.4	0	78.6	60-119	82.66	1.17	30	
3-Nitroaniline	37.37	11	53.19	0	70.3	61-118	39.84	6.4	30	
4-Methylphenol	94.8	11	159.6	0	59.4	44-115	95.14	0.358	30	
4-Nitroaniline	38.45	11	53.19	0	72.3	61-123	41.31	7.17	30	
4-Nitrophenol	36.01	11	106.4	0	33.8	17-100	36.34	0.923	30	
Acenaphthene	47.64	11	53.19	0	89.6	68-115	46.9	1.56	30	
Acenaphthylene	42.64	11	53.19	0	80.2	67-116	42.53	0.255	30	
Aniline	31.17	11	53.19	0	58.6	40-130	31.51	1.09	30	
Anthracene	45.61	11	53.19	0	85.7	70-129	45.14	1.04	30	
Benz(a)anthracene	45.17	11	53.19	0	84.9	55-131	44.52	1.46	30	
Benzidine	18.51	11	53.19	0	34.8	10-115	24.16	26.5	30	
Hexachloroethane	40.74	11	53.19	0	76.6	46-115	42.45	4.12	30	
Indeno(1,2,3-cd)pyrene	50.25	11	53.19	0	94.5	42-123	49.91	0.68	30	
Isophorone	42.87	11	53.19	0	80.6	63-117	41.24	3.88	30	
N-Nitrosodi-n-propylamine	46.44	11	53.19	0	87.3	67-115	46.57	0.281	30	
N-Nitrosodimethylamine	25.12	11	53.19	0	47.2	28-115	26.9	6.83	30	
N-Nitrosodiphenylamine	47.79	11	53.19	0	89.8	72-144	47.19	1.25	30	
Naphthalene	38.24	11	53.19	0	71.9	52-115	37.95	0.757	30	
Nitrobenzene	42.83	11	53.19	0	80.5	65-115	42.36	1.09	30	
Pentachlorophenol	81.78	11	106.4	0	76.9	65-123	71.64	13.2	30	
Phenanthrene	44.03	11	53.19	0	82.8	69-119	43.67	0.831	30	
Phenol	29.65	11	106.4	0	27.9	16-115	29.8	0.497	30	
Pyrene	42.44	11	53.19	0	79.8	51-130	41.73	1.71	30	
Surr: 2,4,6-Tribromophenol	93.87	11	106.4	0	88.2	39-153	88.29	6.12	30	
Surr: 2-Fluorobiphenyl	87.34	11	106.4	0	82.1	40-147	88.06	0.818	30	
Surr: 2-Fluorophenol	46.17	11	106.4	0	43.4	21-110	46.77	1.28	30	
Surr: 4-Terphenyl-d14	90.02	11	106.4	0	84.6	39-141	88.44	1.78	30	
Surr: Nitrobenzene-d5	80.82	11	106.4	0	76	37-140	81.74	1.14	30	
Surr: Phenol-d6	27.76	11	106.4	0	26.1	11-100	27.76	0.011	30	

The following samples were analyzed in this batch: 0407074-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MBLK Sample ID: **VBLKW-0719** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 11:33**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510670** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	42.27	5.0	50	0	84.5	71-126	0			
Surr: 4-Bromofluorobenzene	43.71	5.0	50	0	87.4	74-125	0			
Surr: Dibromofluoromethane	43.99	5.0	50	0	88	73-126	0			
Surr: Toluene-d8	44.34	5.0	50	0	88.7	75-125	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

LCS Sample ID: **VLCSW-0719** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 10:42**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510669** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.5	5.0	50	0	99	75.2-120	0			
1,1,2,2-Tetrachloroethane	47.64	5.0	50	0	95.3	72.4-121	0			
1,1,2-Trichloroethane	49.05	5.0	50	0	98.1	80-120	0			
1,1-Dichloroethane	40.8	5.0	50	0	81.6	76.9-120	0			
1,1-Dichloroethene	42.24	5.0	50	0	84.5	72.6-123	0			
1,2-Dichloroethane	50.08	5.0	50	0	100	80-120	0			
2-Butanone	98.22	10	100	0	98.2	69-131	0			
2-Chloroethyl vinyl ether	99.78	10	100	0	99.8	60-135	0			
2-Hexanone	109.7	10	100	0	110	55.6-126	0			
4-Methyl-2-pentanone	105.7	10	100	0	106	67.4-121	0			
Acetone	110	10	100	0	110	64.4-140	0			
Benzene	47.36	5.0	50	0	94.7	80-120	0			
Bromodichloromethane	49.67	5.0	50	0	99.3	80-120	0			
Bromoform	52.48	5.0	50	0	105	77.9-121	0			
Bromomethane	46.73	5.0	50	0	93.5	63.3-137	0			
Carbon disulfide	81.78	10	100	0	81.8	74.1-123	0			
Carbon tetrachloride	50.26	5.0	50	0	101	74.7-120	0			
Chlorobenzene	48.77	5.0	50	0	97.5	80-120	0			
Chloroethane	46	5.0	50	0	92	74.7-126	0			
Chloroform	46.23	5.0	50	0	92.5	80-120	0			
Chloromethane	43.9	5.0	50	0	87.8	64.5-132	0			
cis-1,3-Dichloropropene	51.24	5.0	50	0	102	80-120	0			
Dibromochloromethane	50.88	5.0	50	0	102	80-120	0			
Ethylbenzene	49.39	5.0	50	0	98.8	80-120	0			
m,p-Xylene	98.82	10	100	0	98.8	80-120	0			
Methylene chloride	41.13	10	50	0	82.3	76.2-120	0			
Styrene	50.69	5.0	50	0	101	80-120	0			
Tetrachloroethene	51.64	5.0	50	0	103	68.5-130	0			
Toluene	48.46	5.0	50	0	96.9	80-120	0			
trans-1,3-Dichloropropene	52.38	5.0	50	0	105	80-120	0			
Trichloroethene	50.2	5.0	50	0	100	78.9-120	0			
Vinyl acetate	106.1	10	100	0	106	62.4-133	0			
Vinyl chloride	46.69	2.0	50	0	93.4	72.7-128	0			
Xylenes, Total	148.4	15	150	0	98.9	80-120	0			
Surr: 1,2-Dichloroethane-d4	40.65	5.0	50	0	81.3	71-126	0			
Surr: 4-Bromofluorobenzene	46.15	5.0	50	0	92.3	74-125	0			
Surr: Dibromofluoromethane	41.66	5.0	50	0	83.3	73-126	0			
Surr: Toluene-d8	45.05	5.0	50	0	90.1	75-125	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MS Sample ID: **0407154-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 14:05**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510672** Prep Date: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12140	1,200	12500	0	97.1	75.2-120	0			
1,1,2,2-Tetrachloroethane	11150	1,200	12500	0	89.2	72.4-121	0			
1,1,2-Trichloroethane	12470	1,200	12500	0	99.8	80-120	0			
1,1-Dichloroethane	11610	1,200	12500	0	92.9	76.9-120	0			
1,1-Dichloroethene	9668	1,200	12500	0	77.3	72.6-123	0			
1,2-Dichloroethane	12100	1,200	12500	0	96.8	80-120	0			
2-Butanone	24170	2,500	25000	0	96.7	69-131	0			
2-Chloroethyl vinyl ether	23350	2,500	25000	0	93.4	60-135	0			
2-Hexanone	28460	2,500	25000	0	114	55.6-126	0			
4-Methyl-2-pentanone	26920	2,500	25000	0	108	67.4-121	0			
Acetone	28630	2,500	25000	0	115	64.4-140	0			
Benzene	12840	1,200	12500	1617	89.8	80-120	0			
Bromodichloromethane	12110	1,200	12500	0	96.9	80-120	0			
Bromoform	12900	1,200	12500	0	103	77.9-121	0			
Bromomethane	10540	1,200	12500	0	84.3	63.3-137	0			
Carbon disulfide	21710	2,500	25000	0	86.8	74.1-123	0			
Carbon tetrachloride	15530	1,200	12500	3701	94.7	74.7-120	0			
Chlorobenzene	17760	1,200	12500	6761	88	80-120	0			
Chloroethane	11150	1,200	12500	0	89.2	74.7-126	0			
Chloroform	27960	1,200	12500	16690	90.2	80-120	0			
Chloromethane	11340	1,200	12500	0	90.7	64.5-132	0			
cis-1,3-Dichloropropene	12280	1,200	12500	0	98.3	80-120	0			
Dibromochloromethane	12560	1,200	12500	0	101	80-120	0			
Ethylbenzene	12120	1,200	12500	0	97	80-120	0			
m,p-Xylene	24660	2,500	25000	0	98.7	80-120	0			
Methylene chloride	11050	2,500	12500	251	86.4	76.2-120	0			
Styrene	12310	1,200	12500	0	98.5	80-120	0			
Tetrachloroethene	12830	1,200	12500	307.5	100	68.5-130	0			
Toluene	11740	1,200	12500	0	93.9	80-120	0			
trans-1,3-Dichloropropene	12720	1,200	12500	0	102	80-120	0			
Trichloroethene	13050	1,200	12500	382.7	101	78.9-120	0			
Vinyl acetate	16340	2,500	25000	0	65.4	62.4-133	0			
Vinyl chloride	11910	500	12500	0	95.2	72.7-128	0			
Xylenes, Total	36910	3,800	37500	0	98.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	10910	1,200	12500	0	87.3	71-126	0			
Surr: 4-Bromofluorobenzene	12050	1,200	12500	0	96.4	74-125	0			
Surr: Dibromofluoromethane	10810	1,200	12500	0	86.5	73-126	0			
Surr: Toluene-d8	11660	1,200	12500	0	93.3	75-125	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MSD Sample ID: **0407154-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 14:33**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510673** Prep Date: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12300	1,200	12500	0	98.4	75.2-120	12140	1.31	20	
1,1,2,2-Tetrachloroethane	11100	1,200	12500	0	88.8	72.4-121	11150	0.381	20	
1,1,2-Trichloroethane	12660	1,200	12500	0	101	80-120	12470	1.46	20	
1,1-Dichloroethane	10890	1,200	12500	0	87.2	76.9-120	11610	6.37	20	
1,1-Dichloroethene	10340	1,200	12500	0	82.7	72.6-123	9668	6.67	20	
1,2-Dichloroethane	12510	1,200	12500	0	100	80-120	12100	3.41	20	
2-Butanone	25510	2,500	25000	0	102	69-131	24170	5.39	20	
2-Chloroethyl vinyl ether	23900	2,500	25000	0	95.6	60-135	23350	2.29	20	
2-Hexanone	29060	2,500	25000	0	116	55.6-126	28460	2.07	20	
4-Methyl-2-pentanone	27690	2,500	25000	0	111	67.4-121	26920	2.82	20	
Acetone	28630	2,500	25000	0	115	64.4-140	28630	0.0181	20	
Benzene	13310	1,200	12500	1617	93.5	80-120	12840	3.55	20	
Bromodichloromethane	12400	1,200	12500	0	99.2	80-120	12110	2.29	20	
Bromoform	13180	1,200	12500	0	105	77.9-121	12900	2.16	20	
Bromomethane	11380	1,200	12500	0	91	63.3-137	10540	7.65	20	
Carbon disulfide	22610	2,500	25000	0	90.4	74.1-123	21710	4.08	20	
Carbon tetrachloride	16060	1,200	12500	3701	98.9	74.7-120	15530	3.35	20	
Chlorobenzene	18250	1,200	12500	6761	91.9	80-120	17760	2.71	20	
Chloroethane	11550	1,200	12500	0	92.4	74.7-126	11150	3.48	20	
Chloroform	27240	1,200	12500	16690	84.4	80-120	27960	2.59	20	
Chloromethane	11380	1,200	12500	0	91.1	64.5-132	11340	0.38	20	
cis-1,3-Dichloropropene	12670	1,200	12500	0	101	80-120	12280	3.12	20	
Dibromochloromethane	12910	1,200	12500	0	103	80-120	12560	2.71	20	
Ethylbenzene	12480	1,200	12500	0	99.8	80-120	12120	2.91	20	
m,p-Xylene	25180	2,500	25000	0	101	80-120	24660	2.07	20	
Methylene chloride	10390	2,500	12500	251	81.1	76.2-120	11050	6.19	20	
Styrene	12620	1,200	12500	0	101	80-120	12310	2.5	20	
Tetrachloroethene	13110	1,200	12500	307.5	102	68.5-130	12830	2.1	20	
Toluene	12160	1,200	12500	0	97.3	80-120	11740	3.54	20	
trans-1,3-Dichloropropene	12790	1,200	12500	0	102	80-120	12720	0.554	20	
Trichloroethene	13550	1,200	12500	382.7	105	78.9-120	13050	3.73	20	
Vinyl acetate	16770	2,500	25000	0	67.1	62.4-133	16340	2.6	20	
Vinyl chloride	11890	500	12500	0	95.1	72.7-128	11910	0.11	20	
Xylenes, Total	37950	3,800	37500	0	101	80-120	36910	2.78	20	
Surr: 1,2-Dichloroethane-d4	10830	1,200	12500	0	86.7	71-126	10910	0.714	20	
Surr: 4-Bromofluorobenzene	12050	1,200	12500	0	96.4	74-125	12050	0.0324	20	
Surr: Dibromofluoromethane	11040	1,200	12500	0	88.3	73-126	10810	2.07	20	
Surr: Toluene-d8	11800	1,200	12500	0	94.4	75-125	11660	1.17	20	

The following samples were analyzed in this batch: 0407074-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21602** InstrumentID: **WetChem**

LCS Sample ID: **WLCSW1-070804** Test Code: **E150.1** Units: **pH units** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708A** SeqNo: **504779** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.04	0.10	6	0	101	85-115		0		

DUP Sample ID: **0407074-01CDUP** Test Code: **E150.1** Units: **pH units** Analysis Date: **07/08/04 0:00**
Client ID: **Inj Wells** Run ID: **WETCHEM_040708A** SeqNo: **504783** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.91	0.10	0	0	0	0-0	6.92	0.145	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21620** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW1-070804** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505164** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **WLCSW1-070804** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505165** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1058	10	1000	0	106	80-120	0			

DUP Sample ID: **0407068-01EDUP** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505171** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	25900	10	0	0	0	0-0	25620	1.07	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21657** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW-071204** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506101** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-071204** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506102** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	980.7	5.0	0	0.9806	0	0-0	0			
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Total (As CaCO3)	980.7	5.0	1000	0	98.1	80-120	0			

DUP Sample ID: **0407076-01BDUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506130** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	421.7	5.0	0	0	0	0-0	421.7	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	421.7	5.0	0	0	0	0-0	421.7	0	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21661** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW1-071204** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712D** SeqNo: **506172** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-071204** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712D** SeqNo: **506173** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1440	1.0	1409	0	102	80-120	0			

DUP Sample ID: **0407074-01CDUP** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: **Inj Wells** Run ID: **WETCHEM_040712D** SeqNo: **506175** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	7190	1.0	0	0	0	0-0	7200	0.139	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21698** InstrumentID: **IC201**

MBLK Sample ID: **WBLKW1-071204** Test Code: **E300** Units: **mg/L** Analysis Date: **07/12/04 23:08**
Client ID: Run ID: **IC201_040712B** SeqNo: **506929** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Dichloroacetic acid (surr)	5.26	0.10	5	0	105	80-120		0		

LCS Sample ID: **WLCSW1-071204** Test Code: **E300** Units: **mg/L** Analysis Date: **07/12/04 23:37**
Client ID: Run ID: **IC201_040712B** SeqNo: **506930** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.89	0.50	10	0	98.9	80-120		0		
Sulfate	10.41	1.0	10	0	104	80-120		0		
Surr: Dichloroacetic acid (surr)	5.58	0.10	5	0	112	80-120		0		

LCSD Sample ID: **WLCSW1DUP-071** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 0:05**
Client ID: Run ID: **IC201_040712B** SeqNo: **506931** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.9	0.50	10	0	99	80-120		0		
Sulfate	10.43	1.0	10	0	104	80-120		0		
Surr: Dichloroacetic acid (surr)	5.6	0.10	5	0	112	80-120		0		

MS Sample ID: **0407016-02AMS** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:31**
Client ID: Run ID: **IC201_040712B** SeqNo: **506934** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3695	50	1000	2719	97.6	75-125		0		
Sulfate	1255	100	1000	273	98.2	75-125		0		
Surr: Dichloroacetic acid (surr)	528	10	500	0	106	80-120		0		

MSD Sample ID: **0407016-02AMSD** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:59**
Client ID: Run ID: **IC201_040712B** SeqNo: **506935** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3686	50	1000	2719	96.7	75-125	3695	0.244	20	
Sulfate	1255	100	1000	273	98.2	75-125	1255	0	20	
Surr: Dichloroacetic acid (surr)	534	10	500	0	107	80-120	528	1.13	20	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21698** InstrumentID: **IC201**

DUP Sample ID: **0407016-02ADUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:02**
Client ID: Run ID: **IC201_040712B** SeqNo: **506933** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2515	50	0	0	0	0-0	2719	7.8	20	
Sulfate	259	100	0	0	0	0-0	273	5.26	20	
Surr: Dichloroacetic acid (surr)	538	10	500	0	108	80-120	571	5.95	20	

DUP Sample ID: **0407076-04BDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 11:01**
Client ID: Run ID: **IC201_040712B** SeqNo: **506938** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	844	25	0	0	0	0-0	845.5	0.178	20	
Sulfate	2172	50	0	0	0	0-0	2174	0.115	20	
Surr: Dichloroacetic acid (surr)	279	5.0	250	0	112	80-120	284.5	1.95	20	

DUP Sample ID: **0407076-07BDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 14:49**
Client ID: Run ID: **IC201_040712B** SeqNo: **506944** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3191	0.50	0	0	0	0-0	3183	0.227	20	E
Sulfate	4941	1.0	0	0	0	0-0	4912	0.6	20	E
Surr: Dichloroacetic acid (surr)	4.38	0.10	5	0	87.6	80-120	5.6	24.4	20	R

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Page _____ of _____

e-Lab Project Manager: | e-Lab Work Order #: 04030

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Wells	A	VOC (8260)
Work Order		Project Number		B	SVOC (8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Tot Metals WQCC + Cations (6020)
Send Report To	Charlie Plymale	Invoice Attn	Charlie Plymale	D	Anions: Cl, SO4 (300)
Address	P.O. Box 159	Address	P.O. Box 159	E	Alkalintiy (310.1)
				F	pH
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	TDS
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	Uranium
e-Mail Address		e-Mail Address		J	RCI

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj Wells	7/7/04	900			11	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Charlie Plymale

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ STD 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☐ Other 10 Day TAT

Results Due Date:

Relinquished by:	Date: 7/7/04	Time: 1615	Received by:	Notes:
Relinquished by:	Date:	Time:	Received by (Laboratory):	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory): 7/8/04	

e-lab Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab, Inc. are expressly limited to [illegible]

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 7/8/2004 8:40:00 AM

Work Order Number 0407074 Received by: FSM

Checklist completed by RICHARD SANCHEZ 7-8-04 (Signature / Date) Reviewed by (Initials) 7/9/04 (Date)

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.0c	002	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes: Trip blank not on COC; logged in without anlaysis.

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab, Inc **Date:** *July 19, 2004*

CLIENT: e-Lab, Inc
Project: 0407074
Work Order: 0407128

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0407128-01	0407074-01E	Water		7/7/2004 09:00	7/9/2004 10:00	☐

e-Lab, Inc

Date: *July 19, 2004*

CLIENT: e-Lab, Inc
Project: 0407074
Work Order: 0407128

Lab ID: 0407128-01A
Client Sample ID: 0407074-01E
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **KAE**
Cyanide, Reactive	ND	0.0300		mg/Kg	1	7/16/2004
FLASHPOINT, P-M CLOSED-CUP			**ASTM D93**			Analyst: **MB**
Flashpoint, P-M Closed-cup	>200			°F	1	7/16/2004
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **KAE**
Sulfide, Reactive	ND	40.0		mg/Kg	1	7/16/2004

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

Date: *Jul 19 2004*

QC BATCH REPORT

Batch ID: **R22476** InstrumentID: **WETCHEM**

LCS Sample ID: **WLCSW1-071504** Test Code: **ASTM D93** Units: **°F** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716G** SeqNo: **329758** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	80	0	81	0	98.8	97.5-102.4	0			

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

QC BATCH REPORT

Batch ID: **R22479** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-071504** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716I** SeqNo: **329826** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	0.030								

LCS Sample ID: **WLCSW1-071504** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716I** SeqNo: **329827** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	4.238	0.75	19.71	0	21.5	5-100		0		

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

QC BATCH REPORT

Batch ID: **R22482** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-071604** Test Code: **EPA 7.3.4.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716L** SeqNo: **329840** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Page 3384 of 5828

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

04/07/22

CHAIN-OF-CUSTODY RECORD

Work Order: [illegible]
PO/SO #: [illegible]
Date/Time: 7/20/2022

Client Information		Project Information		Parameters/Methods Required or Analyzed	
Purchase Order		Project Name	C40071	A	Chloride, Sulfate (EPA 300.0)
Work Order		Project Number		B	BTEX (EPA 8021B)
Company Name	[illegible]	Bill to Company	[illegible]	C	Total TPH (EPA 8015)
Send Report To	[illegible]	Invoice to	Accounts Payable	D	
Address	[illegible]	Address	[illegible]	E	
				F	
City/State/Zip	Hobbs, New Mexico 88240	City/State/Zip	Houston, Texas 77079-1175	G	
Phone	[illegible]	Phone	[illegible]	H	
Fax	[illegible]	Fax	[illegible]	I	
Email Address				J	

Sample ID	Matrix	Collection Date	Time	A	B	C	D	E	F	G	H	I	J
[illegible]	Solid	7/20/2022	[illegible]	X	X	X							

Comments:

Relinquished by:	Received by:	Relinquished by:	Received by:	Via:	Rush T/A Time
[signature]	[signature]	[signature]	[signature]		24

e-Lab, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 7/9/2004 10:00:00 AM

Work Order Number 0407128 Received by: TL

Checklist completed by [signature] 7/9/04 (Signature / Date) Reviewed by [initials] 7/9/04 (Initials / Date)

Matrix: Carrier name FedEx

Shipping container/cooler in good condition?	Yes ✔	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✔	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✔
Chain of custody present?	Yes ✔	No	
Chain of custody signed when relinquished and received?	Yes ✔	No	
Chain of custody agrees with sample labels?	Yes ✔	No	
Samples in proper container/bottle?	Yes ✔	No	
Sample containers intact?	Yes ✔	No	
Sufficient sample volume for indicated test?	Yes ✔	No	
All samples received within holding time?	Yes ✔	No	
Container/Temp Blank temperature in compliance?	Yes ✔	No	
Temperature(s)/Thermometer(s):	1.8 C		
Water - VOA vials have zero headspace?	Yes	No	No VOA vials submitted ✔
Water - pH acceptable upon receipt?	Yes ✔	No	N/A

Adjusted? Checked b

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action

ALIGN OPEN END OF FEDEX AIRBILL POUCH HERE
CUSTODY SEAL
FedEx
PRIORITY OVERNIGHT
FRI
GRR
TR
79-3 8343
49424
MI-US
NR HLMA
Holland MI 49424

REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
MAY 0 3 2004
OIL CONSERVATION DIVISION

April 30 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2004 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2004 to March 31, 2004. We have disposed a total of 18,858,402 bbls. of fluid into the two wells as of March 31, 2004. This is broken down as follows: 12,908,972 bbls. into WDW-1 and 5,949,430 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jan-04	410	483	241	271	322	165	322	450	179	9281	11030	5641	287,699
Feb-04	313	427	160	253	299	149	65	351	0	8680	10243	5095	269,077
Mar-04	312	463	17	235	294	101	0.2	0.3	0.1	8048	10067	3477	249,489
WDW-2													
Jan-04	461	500	53	143	168	94	278	460	144	4919	5753	3212	152,491
Feb-04	236	452	0	140	249	91	369	500	196	4784	8546	3127	148,313
Mar-04	325	477	1	117	170	0.5	407	500	158	4026	5844	16	124,792

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5658 Fax 281-530-5887

January 26, 2004

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj Wells Work Order : **0401037**

Dear Jeff Byrd,

e-Lab, Inc. received 1 sample on 1/7/2004 9:25:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 36.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Patrina A. Dathorne

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Project: Inj Wells
Work Order: **0401037**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0401037-01	Inj. Wells	Water		1/6/2004 11:00	1/7/2004 09:25	☐

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT: Navajo Refining Company
Project: Inj Wells
Work Order: 0401037

Case Narrative

The analysis for Uranium was performed at American Radiation Services in Baton Rouge, LA.

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL		**SW7470**			Prep Date: **1/13/2004**	Analyst: **JCJ**
Mercury	ND	0.000200		mg/L	1	1/14/2004 4:38:03 PM
ICP METALS, TOTAL		**SW6020**			Prep Date: **1/8/2004**	Analyst: **ALR**
Aluminum	0.0929	0.0200		mg/L	2	1/9/2004 3:23:00 PM
Arsenic	0.130	0.0250		mg/L	5	1/9/2004 3:14:00 PM
Barium	0.0405	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Beryllium	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Boron	0.579	0.0400		mg/L	2	1/9/2004 3:23:00 PM
Cadmium	ND	0.00200		mg/L	2	1/9/2004 3:23:00 PM
Calcium	78.5	2.50		mg/L	5	1/9/2004 3:14:00 PM
Chromium	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Cobalt	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Copper	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Iron	0.424	0.400		mg/L	2	1/9/2004 3:23:00 PM
Lead	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Magnesium	21.2	1.00		mg/L	5	1/9/2004 3:14:00 PM
Manganese	0.0279	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Nickel	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Potassium	84.1	1.00		mg/L	5	1/9/2004 3:14:00 PM
Selenium	0.169	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Silver	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Sodium	2,280	40.0		mg/L	200	1/14/2004 1:00:00 PM
Vanadium	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Zinc	0.0357	0.0100		mg/L	2	1/9/2004 3:23:00 PM
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **1/8/2004**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Methylnaphthalene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Methylphenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Nitrophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
3-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Methylphenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Nitrophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Acenaphthene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Acenaphthylene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Aniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Anthracene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Benz(a)anthracene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Benzidine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Hexachloroethane	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Isophorone	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodimethylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Naphthalene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Nitrobenzene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Pentachlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Phenanthrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Phenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Pyrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Surr: 2,4,6-Tribromophenol	84.1	39-153		%REC	1	1/10/2004 1:04:00 AM
Surr: 2-Fluorobiphenyl	69.6	40-147		%REC	1	1/10/2004 1:04:00 AM
Surr: 2-Fluorophenol	29.1	21-100		%REC	1	1/10/2004 1:04:00 AM
Surr: 4-Terphenyl-d14	65.8	39-141		%REC	1	1/10/2004 1:04:00 AM
Surr: Nitrobenzene-d5	76.6	37-140		%REC	1	1/10/2004 1:04:00 AM
Surr: Phenol-d6	17.0	11-100		%REC	1	1/10/2004 1:04:00 AM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
2-Butanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	1/13/2004 7:54:00 PM
2-Hexanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Acetone	17	10		µg/L	1	1/13/2004 7:54:00 PM
Benzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromoform	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromomethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Carbon disulfide	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chlorobenzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM

Qualifiers:
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Chloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chloroform	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Ethylbenzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
m,p-Xylene	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Methylene chloride	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Styrene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Toluene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Trichloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Vinyl acetate	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Vinyl chloride	ND	2.0		µg/L	1	1/13/2004 7:54:00 PM
Xylenes, Total	ND	15		µg/L	1	1/13/2004 7:54:00 PM
Surr: 1,2-Dichloroethane-d4	93.7	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: Dibromofluoromethane	93.4	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: Toluene-d8	89.3	70-130		%REC	1	1/13/2004 7:54:00 PM
FLASHPOINT		**SW1010**				Analyst: **MAG**
Ignitability	>200	50		°F	1	1/8/2004
CYANIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Cyanide	ND	0.0300		mg/L	1	1/13/2004
SULFIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Sulfide	ND	40.0		mg/L	1	1/12/2004
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **MG**
Chloride	2,440	50.0		mg/L	100	1/13/2004 12:02:00 PM
Sulfate	1,710	100		mg/L	100	1/13/2004 12:02:00 PM
Surr: Dichloroacetic acid (surr)	115	80-120		%REC	100	1/13/2004 12:02:00 PM
ALKALINITY		**E310.1**				Analyst: **LMD**
Alkalinity, Bicarbonate (As CaCO3)	290	5.00		mg/L	1	1/7/2004
Alkalinity, Carbonate (As CaCO3)	ND	5.00		mg/L	1	1/7/2004
Alkalinity, Hydroxide (As CaCO3)	ND	5.00		mg/L	1	1/7/2004
Alkalinity, Total (As CaCO3)	290	5.00		mg/L	1	1/7/2004
CONDUCTIVITY		**E120.1**				Analyst: **LMD**
Specific Conductance	9,120	1.00		µmhos/cm	1	1/13/2004

Qualifiers:

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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT:	Navajo Refining Company	**Client Sample ID:**	Inj. Wells
Work Order:	0401037	**Collection Date:**	1/6/2004 11:00:00 AM
Project:	Inj Wells		
Lab ID:	0401037-01	**Matrix:**	WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **LMD**
pH	8.43	0.100		pH units	1	1/7/2004
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **JBA**
Total Dissolved Solids (Residue, Filterable)	6,070	10.0		mg/L	1	1/9/2004

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	P - Dual Column results percent difference > 40%
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	H - Analyzed outside of Hold Time

e-Lab, Inc.

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

Date: *Jan 26 2004*

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MBLK Sample ID: **MBLKW2-010804** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 13:47**

Client ID: Run ID: **ICP4500_040109A** SeqNo: **415496** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0010								
Calcium	ND	0.50								
Chromium	ND	0.0020								
Cobalt	ND	0.0020								
Copper	ND	0.0020								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	0.001716	0.0050								J

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

LCS Sample ID: **MLCSW2-010804** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 13:51**
Client ID: Run ID: **ICP4500_040109A** SeqNo: **415497** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05256	0.010	0.05	0	105	80-120	0			
Arsenic	0.05054	0.0050	0.05	0	101	80-120	0			
Barium	0.04876	0.0050	0.05	0	97.5	80-120	0			
Beryllium	0.0475	0.0020	0.05	0	95	80-120	0			
Boron	0.4771	0.020	0.5	0	95.4	80-120	0			
Cadmium	0.0518	0.0010	0.05	0	104	80-120	0			
Calcium	4.894	0.50	5	0	97.9	80-120	0			
Chromium	0.05086	0.0020	0.05	0	102	80-120	0			
Cobalt	0.05016	0.0020	0.05	0	100	80-120	0			
Copper	0.04837	0.0020	0.05	0	96.7	80-120	0			
Iron	4.695	0.20	5	0	93.9	80-120	0			
Lead	0.04803	0.0050	0.05	0	96.1	80-120	0			
Magnesium	5.03	0.20	5	0	101	80-120	0			
Manganese	0.05203	0.0050	0.05	0	104	80-120	0			
Nickel	0.05031	0.0050	0.05	0	101	80-120	0			
Potassium	5.001	0.20	5	0	100	80-120	0			
Selenium	0.04876	0.0050	0.05	0	97.5	80-120	0			
Silver	0.04905	0.0050	0.05	0	98.1	80-120	0			
Sodium	4.934	0.20	5	0	98.7	80-120	0			
Vanadium	0.05047	0.0050	0.05	0	101	80-120	0			
Zinc	0.04962	0.0050	0.05	0	99.2	80-120	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MS Sample ID: **0401037-01CMS** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:41**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415583** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1386	0.020	0.05	0.09293	91.3	75-125	0			
Arsenic	0.1628	0.010	0.05	0.1222	81.2	75-125	0			
Barium	0.0922	0.010	0.05	0.04055	103	75-125	0			
Beryllium	0.054	0.0040	0.05	0	108	75-125	0			
Boron	1.149	0.040	0.5	0.5787	114	75-125	0			
Cadmium	0.04433	0.0020	0.05	0	88.7	75-125	0			
Calcium	76.14	1.0	5	73.6	50.8	75-125	0			SO
Chromium	0.05061	0.0040	0.05	0.002633	96	75-125	0			
Cobalt	0.04941	0.0040	0.05	0.002671	93.5	75-125	0			
Copper	0.0442	0.0040	0.05	0.003364	81.7	75-125	0			
Iron	4.765	0.40	5	0.4238	86.8	75-125	0			
Lead	0.05518	0.010	0.05	0	110	75-125	0			
Magnesium	23.02	0.40	5	19.15	77.4	75-125	0			
Manganese	0.07355	0.010	0.05	0.02789	91.3	75-125	0			
Nickel	0.05067	0.010	0.05	0.008268	84.8	75-125	0			
Potassium	85.96	0.40	5	82.03	78.6	75-125	0			O
Selenium	0.1903	0.010	0.05	0.1686	43.4	75-125	0			S
Silver	0.04085	0.010	0.05	0.0006825	80.3	75-125	0			
Sodium	400	0.40	5	400	0	75-125	0			SEO
Vanadium	0.05781	0.010	0.05	0.007067	101	75-125	0			
Zinc	0.07138	0.010	0.05	0.03574	71.3	75-125	0			S

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MSD Sample ID: **0401037-01CMSD** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:46**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415584** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1337	0.020	0.05	0.09293	81.5	75-125	0.1386	3.6	25	
Arsenic	0.1586	0.010	0.05	0.1222	72.8	75-125	0.1628	2.61	25	S
Barium	0.08998	0.010	0.05	0.04055	98.9	75-125	0.0922	2.44	25	
Beryllium	0.0523	0.0040	0.05	0	105	75-125	0.054	3.2	25	
Boron	1.11	0.040	0.5	0.5787	106	75-125	1.149	3.45	25	
Cadmium	0.0431	0.0020	0.05	0	86.2	75-125	0.04433	2.81	25	
Calcium	74.74	1.0	5	73.6	22.6	75-125	76.14	1.86	25	SO
Chromium	0.05029	0.0040	0.05	0.002633	95.3	75-125	0.05061	0.634	25	
Cobalt	0.04901	0.0040	0.05	0.002671	92.7	75-125	0.04941	0.813	25	
Copper	0.04405	0.0040	0.05	0.003364	81.4	75-125	0.0442	0.34	25	
Iron	4.732	0.40	5	0.4238	86.2	75-125	4.765	0.695	25	
Lead	0.05415	0.010	0.05	0	108	75-125	0.05518	1.88	25	
Magnesium	22.37	0.40	5	19.15	64.4	75-125	23.02	2.86	25	S
Manganese	0.07227	0.010	0.05	0.02789	68.8	75-125	0.07355	1.76	25	
Nickel	0.05102	0.010	0.05	0.008268	85.5	75-125	0.05067	0.688	25	
Potassium	81.97	0.40	5	82.03	-1.2	75-125	85.96	4.75	25	SO
Selenium	0.179	0.010	0.05	0.1686	20.8	75-125	0.1903	6.12	25	S
Silver	0.03939	0.010	0.05	0.0006825	77.4	75-125	0.04085	3.64	25	
Sodium	400	0.40	5	400	0	75-125	400	0	25	SEO
Vanadium	0.0578	0.010	0.05	0.007067	101	75-125	0.05781	0.0173	25	
Zinc	0.07034	0.010	0.05	0.03574	69.2	75-125	0.07138	1.47	25	S

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:18**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415578** Prep Date: **1/8/2004** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1275	0.025	0	0	0	0-0	0.13	1.94	25	
Calcium	73.74	2.5	0	0	0	0-0	78.49	6.24	25	
Magnesium	19.87	1.0	0	0	0	0-0	21.18	6.38	25	
Potassium	80.79	1.0	0	0	0	0-0	84.06	3.97	25	

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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:37**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415582** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09187	0.020	0	0	0	0-0	0.09293	1.15	25	
Barium	0.03947	0.010	0	0	0	0-0	0.04055	2.7	25	
Beryllium	ND	0.0040	0	0	0	0-0	0	0	25	
Boron	0.5767	0.040	0	0	0	0-0	0.5787	0.346	25	
Cadmium	ND	0.0020	0	0	0	0-0	0	0	25	
Chromium	0.002171	0.0040	0	0	0	0-0	0.002633	0	25	J
Cobalt	0.002721	0.0040	0	0	0	0-0	0.002671	0	25	J
Copper	0.003462	0.0040	0	0	0	0-0	0.003364	0	25	J
Iron	0.4287	0.40	0	0	0	0-0	0.4238	1.15	25	
Lead	ND	0.010	0	0	0	0-0	0	0	25	
Manganese	0.02741	0.010	0	0	0	0-0	0.02789	1.74	25	
Nickel	0.008235	0.010	0	0	0	0-0	0.008268	0	25	J
Selenium	0.1445	0.010	0	0	0	0-0	0.1686	15.4	25	
Silver	0.0005242	0.010	0	0	0	0-0	0.0006825	0	25	J
Vanadium	0.006497	0.010	0	0	0	0-0	0.007067	0	25	J
Zinc	0.0343	0.010	0	0	0	0-0	0.03574	4.11	25	

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/14/04 13:04**
Client ID: **Inj. Wells** Run ID: **ICP4500_040114A** SeqNo: **416724** Prep Date: **1/8/2004** DF: **200**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	2229	40	0	0	0	0-0	2285	2.48	25	

The following samples were analyzed in this batch: 0401037-01C

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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7710** InstrumentID: **Mercury**

MBLK Sample ID: **GBLKW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:33**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416950** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:34**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416951** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00487	0.00020	0.005	0	97.4	83-115	0			

LCSD Sample ID: **GLCSDW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:36**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416952** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00496	0.00020	0.005	0	99.2	83-115	0.00487	1.83	20	

MS Sample ID: **0401037-01CMS** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:41**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416955** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00507	0.00020	0.005	0.000045	100	70-124	0			

MSD Sample ID: **0401037-01CMSD** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:42**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416956** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00495	0.00020	0.005	0.000045	98.1	70-124	0.00507	2.4	20	

DUP Sample ID: **0401037-01CDUP** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:39**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416954** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0.000045	0	20	

The following samples were analyzed in this batch: 0401037-01C

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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

MBLK Sample ID: **SBLKW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 16:47**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416012** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	85.07	0	100	0	85.1	39-153	0			
Surr: 2-Fluorobiphenyl	76.23	0	100	0	76.2	40-147	0			
Surr: 2-Fluorophenol	45.21	0	100	0	45.2	21-100	0			
Surr: 4-Terphenyl-d14	75.82	0	100	0	75.8	39-141	0			
Surr: Nitrobenzene-d5	86.87	0	100	0	86.9	37-140	0			
Surr: Phenol-d6	28.99	0	100	0	29	11-100	0			

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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

LCS Sample ID: **SLCSW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 17:13**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416013** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.87	10	50	0	83.7	50-115	0			
2,4,5-Trichlorophenol	82.2	10	100	0	82.2	72-118	0			
2,4,6-Trichlorophenol	83.51	10	100	0	83.5	72-117	0			
2-Methylnaphthalene	42.34	10	50	0	84.7	47-122	0			
2-Methylphenol	71.03	10	100	0	71	51-115	0			
2-Nitroaniline	44.61	10	50	0	89.2	73-119	0			
2-Nitrophenol	87.53	10	100	0	87.5	60-119	0			
3-Nitroaniline	41.16	10	50	0	82.3	61-118	0			
4-Methylphenol	96.92	10	150	0	64.6	44-115	0			
4-Nitroaniline	41.84	10	50	0	83.7	61-123	0			
4-Nitrophenol	38.84	10	100	0	38.8	17-100	0			
Acenaphthene	41.32	10	50	0	82.6	68-115	0			
Acenaphthylene	41.87	10	50	0	83.7	67-116	0			
Anthracene	44.55	10	50	0	89.1	72-124	0			
Benz(a)anthracene	40.18	10	50	0	80.4	55-131	0			
Benzidine	13.03	10	50	0	26.1	10-115	0			
Hexachloroethane	38.29	10	50	0	76.6	46-115	0			
Indeno(1,2,3-cd)pyrene	41.53	10	50	0	83.1	42-123	0			
Isophorone	45.89	10	50	0	91.8	63-117	0			
N-Nitrosodi-n-propylamine	43.72	10	50	0	87.4	67-115	0			
N-Nitrosodimethylamine	25.46	10	50	0	50.9	28-115	0			
N-Nitrosodiphenylamine	50.02	10	50	0	100	72-144	0			
Naphthalene	42.08	10	50	0	84.2	52-115	0			
Nitrobenzene	45.06	10	50	0	90.1	65-115	0			
Pentachlorophenol	84.64	10	100	0	84.6	65-123	0			
Phenanthrene	43.23	10	50	0	86.5	69-119	0			
Phenol	33.5	10	100	0	33.5	16-115	0			
Pyrene	38.95	10	50	0	77.9	51-130	0			
Surr: 2,4,6-Tribromophenol	91.94	0	100	0	91.9	39-153	0			
Surr: 2-Fluorobiphenyl	80.16	0	100	0	80.2	40-147	0			
Surr: 2-Fluorophenol	50.59	0	100	0	50.6	21-100	0			
Surr: 4-Terphenyl-d14	81.09	0	100	0	81.1	39-141	0			
Surr: Nitrobenzene-d5	90.59	0	100	0	90.6	37-140	0			
Surr: Phenol-d6	33.67	0	100	0	33.7	11-100	0			

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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

LCSD Sample ID: **SLCSDW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 17:39**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416014** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	42.41	10	50	0	84.8	50-115	41.87	1.29	30	
2,4,5-Trichlorophenol	86.29	10	100	0	86.3	72-118	82.2	4.86	30	
2,4,6-Trichlorophenol	83.53	10	100	0	83.5	72-117	83.51	0.0281	30	
2-Methylnaphthalene	42.19	10	50	0	84.4	47-122	42.34	0.363	30	
2-Methylphenol	67.08	10	100	0	67.1	51-115	71.03	5.73	30	
2-Nitroaniline	46.08	10	50	0	92.2	73-119	44.61	3.24	30	
2-Nitrophenol	87.97	10	100	0	88	60-119	87.53	0.504	30	
3-Nitroaniline	41.24	10	50	0	82.5	61-118	41.16	0.186	30	
4-Methylphenol	90.96	10	150	0	60.6	44-115	96.92	6.35	30	
4-Nitroaniline	43.08	10	50	0	86.2	61-123	41.84	2.91	30	
4-Nitrophenol	34.89	10	100	0	34.9	17-100	38.84	10.7	30	
Acenaphthene	41.74	10	50	0	83.5	68-115	41.32	1.02	30	
Acenaphthylene	42.98	10	50	0	86	67-116	41.87	2.62	30	
Anthracene	45.95	10	50	0	91.9	72-124	44.55	3.09	30	
Benz(a)anthracene	40.72	10	50	0	81.4	55-131	40.18	1.34	30	
Benzidine	19.19	10	50	0	38.4	10-115	13.03	38.2	30	R
Hexachloroethane	38.69	10	50	0	77.4	46-115	38.29	1.04	30	
Indeno(1,2,3-cd)pyrene	42.3	10	50	0	84.6	42-123	41.53	1.84	30	
Isophorone	46.42	10	50	0	92.8	63-117	45.89	1.15	30	
N-Nitrosodi-n-propylamine	43.74	10	50	0	87.5	67-115	43.72	0.0428	30	
N-Nitrosodimethylamine	25.93	10	50	0	51.9	28-115	25.46	1.83	30	
N-Nitrosodiphenylamine	47.58	10	50	0	95.2	72-144	50.02	5.01	30	
Naphthalene	41.54	10	50	0	83.1	52-115	42.08	1.29	30	
Nitrobenzene	45.04	10	50	0	90.1	65-115	45.06	0.0543	30	
Pentachlorophenol	82.68	10	100	0	82.7	65-123	84.64	2.34	30	
Phenanthrene	44.72	10	50	0	89.4	69-119	43.23	3.38	30	
Phenol	33.12	10	100	0	33.1	16-115	33.5	1.13	30	
Pyrene	39.61	10	50	0	79.2	51-130	38.95	1.68	30	
Surr: 2,4,6-Tribromophenol	95.4	0	100	0	95.4	39-153	91.94	3.69	30	
Surr: 2-Fluorobiphenyl	81.18	0	100	0	81.2	40-147	80.16	1.26	30	
Surr: 2-Fluorophenol	48.13	0	100	0	48.1	21-100	50.59	4.98	30	
Surr: 4-Terphenyl-d14	80.48	0	100	0	80.5	39-141	81.09	0.752	30	
Surr: Nitrobenzene-d5	91.03	0	100	0	91	37-140	90.59	0.48	30	
Surr: Phenol-d6	30.39	0	100	0	30.4	11-100	33.67	10.3	30	

The following samples were analyzed in this batch: 0401037-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MBLK Sample ID: **VBLKW-0113** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 11:22**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416622** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	46	5.0	50	0	92	70-130		0		
Surr: 4-Bromofluorobenzene	48.08	5.0	50	0	96.2	70-130		0		
Surr: Dibromofluoromethane	47.06	5.0	50	0	94.1	70-130		0		
Surr: Toluene-d8	46.05	5.0	50	0	92.1	70-130		0		

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

LCS Sample ID: **VLCSW-0113** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 10:28**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416621** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.27	5.0	50	0	96.5	75-118	0			
1,1,2,2-Tetrachloroethane	47.46	5.0	50	0	94.9	79-120	0			
1,1,2-Trichloroethane	48.13	5.0	50	0	96.3	81-119	0			
1,1-Dichloroethane	46.83	5.0	50	0	93.7	80-120	0			
1,1-Dichloroethene	46.32	5.0	50	0	92.6	80-120	0			
1,2-Dichloroethane	53.01	5.0	50	0	106	80-120	0			
2-Butanone	98.39	10	100	0	98.4	70-130	0			
2-Chloroethyl vinyl ether	90.24	10	100	0	90.2	72-120	0			
4-Methyl-2-pentanone	93.51	10	100	0	93.5	78-120	0			
Acetone	113.7	10	100	0	114	60-135	0			
Benzene	46.07	5.0	50	0	92.1	82-119	0			
Bromodichloromethane	51.5	5.0	50	0	103	81-119	0			
Bromoform	50.25	5.0	50	0	100	80-120	0			
Bromomethane	44.31	5.0	50	0	88.6	75-130	0			
Carbon disulfide	89.23	10	100	0	89.2	78-120	0			
Carbon tetrachloride	49.21	5.0	50	0	98.4	77-120	0			
Chlorobenzene	47.05	5.0	50	0	94.1	82-118	0			
Chloroethane	46.72	5.0	50	0	93.4	78-122	0			
Chloroform	49.02	5.0	50	0	98	78-120	0			
Chloromethane	58.33	5.0	50	0	117	75-125	0			
cis-1,3-Dichloropropene	50.41	5.0	50	0	101	81-120	0			
Dibromochloromethane	52.1	5.0	50	0	104	81-118	0			
Ethylbenzene	46.77	5.0	50	0	93.5	82-120	0			
m,p-Xylene	90.81	10	100	0	90.8	82-122	0			
Methylene chloride	47.03	10	50	0	94.1	80-122	0			
Styrene	47.64	5.0	50	0	95.3	82-121	0			
Tetrachloroethene	47.51	5.0	50	0	95	79-118	0			
Toluene	45.44	5.0	50	0	90.9	81-119	0			
trans-1,3-Dichloropropene	50.2	5.0	50	0	100	82-121	0			
Trichloroethene	49.17	5.0	50	0	98.3	78-118	0			
Vinyl acetate	98.67	10	100	0	98.7	75-120	0			
Vinyl chloride	45.63	2.0	50	0	91.3	73-127	0			
Xylenes, Total	138.2	15	150	0	92.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	45.82	5.0	50	0	91.6	70-130	0			
Surr: 4-Bromofluorobenzene	48.79	5.0	50	0	97.6	70-130	0			
Surr: Dibromofluoromethane	46.9	5.0	50	0	93.8	70-130	0			
Surr: Toluene-d8	45.11	5.0	50	0	90.2	70-130	0			

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MS Sample ID: **0401069-08AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 13:36**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416623** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.27	5.0	50	0	88.5	75-125	0			
1,1,2,2-Tetrachloroethane	43.73	5.0	50	0	87.5	75-125	0			
1,1,2-Trichloroethane	45.29	5.0	50	0	90.6	75-125	0			
1,1-Dichloroethane	71.66	5.0	50	31.2	80.9	75-125	0			
1,1-Dichloroethene	104.2	5.0	50	72.85	62.8	65-130	0			S
1,2-Dichloroethane	49.86	5.0	50	0	99.7	70-130	0			
2-Butanone	91.73	10	100	0	91.7	64-128	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	75-125	0			S
4-Methyl-2-pentanone	95.27	10	100	0	95.3	75-125	0			
Acetone	100.1	10	100	0	100	60-130	0			
Benzene	44.02	5.0	50	0	88	76-127	0			
Bromodichloromethane	48.53	5.0	50	0	97.1	75-125	0			
Bromoform	47.61	5.0	50	0	95.2	75-125	0			
Bromomethane	40.26	5.0	50	0	80.5	75-125	0			
Carbon disulfide	81.69	10	100	0	81.7	75-125	0			
Carbon tetrachloride	44.78	5.0	50	0	89.6	70-130	0			
Chlorobenzene	44.91	5.0	50	0	89.8	75-126	0			
Chloroethane	41.03	5.0	50	0	82.1	70-130	0			
Chloroform	47.25	5.0	50	0	94.5	75-125	0			
Chloromethane	53.47	5.0	50	0	107	75-125	0			
cis-1,3-Dichloropropene	47.2	5.0	50	0	94.4	75-125	0			
Dibromochloromethane	49.07	5.0	50	0	98.1	75-125	0			
Ethylbenzene	43.36	5.0	50	0	86.7	75-125	0			
m,p-Xylene	85.04	10	100	0	85	75-125	0			
Methylene chloride	45.19	10	50	0	90.4	75-125	0			
Styrene	40.66	5.0	50	0	81.3	75-125	0			
Tetrachloroethene	43.81	5.0	50	0	87.6	75-125	0			
Toluene	42.83	5.0	50	0	85.7	76-125	0			
trans-1,3-Dichloropropene	48.07	5.0	50	0	96.1	70-130	0			
Trichloroethene	47.03	5.0	50	0	94.1	71-120	0			
Vinyl acetate	88.29	10	100	0	88.3	75-125	0			
Vinyl chloride	39.74	2.0	50	0	79.5	60-135	0			
Xylenes, Total	129	15	150	0	86	75-125	0			
Surr: 1,2-Dichloroethane-d4	46.19	5.0	50	0	92.4	70-130	0			
Surr: 4-Bromofluorobenzene	49.78	5.0	50	0	99.6	70-130	0			
Surr: Dibromofluoromethane	47.52	5.0	50	0	95	70-130	0			
Surr: Toluene-d8	45.36	5.0	50	0	90.7	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MSD Sample ID: **0401069-08AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 14:03**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416624** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.32	5.0	50	0	103	75-125	44.27	14.8	20	
1,1,2,2-Tetrachloroethane	47.81	5.0	50	0	95.6	75-125	43.73	8.9	20	
1,1,2-Trichloroethane	49.39	5.0	50	0	98.8	75-125	45.29	8.66	20	
1,1-Dichloroethane	77.65	5.0	50	31.2	92.9	75-125	71.66	8.03	20	
1,1-Dichloroethene	115.3	5.0	50	72.85	84.9	65-130	104.2	10.1	20	
1,2-Dichloroethane	53.62	5.0	50	0	107	70-130	49.86	7.27	20	
2-Butanone	103.2	10	100	0	103	64-128	91.73	11.8	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	75-125	0	0	20	S
4-Methyl-2-pentanone	100.9	10	100	0	101	75-125	95.27	5.77	20	
Acetone	107.4	10	100	0	107	60-130	100.1	7.09	20	
Benzene	49.06	5.0	50	0	98.1	76-127	44.02	10.8	20	
Bromodichloromethane	53.21	5.0	50	0	106	75-125	48.53	9.21	20	
Bromoform	51.56	5.0	50	0	103	75-125	47.61	7.95	20	
Bromomethane	49.35	5.0	50	0	98.7	75-125	40.26	20.3	20	R
Carbon disulfide	96.66	10	100	0	96.7	75-125	81.69	16.8	20	
Carbon tetrachloride	52.5	5.0	50	0	105	70-130	44.78	15.9	20	
Chlorobenzene	49.89	5.0	50	0	99.8	75-126	44.91	10.5	20	
Chloroethane	49.74	5.0	50	0	99.5	70-130	41.03	19.2	20	
Chloroform	51.66	5.0	50	0	103	75-125	47.25	8.93	20	
Chloromethane	59.73	5.0	50	0	119	75-125	53.47	11.1	20	
cis-1,3-Dichloropropene	52.48	5.0	50	0	105	75-125	47.2	10.6	20	
Dibromochloromethane	52.99	5.0	50	0	106	75-125	49.07	7.7	20	
Ethylbenzene	49.24	5.0	50	0	98.5	75-125	43.36	12.7	20	
m,p-Xylene	97.66	10	100	0	97.7	75-125	85.04	13.8	20	
Methylene chloride	49.52	10	50	0	99	75-125	45.19	9.15	20	
Styrene	44.29	5.0	50	0	88.6	75-125	40.66	8.54	20	
Tetrachloroethene	51.19	5.0	50	0	102	75-125	43.81	15.5	20	
Toluene	47.76	5.0	50	0	95.5	76-125	42.83	10.9	20	
trans-1,3-Dichloropropene	52.51	5.0	50	0	105	70-130	48.07	8.81	20	
Trichloroethene	52.68	5.0	50	0	105	71-120	47.03	11.3	20	
Vinyl acetate	92.99	10	100	0	93	75-125	88.29	5.19	20	
Vinyl chloride	47.65	2.0	50	0	95.3	60-135	39.74	18.1	20	
Xylenes, Total	146.6	15	150	0	97.8	75-125	129	12.8	20	
Surr: 1,2-Dichloroethane-d4	46.39	5.0	50	0	92.8	70-130	46.19	0.429	20	
Surr: 4-Bromofluorobenzene	49.42	5.0	50	0	98.8	70-130	49.78	0.719	20	
Surr: Dibromofluoromethane	47.17	5.0	50	0	94.3	70-130	47.52	0.757	20	
Surr: Toluene-d8	45.25	5.0	50	0	90.5	70-130	45.36	0.243	20	

The following samples were analyzed in this batch: 0401037-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18133** InstrumentID: **Wet Chemistry**

LCS Sample ID: **WLCSW1-010704** Test Code: **E150.1** Units: **pH units** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414646** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	85-115	0			

DUP Sample ID: **0401037-01D DUP** Test Code: **E150.1** Units: **pH units** Analysis Date: **01/07/04 0:00**
Client ID: **Inj. Wells** Run ID: **WET CHEMISTRY_0401** SeqNo: **414648** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.45	0.10	0	0	0	0-0	8.43	0.237	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18137** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WMBW1-010704** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414715** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-010704** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414716** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1000	5.0	1000	0	100	80-120	0			

DUP Sample ID: **0312297-03D DUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414723** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	675.2	5.0	0	0	0	0-0	680.2	0.738	20	
Alkalinity, Carbonate (As CaCO3)	40.01	5.0	0	0	0	0-0	40.01	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	715.2	5.0	0	0	0	0-0	720.2	0.698	20	

DUP Sample ID: **0401024-03D DUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414727** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	600.2	5.0	0	0	0	0-0	605.2	0.83	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	600.2	5.0	0	0	0	0-0	605.2	0.83	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18194** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WBLKW1-010904** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415951** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **WLCSW1-010904** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415952** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1010	10	1000	0	101	80-120	0			

DUP Sample ID: **0401020-01EDUP** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	*849*	*10*	*0*	*0*	*0*	*0-0*	*841*	*0.947*	*20*	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18217** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WMBW1-011304** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416394** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-011304** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416395** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1410	1.0	1409	0	100	80-120	0			

DUP Sample ID: **0401087-03B DUP** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416400** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	978	1.0	0	0	0	0-0	975	0.307	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18226** InstrumentID: **IC201**

MBLK Sample ID: **WBLKW1-011204** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 15:27**
Client ID: Run ID: **IC201_040112A** SeqNo: **416579** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Dichloroacetic acid (surr)	5.31	0.10	5	0	106	80-120	0			

LCS Sample ID: **WLCSW1-011204** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 15:59**
Client ID: Run ID: **IC201_040112A** SeqNo: **416580** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.86	0.50	10	0	98.6	80-120	0			
Sulfate	9.43	1.0	10	0	94.3	80-120	0			
Surr: Dichloroacetic acid (surr)	5.43	0.10	5	0	109	80-120	0			

LCSD Sample ID: **WLCSDW1-01120** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 16:32**
Client ID: Run ID: **IC201_040112A** SeqNo: **416581** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	10	0.50	10	0	100	80-120	9.86	1.41	20	
Sulfate	9.46	1.0	10	0	94.6	80-120	9.43	0.318	20	
Surr: Dichloroacetic acid (surr)	5.45	0.10	5	0	109	80-120	5.43	0.368	20	

MS Sample ID: **0401071-02EMS** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 19:47**
Client ID: Run ID: **IC201_040112A** SeqNo: **416587** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	50.26	0.50	10	39.6	107	75-125	0			E
Sulfate	43.9	1.0	10	33.82	101	75-125	0			
Surr: Dichloroacetic acid (surr)	5.29	0.10	5	0	106	80-120	0			

MSD Sample ID: **0401071-02EMSD** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 20:19**
Client ID: Run ID: **IC201_040112A** SeqNo: **416588** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	50.1	0.50	10	39.6	105	75-125	50.26	0.319	20	E
Sulfate	43.91	1.0	10	33.82	101	75-125	43.9	0.0228	20	
Surr: Dichloroacetic acid (surr)	5.28	0.10	5	0	106	80-120	5.29	0.189	20	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18226** InstrumentID: **IC201**

DUP Sample ID: **0401071-02EDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 19:14**
Client ID: Run ID: **IC201_040112A** SeqNo: **416586** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	39.6	0.50	0	0	0	0-0	39.6	0	20	
Sulfate	33.89	1.0	0	0	0	0-0	33.82	0.207	20	
Surr: Dichloroacetic acid (surr)	5.31	0.10	5	0	106	80-120	5.34	0.563	20	

DUP Sample ID: **0401071-03EDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 23:34**
Client ID: Run ID: **IC201_040112A** SeqNo: **416593** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	57.2	1.0	0	0	0	0-0	57.1	0.175	20	
Sulfate	12.82	2.0	0	0	0	0-0	12.9	0.622	20	
Surr: Dichloroacetic acid (surr)	10.68	0.20	10	0	107	80-120	10.56	1.13	20	

DUP Sample ID: **0401037-01D DUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/13/04 12:35**
Client ID: **Inj. Wells** Run ID: **IC201_040112A** SeqNo: **416601** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2451	50	0	0	0	0-0	2442	0.368	20	
Sulfate	1719	100	0	0	0	0-0	1708	0.642	20	
Surr: Dichloroacetic acid (surr)	567	10	500	0	113	80-120	573	1.05	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

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e-Lab
QUALITY • INTEGRITY • SERVICE

☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page ____ of ____

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 0401037

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	INJ WELLS	A	Volatiles Select (8260)
Work Order		Project Number		B	Semivolatiles select (8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Tot. Metals WQCC+ Cations(6020/7000)
Send Report To	Jeff Byrd / Charlie Plymale	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions: Cl, SO4
				F	Alkalinity
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Solids: TDS
Fax	(505) 746-5421	Fax	(505) 746-5421	I	Conductivity
e-Mail Address		e-Mail Address		J	Uranium

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. wells	1/6/04	1100			10	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Charlie Plymale

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☐ STD 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ Other ☐ 24 Hour

Results Due Date:

Relinquished by:	Date: 1/6/04	Time: 1615	Received by:	Notes:	
Relinquished by:	Date:	Time:	Received by (Laboratory): PICHARD SAMPLE 1-7-04 0825	e-Lab Cooler ID:	Cooler Temp:
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☐ Level I Std QC ☐ TRRP CheckList
☐ Level II Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 1/7/2004 9:25:00 AM

Work Order Number 0401037 Received by: RSZ

Checklist completed by _____ 1/7/04 Reviewed by _____ 1/8/04

Signature Date Initials Date

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.9 C	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab, Inc **Date:** *January 13, 2004*

CLIENT: e-Lab, Inc
Project: 0401037
Work Order: 0401065

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0401065-01	0401037-01F	Water		1/8/2004	1/8/2004	☐

e-Lab, Inc

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

Date: *Jan 13 2004*

QC BATCH REPORT

Batch ID: R18598 **InstrumentID:** WETCHEM

LCS **Sample ID:** WLCSW1-123003 **Test Code:** ASTM D93 **Units:** °F **Analysis Date** 01/08/04 0:00
Client ID: **Run ID:** WETCHEM_040108E **SeqNo:** 270178 **Prep Date:** **DF:** 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	80.6	0	61	0	99.5	97.8-102.7	0			

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

QC BATCH REPORT

Batch ID: R18853 InstrumentID: WETCHEM

MBLK Sample ID: WBLKW1-011204 Test Code: EPA 7.3.4.2 Units: mg/Kg Analysis Date 01/12/04 0:00
Client ID: Run ID: WETCHEM_040112C SeqNo: 270845 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

QC BATCH REPORT

Batch ID: R18667 InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKR1-011204** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **01/13/04 0:00**
Client ID: Run ID: **WETCHEM_040113F** SeqNo: **271121** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	0.030								

LCS Sample ID: **WLCSR1-011204** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **01/13/04 0:00**
Client ID: Run ID: **WETCHEM_040113F** SeqNo: **271122** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	4.22	0.75	16.95	0	24.9	5-100		0		

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Page 3421 of 5828

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04021027

e-Lab, Inc.

[redacted]

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Laboratories

e-Lab Inc
5352 122nd Ave.

TEL: (616) 399-6070
FAX: (616) 399-6779

Holland, MI 49423-5363

Acct #:

Jan 31, 2004

Sample ID	Matrix	Collection Date	Requested Tests SW-846	SW-8010
0401027-01F (by Wells)	Water	1/29/2004 11:30		

Comments: Please analyze for Benzene, Toluene, Ethylbenzene, and Total Xylenes by method SW-8021B.

		Date/Time		Date/Time
Relinquished by:			Received by:	
Relinquished by:			Received by:	

e-Lab, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received 12/2/04

Work Order Number 0412065 Received by DHR

Checklist completed by [signature] [date] Reviewed by [signature] [date]

Matrix: Carrier name FedEx

Shipping container/cooler in good condition?	Yes ✔	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✔	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✔
Chain of custody present?	Yes ✔	No	
Chain of custody signed when relinquished and received?	Yes ✔	No	
Chain of custody agrees with sample labels?	Yes ✔	No	
Samples in proper container/bottle?	Yes ✔	No	
Sample containers intact?	Yes ✔	No	
Sufficient sample volume for indicated test?	Yes ✔	No	
All samples received within holding time?	Yes ✔	No	
Container/Temp Blank temperature in compliance?	Yes ✔	No	
Temperature 2.2°C Uncorrected			
Water - VOA vials have zero headspace?	Yes	No	No VOA vials submitted ✔
Water - pH acceptable upon receipt?	Yes ✔	No	N/A

Adjusted? Checked by

Login Notes

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted Date contacted Person contacted

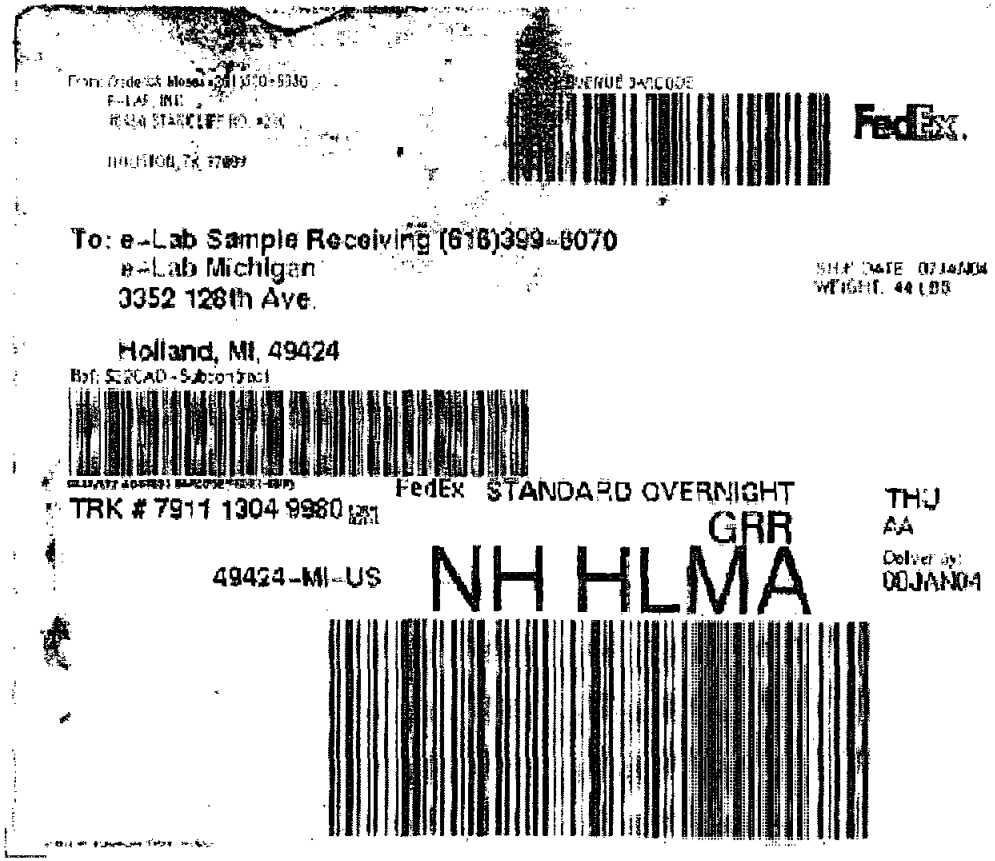
Contacted by Regarding

Comments

Corrective Action

e-Lab, Inc.
CUSTODY SEAL

Page 3424 of 5828



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ARS AMERICAN RADIATION SERVICES, INC.

2609 N. River Rd. Port Allen, Louisiana 70767

1(800) 401 - 4277 Fax: (225) 381-2996

ARS Tracking Number:	ARS040096	**P.O. Number:**	NA
Client I.D.:	0401037-01E (Inj. Wells)	**ARS Sample I.D.:**	ARS040096-218
Date Sampled:	1/6/04	**Date Received:**	1/08/04
Time Sample:	11:00	**Time Received:**	1200
Type of Sample:	Liquid	**Date of Report:**	1/23/04
NELAP Certification #:	E87558	**L. A. Agency Interest #:**	30658

Analysis Description	Analysis Result	Analysis Error ±2σ	Detection Limit	Analysis Unit	Analysis Test Method	Analysis Date & Time	Analysis Technician
Total Uranium	0.000	0.000	0.0003	mg/L	ASTM D 5174-97	1/23/04 1535	SM

Quality Assurance Review

Notes: American Radiation Services, Inc assumes no liability for the use or interpretation of any analytical results provided other than the cost of the performed analysis itself. Reproduction of this report in less than full requires the written consent of the client

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AMERICAN RADIATION SERVICES, INC.

2609 North River Road Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2998

Notes:

Comments:

1.0) Soil and Sludge analysis are reported on a wet basis or an as received basis unless otherwise indicated.
2.0) The data in this report are within the limits of uncertainty specified in the reference method unless specified.
3.0) Modified analysis procedures are procedures that are modified to meet the certain specifications. An example may be the use of a water method to analyze a solid matrix due to the lack of an officially recognized procedure for the analysis of the solid matrix.
4.0) Derived Air Concentrations and Effluent Release Concentrations are obtained from 10 CFR 20 Appendix B.
5.0) Total activity is actually total gamma activity and is determined utilizing the prominent gamma emitters from the naturally occurring radioactive decay chains and other prominent radioactive nuclides. Total activity may be lower than the actual total activity due to the extent of secular equilibrium achieved in the various decay chains at the time of analysis. The total activity is not representative of nuclides that emit solely alpha or beta particles.
6.0) Ra-226 is determined via secular equilibrium with its daughter, Actinium 228. (Gamma Spectroscopy only).
7.0) U-238 is determined via secular equilibrium with its daughter, Thorium 234. (Gamma Spectroscopy only).
8.0) All gamma spectroscopy was performed utilizing high purity germanium detectors (HPGe).

Method References:

1.0) EPA 600/4-80-032, Prescribed Procedures for the Measurements of Radioactivity in Drinking Water, August 1980.
2.0) Standard Methods for Examination of Water and Waste Water, 18th, 1992.
3.0) EPA SW-846, Test Methods for Evaluating Solid Waste, Third Edition, (9/86). (Updated through 1995).
4.0) EPA 600/4/79-020, Methods for Chemical Analysis of Water and Waste, March 1983.
5.0) HASL 300

Definitions:

1.0)	BDL	Analyte not detected because the value was below the detection limit.
2.0)	ND	Not detected above the detection limit.
3.0)	Detection Limit	The minimum amount of the analyte that ARS can detect utilizing the specific analysis.
4.0)	B	Method Blank
5.0)	D	Method Duplicate
6.0)	MS	Matrix Spike
7.0)	S	Spike
8.0)	RS	Reference Spike
9.0)	*SC	Subcontracted out to another qualified laboratory
10.0)	NR	Not Referenced
11.0)	N/A	Not Applicable

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

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REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
MAY 0 3 2004
OIL CONSERVATION DIVISION

April 30, 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2003 to December 31, 2003. We have disposed a total of 17,626,541 bbls. of fluid into the two wells as of December 31, 2003. This is broken down as follows: 12,102,707 bbls. into WDW-1 and 5,523,834 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Oct-03	196	414	75	198	311	138	260	389	156	6802	10663	4727	210,858
Nov-03	202	472	109	184	310	86	234	386	88	6317	10624	2935	195,817
Dec-03	260	458	30	184	280	93	76	258	15	6315	9610	3182	195,770
WDW-2													
Oct-03	231	431	120	157	210	123	152	159	146	5374	7190	4201	166,606
Nov-03	209	500	0	138	225	14	144	171	35	4733	7722	490	146,717
Dec-03	289	500	64	125	175	84	162	178	143	4294	6009	2864	133,110

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5

October 25, 2003

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj. Wells Work Order : **0310201**

Dear Jeff Byrd,

e-Lab, Inc. received 1 sample on 10/17/2003 8:45:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 16.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Lora Terrill

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: **0310201**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0310201-01	Inj. Wells	Wate1		10/15/2003 10:2(	10/17/2003 08:4:	☐

e-Lab, Inc. **Date:** *October 24, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: 0310201

Case Narrative

Semivolatile Batch 6980 MS/MSD was an unrelated sample.

Semivolatile sample Inj. Wells had surrogate diluted out.

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells
Lab ID: 0310201-01

Client Sample ID: Inj. Wells
Collection Date: 10/15/2003 10:20:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **10/21/2003**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Methylnaphthalene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Methylphenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Nitrophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
3-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Methylphenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Nitrophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Acenaphthene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Acenaphthylene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Aniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Anthracene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Benz(a)anthracene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Benzidine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Hexachloroethane	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Isophorone	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Naphthalene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Nitrobenzene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Pentachlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Phenanthrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Phenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Pyrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Surr: 2,4,6-Tribromophenol	74.6	39-153		%REC	1	10/22/2003 8:15:00 PM
Surr: 2-Fluorobiphenyl	78.4	40-147		%REC	1	10/22/2003 8:15:00 PM
Surr: 2-Fluorophenol	46.2	21-100		%REC	1	10/22/2003 8:15:00 PM
Surr: 4-Terphenyl-d14	89.6	39-141		%REC	1	10/22/2003 8:15:00 PM
Surr: Nitrobenzene-d5	79.1	37-140		%REC	1	10/22/2003 8:15:00 PM
Surr: Phenol-d6	11.7	11-100		%REC	1	10/22/2003 8:15:00 PM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells
Lab ID: 0310201-01

Client Sample ID: Inj. Wells
Collection Date: 10/15/2003 10:20:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
2-Butanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	10/20/2003 8:45:00 PM
2-Hexanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Acetone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Benzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromoform	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromomethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Carbon disulfide	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chlorobenzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloroform	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Ethylbenzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
m,p-Xylene	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Methylene chloride	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Styrene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Toluene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Trichloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Vinyl acetate	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Vinyl chloride	ND	2.0		µg/L	1	10/20/2003 8:45:00 PM
Xylenes, Total	ND	15		µg/L	1	10/20/2003 8:45:00 PM
Surr: 1,2-Dichloroethane-d4	93.2	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: 4-Bromofluorobenzene	97.8	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: Dibromofluoromethane	92.4	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: Toluene-d8	98.7	70-130		%REC	1	10/20/2003 8:45:00 PM

Qualifiers:

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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Oct 24 2003*

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-031021** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 15:18**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383368** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	91.19	0	100	0	91.2	39-153	0			
Surr: 2-Fluorobiphenyl	86.44	0	100	0	86.4	40-147	0			
Surr: 2-Fluorophenol	57.73	0	100	0	57.7	21-100	0			
Surr:4-Terphenyl-d14	99.11	0	100	0	99.1	39-141	0			
Surr: Nitrobenzene-d5	84.06	0	100	0	84.1	37-140	0			
Surr: Phenol-d6	37.66	0	100	0	37.7	11-100	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-031021** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 15:44**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383369** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.01	10	50	0	82	50-115	0			
2,4,5-Trichlorophenol	92.43	10	100	0	92.4	72-118	0			
2,4,6-Trichlorophenol	89.2	10	100	0	89.2	72-117	0			
2-Methylnaphthalene	41.91	10	50	0	83.8	47-122	0			
2-Methylphenol	81.69	10	100	0	81.7	51-115	0			
2-Nitroaniline	45.36	10	50	0	90.7	73-119	0			
2-Nitrophenol	87.88	10	100	0	87.9	60-119	0			
3-Nitroaniline	45.23	10	50	0	90.5	61-118	0			
4-Methylphenol	115.5	10	150	0	77	44-115	0			
4-Nitroaniline	45.56	10	50	0	91.1	61-123	0			
4-Nitrophenol	50.68	10	100	0	50.7	17-100	0			
Acenaphthene	42.5	10	50	0	85	68-115	0			
Acenaphthylene	42.55	10	50	0	85.1	67-116	0			
Anthracene	46.52	10	50	0	93	72-124	0			
Benz(a)anthracene	46.45	10	50	0	92.9	55-131	0			
Benzidine	51.57	10	50	0	103	10-115	0			
Hexachloroethane	41.88	10	50	0	83.8	46-115	0			
Indeno(1,2,3-cd)pyrene	40.36	10	50	0	80.7	42-123	0			
Isophorone	42.5	10	50	0	85	63-117	0			
N-Nitrosodi-n-propylamine	45.15	10	50	0	90.3	67-115	0			
N-Nitrosodimethylamine	33.23	10	50	0	66.5	28-115	0			
N-Nitrosodiphenylamine	49.76	10	50	0	99.5	72-144	0			
Naphthalene	40.62	10	50	0	81.2	52-115	0			
Nitrobenzene	41.76	10	50	0	83.5	65-115	0			
Pentachlorophenol	91.23	10	100	0	91.2	65-123	0			
Phenanthrene	44.56	10	50	0	89.1	69-119	0			
Phenol	45.92	10	100	0	45.9	16-115	0			
Pyrene	44.48	10	50	0	89	51-130	0			
Surr: 2,4,6-Tribromophenol	93.38	0	100	0	93.4	39-153	0			
Surr: 2-Fluorobiphenyl	85.03	0	100	0	85	40-147	0			
Surr: 2-Fluorophenol	65.69	0	100	0	65.7	21-100	0			
Surr:4-Terphenyl-d14	98.75	0	100	0	98.8	39-141	0			
Surr:Nitrobenzene-d5	83.84	0	100	0	83.8	37-140	0			
Surr: Phenol-d6	44.85	0	100	0	44.9	11-100	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MS Sample ID: **0310174-12HMS** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 19:55**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383378** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	18.97	10	50	0	37.9	45-115	0			S
2,4,5-Trichlorophenol	90.44	10	100	0	90.4	47-129	0			
2,4,6-Trichlorophenol	88.68	10	100	0	88.7	45-127	0			
2-Methylnaphthalene	33.15	10	50	11.91	42.5	30-144	0			
2-Methylphenol	2711	10	100	2579	131	42-115	0			SEO
2-Nitroaniline	48.01	10	50	0	96	48-129	0			
2-Nitrophenol	40.54	10	100	0	40.5	32-144	0			
3-Nitroaniline	26.7	10	50	0	53.4	23-122	0			
4-Methylphenol	2974	10	150	2835	92.2	35-115	0			EO
4-Nitroaniline	32.79	10	50	0	65.6	12-138	0			
4-Nitrophenol	35.6	10	100	0	35.6	10-80	0			
Acenaphthene	44.82	10	50	0	89.6	55-117	0			
Acenaphthylene	42.11	10	50	0	84.2	39-128	0			
Anthracene	49.1	10	50	0	98.2	58-129	0			
Benz(a)anthracene	48.52	10	50	0	97	42-135	0			
Benzidine	ND	10	50	0	0	10-127	0			S
Hexachloroethane	42.95	10	50	0	85.9	45-115	0			
Indeno(1,2,3-cd)pyrene	44.37	10	50	0	88.7	32-132	0			
Isophorone	17.44	10	50	0	34.9	51-122	0			S
N-Nitrosodi-n-propylamine	43.76	10	50	0	87.5	55-115	0			
N-Nitrosodimethylamine	31.94	10	50	0	63.9	30-115	0			
N-Nitrosodiphenylamine	61.5	10	50	0	123	47-146	0			
Naphthalene	36.21	10	50	16.34	39.7	46-116	0			S
Nitrobenzene	20.72	10	50	0	41.4	48-126	0			S
Pentachlorophenol	102.6	10	100	8.707	93.9	53-134	0			
Phenanthrene	45.2	10	50	0	90.4	57-123	0			
Phenol	1008	10	100	955.5	52.6	10-115	0			EO
Pyrene	45.06	10	50	0	90.1	40-130	0			
Surr: 2,4,6-Tribromophenol	95.33	0	100	0	95.3	39-153	0			
Surr: 2-Fluorobiphenyl	86.28	0	100	0	86.3	40-147	0			
Surr: 2-Fluorophenol	45.38	0	100	0	45.4	21-100	0			
Surr:4-Terphenyl-d14	97.58	0	100	0	97.6	39-141	0			
Surr: Nitrobenzene-d5	43.03	0	100	0	43	37-140	0			
Surr: Phenol-d6	31.82	0	100	0	31.8	11-100	0			

ND - Not Detected at the Reporting Limit
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O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MSD Sample ID: **0310174-12HMSD** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 20:21**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383379** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	18.64	10	50	0	37.3	45-115	18.97	1.78	30	S
2,4,5-Trichlorophenol	86.96	10	100	0	87	47-129	90.44	3.92	30	
2,4,6-Trichlorophenol	87.88	10	100	0	87.9	45-127	88.68	0.898	30	
2-Methylnaphthalene	32.04	10	50	11.91	40.3	30-144	33.15	3.4	30	
2-Methylphenol	2801	10	100	2579	222	42-115	2711	3.27	30	SEO
2-Nitroaniline	44.91	10	50	0	89.8	48-129	48.01	6.67	30	
2-Nitrophenol	40.18	10	100	0	40.2	32-144	40.54	0.888	30	
3-Nitroaniline	24.78	10	50	0	49.6	23-122	26.7	7.47	30	
4-Methylphenol	3082	10	150	2835	164	35-115	2974	3.57	30	SEO
4-Nitroaniline	28.65	10	50	0	57.3	12-138	32.79	13.5	30	
4-Nitrophenol	32.5	10	100	0	32.5	10-80	35.6	9.11	30	
Acenaphthene	46.5	10	50	0	93	55-117	44.82	3.68	30	
Acenaphthylene	41.12	10	50	0	82.2	39-128	42.11	2.38	30	
Anthracene	48.02	10	50	0	96	58-129	49.1	2.21	30	
Benz(a)anthracene	48.14	10	50	0	96.3	42-135	48.52	0.8	30	
Benzidine	ND	10	50	0	0	10-127	0	0	30	S
Hexachloroethane	41.52	10	50	0	83	45-115	42.95	3.38	30	
Indeno(1,2,3-cd)pyrene	46.05	10	50	0	92.1	32-132	44.37	3.73	30	
Isophorone	17.42	10	50	0	34.8	51-122	17.44	0.135	30	S
N-Nitrosodi-n-propylamine	49.82	10	50	0	99.6	55-115	43.76	12.9	30	
N-Nitrosodimethylamine	30.36	10	50	0	60.7	30-115	31.94	5.08	30	
N-Nitrosodiphenylamine	58.53	10	50	0	117	47-146	61.5	4.95	30	
Naphthalene	35.8	10	50	16.34	38.9	46-116	36.21	1.13	30	S
Nitrobenzene	20.54	10	50	0	41.1	48-126	20.72	0.86	30	S
Pentachlorophenol	103.1	10	100	8.707	94.4	53-134	102.6	0.478	30	
Phenanthrene	44.85	10	50	0	89.7	57-123	45.2	0.777	30	
Phenol	1038	10	100	955.5	82.2	10-115	1008	2.89	30	EO
Pyrene	42.82	10	50	0	85.6	40-130	45.06	5.09	30	
Surr: 2,4,6-Tribromophenol	95.87	0	100	0	95.9	39-153	95.33	0.564	30	
Surr: 2-Fluorobiphenyl	85.2	0	100	0	85.2	40-147	86.28	1.26	30	
Surr: 2-Fluorophenol	46.55	0	100	0	46.6	21-100	45.38	2.55	30	
Surr:4-Terphenyl-d14	96.93	0	100	0	96.9	39-141	97.58	0.662	30	
Surr:Nitrobenzene-d5	42.33	0	100	0	42.3	37-140	43.03	1.65	30	
Surr: Phenol-d6	32.6	0	100	0	32.6	11-100	31.82	2.41	30	

Thefollowingsampleswereanalyzedinthisbatch: 0310201-01B

ND - Not Detected at the Reporting Limit
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O - Referenced analyte value is > 4 times amount spiked
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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MBLK Sample ID: **VBLKW-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 11:43**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382009** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10							-	-
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	49.28	5.0	50	0	98.6	70-130		0		
Surr: 4-Bromofluorobenzene	47.48	5.0	50	0	95	70-130		0		
Surr: Dibromofluoromethane	48.16	5.0	50	0	96.3	70-130		0		
Surr: Toluene-d8	48.14	5.0	50	0	96.3	70-130		0		

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

LCS Sample ID: **VLCSW-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 10:50**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382007** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.84	5.0	50	0	104	75-118	0			
1,1,2,2-Tetrachloroethane	42.06	5.0	50	0	84.1	79-120	0			
1,1,2-Trichloroethane	46.47	5.0	50	0	92.9	81-119	0			
1,1-Dichloroethane	51.25	5.0	50	0	103	80-120	0			
1,1-Dichloroethene	52.57	5.0	50	0	105	80-120	0			
1,2-Dichloroethane	51.23	5.0	50	0	102	80-120	0			
2-Butanone	77.82	10	100	0	77.8	70-130	0			
2-Chloroethyl vinyl ether	81.24	10	100	0	81.2	72-120	0			
2-Hexanone	74.07	10	100	0	74.1	70-130	0			
4-Methyl-2-pentanone	80.5	10	80.5	0	100	78-120	0			
Acetone	93.56	10	100	0	93.6	60-135	0			
Benzene	45.85	5.0	50	0	91.7	82-119	0			
Bromodichloromethane	50.42	5.0	50	0	101	81-119	0			
Bromoform	45.67	5.0	50	0	91.3	80-120	0			
Bromomethane	54.57	5.0	50	0	109	75-130	0			
Carbon disulfide	102.2	10	100	0	102	78-120	0			
Carbontetrachloride	51.9	5.0	50	0	104	77-120	0			
Chlorobenzene	47.42	5.0	50	0	94.8	82-118	0			
Chloroethane	52.45	5.0	50	0	105	78-122	0			
Chloroform	51.96	5.0	50	0	104	78-120	0			
Chloromethane	47.7	5.0	50	0	95.4	75-125	0			
cis-1,3-Dichloropropene	51.78	5.0	50	0	104	81-120	0			
Dibromochloromethane	49.32	5.0	50	0	98.6	81-118	0			
Ethylbenzene	48.97	5.0	50	0	97.9	82-120	0			
m,p-Xylene	96.43	10	100	0	96.4	82-122	0			
Methylene chloride	46.51	10	50	0	93	80-122	0			
Styrene	51	5.0	50	0	102	82-121	0			
Tetrachloroethene	47.65	5.0	50	0	95.3	79-118	0			
Toluene	49.89	5.0	50	0	99.8	81-119	0			
trans-1,3-Dichloropropene	55.18	5.0	50	0	110	82-121	0			
Trichloroethene	47.62	5.0	50	0	95.2	78-118	0			
Vinyl acetate	96.94	10	100	0	96.9	75-120	0			
Vinyl chloride	49.42	2.0	50	0	98.8	73-127	0			
Xylenes, Total	145.1	15	150	0	96.7	80-120	0			
Surr:1,2-Dichloroethane-d4	47.63	5.0	50	0	95.3	70-130	0			
Surr:4-Bromofluorobenzene	49.73	5.0	50	0	99.5	70-130	0			
Surr: Dibromofluoromethane	46.8	5.0	50	0	93.6	70-130	0			
Surr: Toluene-d8	48.32	5.0	50	0	96.6	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

LCSD Sample ID: **VLCSWD-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 11:17**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382008** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.43	5.0	50	0	103	75-118	51.84	0.799	20	
1,1,2,2-Tetrachloroethane	43.84	5.0	50	0	87.7	79-120	42.06	4.15	20	
1,1,2-Trichloroethane	46.47	5.0	50	0	92.9	81-119	46.47	0.0198	20	
1,1-Dichloroethane	51.55	5.0	50	0	103	80-120	51.25	0.578	20	
1,1-Dichloroethene	51.22	5.0	50	0	102	80-120	52.57	2.6	20	
1,2-Dichloroethane	51.49	5.0	50	0	103	80-120	51.23	0.509	20	
2-Butanone	81.55	10	100	0	81.5	70-130	77.82	4.68	20	
2-Chloroethyl vinyl ether	82.95	10	100	0	83	72-120	81.24	2.09	20	
2-Hexanone	74.74	10	100	0	74.7	70-130	74.07	0.894	20	
4-Methyl-2-pentanone	80.05	10	80.5	0	99.4	78-120	80.5	0.554	20	
Acetone	102.9	10	100	0	103	60-135	93.56	9.47	20	
Benzene	45.39	5.0	50	0	90.8	82-119	45.85	1	20	
Bromodichloromethane	50.57	5.0	50	0	101	81-119	50.42	0.301	20	
Bromoform	47	5.0	50	0	94	80-120	45.67	2.86	20	
Bromomethane	55.24	5.0	50	0	110	75-130	54.57	1.23	20	
Carbon disulfide	100.7	10	100	0	101	78-120	102.2	1.5	20	
Carbon tetrachloride	50.98	5.0	50	0	102	77-120	51.9	1.79	20	
Chlorobenzene	47.31	5.0	50	0	94.6	82-118	47.42	0.231	20	
Chloroethane	52.14	5.0	50	0	104	78-122	52.45	0.594	20	
Chloroform	51.97	5.0	50	0	104	78-120	51.96	0.0219	20	
Chloromethane	48.58	5.0	50	0	97.2	75-125	47.7	1.83	20	
cis-1,3-Dichloropropene	51.82	5.0	50	0	104	81-120	51.78	0.0892	20	
Dibromochloromethane	49.37	5.0	50	0	98.7	81-118	49.32	0.0895	20	
Ethylbenzene	47.29	5.0	50	0	94.6	82-120	48.97	3.47	20	
m,p-Xylene	95.49	10	100	0	95.5	82-122	96.43	0.978	20	
Methylene chloride	46.3	10	50	0	92.6	80-122	46.51	0.464	20	
Styrene	49.99	5.0	50	0	100	82-121	51	1.99	20	
Tetrachloroethene	46.33	5.0	50	0	92.7	79-118	47.65	2.8	20	
Toluene	47.25	5.0	50	0	94.5	81-119	49.89	5.43	20	
trans-1,3-Dichloropropene	54.77	5.0	50	0	110	82-121	55.18	0.75	20	
Trichloroethene	47.13	5.0	50	0	94.3	78-118	47.62	1.02	20	
Vinyl acetate	96.85	10	100	0	96.9	75-120	96.94	0.0844	20	
Vinyl chloride	49.39	2.0	50	0	98.8	73-127	49.42	0.0583	20	
Xylenes, Total	143.2	15	150	0	95.4	80-120	145.1	1.32	20	
Surr: 1,2-Dichloroethane-d4	47.7	5.0	50	0	95.4	70-130	47.63	0.151	20	
Surr: 4-Bromofluorobenzene	48.96	5.0	50	0	97.9	70-130	49.73	1.55	20	
Surr: Dibromofluoromethane	47.21	5.0	50	0	94.4	70-130	46.8	0.871	20	
Surr: Toluene-d8	47.64	5.0	50	0	95.3	70-130	48.32	1.42	20	

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MS Sample ID: **0310129-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 14:54**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382249** Prep Date: DF: **10000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	514900	50,000	500000	0	103	75-125	0			
1,1,2,2-Tetrachloroethane	470600	50,000	500000	0	94.1	75-125	0			
1,1,2-Trichloroethane	495800	50,000	500000	0	99.2	75-125	0			
1,1-Dichloroethane	543300	50,000	500000	0	109	75-125	0			
1,1-Dichloroethene	505000	50,000	500000	0	101	65-130	0			
1,2-Dichloroethane	519900	50,000	500000	0	104	70-130	0			
2-Butanone	864200	100,000	1000000	0	86.4	64-128	0			
2-Chloroethyl vinyl ether	810300	100,000	1000000	0	81	75-125	0			
2-Hexanone	732000	100,000	1000000	0	73.2	72-124	0			
4-Methyl-2-pentanone	884400	100,000	805000	0	110	75-125	0			
Acetone	835700	100,000	1000000	0	83.6	60-130	0			
Benzene	479300	50,000	500000	0	95.9	76-127	0			
Bromodichloromethane	495000	50,000	500000	0	99	75-125	0			
Bromoform	481900	50,000	500000	0	96.4	75-125	0			
Bromomethane	524400	50,000	500000	0	105	75-125	0			
Carbon disulfide	1008000	100,000	1000000	0	101	75-125	0			
Carbon tetrachloride	504600	50,000	500000	0	101	70-130	0			
Chlorobenzene	487300	50,000	500000	0	97.5	75-126	0			
Chloroethane	503700	50,000	500000	0	101	70-130	0			
Chloroform	524400	50,000	500000	0	105	75-125	0			
Chloromethane	482100	50,000	500000	0	96.4	75-125	0			
cis-1,3-Dichloropropene	526400	50,000	500000	0	105	75-125	0			
Dibromochloromethane	498000	50,000	500000	0	99.6	75-125	0			
Ethylbenzene	505800	50,000	500000	0	101	75-125	0			
m,p-Xylene	1006000	100,000	1000000	0	101	75-125	0			
Methylene chloride	475700	100,000	500000	0	95.1	75-125	0			
Styrene	524400	50,000	500000	0	105	75-125	0			
Tetrachloroethene	481200	50,000	500000	0	96.2	75-125	0			
Toluene	500000	50,000	500000	0	100	76-125	0			
trans-1,3-Dichloropropene	550400	50,000	500000	0	110	70-130	0			
Trichloroethene	470200	50,000	500000	0	94	71-120	0			
Vinyl acetate	1084000	100,000	1000000	0	108	75-125	0			
Vinyl chloride	470400	20,000	500000	0	94.1	60-135	0			
Xylenes, Total	1510000	150,000	1500000	0	101	75-125	0			
Surr:1,2-Dichloroethane-d4	470000	50,000	500000	0	94	70-130	0			
Surr:4-Bromofluorobenzene	500000	50,000	500000	0	100	70-130	0			
Surr:Dibromofluoromethane	466000	50,000	500000	0	93.2	70-130	0			
Surr:Toluene-d8	495300	50,000	500000	0	99.1	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MSD Sample ID: **0310129-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 15:21**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382250** Prep Date: DF: **10000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	503400	50,000	500000	0	101	75-125	514900	2.25	20	
1,1,2,2-Tetrachloroethane	457100	50,000	500000	0	91.4	75-125	470600	2.9	20	
1,1,2-Trichloroethane	485300	50,000	500000	0	97.1	75-125	495800	2.13	20	
1,1-Dichloroethane	535400	50,000	500000	0	107	75-125	543300	1.47	20	
1,1-Dichloroethene	496900	50,000	500000	0	99.4	65-130	505000	1.63	20	
1,2-Dichloroethane	504100	50,000	500000	0	101	70-130	519900	3.08	20	
2-Butanone	833400	100,000	1000000	0	83.3	64-128	864200	3.63	20	
2-Chloroethyl vinyl ether	839400	100,000	1000000	0	83.9	75-125	810300	3.52	20	
2-Hexanone	721800	100,000	1000000	0	72.2	72-124	732000	1.4	20	
4-Methyl-2-pentanone	851400	100,000	805000	0	106	75-125	884400	3.81	20	
Acetone	804100	100,000	1000000	0	80.4	60-130	835700	3.85	20	
Benzene	478800	50,000	500000	0	95.8	76-127	479300	0.12	20	
Bromodichloromethane	494200	50,000	500000	0	98.8	75-125	495000	0.148	20	
Bromoform	466100	50,000	500000	0	93.2	75-125	481900	3.34	20	
Bromomethane	503900	50,000	500000	0	101	75-125	524400	3.99	20	
Carbon disulfide	994300	100,000	1000000	0	99.4	75-125	1008000	1.39	20	
Carbon tetrachloride	494300	50,000	500000	0	98.9	70-130	504600	2.07	20	
Chlorobenzene	478200	50,000	500000	0	95.6	75-126	487300	1.89	20	
Chloroethane	494300	50,000	500000	0	98.9	70-130	503700	1.88	20	
Chloroform	517000	50,000	500000	0	103	75-125	524400	1.42	20	
Chloromethane	476900	50,000	500000	0	95.4	75-125	482100	1.08	20	
cis-1,3-Dichloropropene	524200	50,000	500000	0	105	75-125	526400	0.431	20	
Dibromochloromethane	484000	50,000	500000	0	96.8	75-125	498000	2.85	20	
Ethylbenzene	496400	50,000	500000	0	99.3	75-125	505800	1.87	20	
m,p-Xylene	980500	100,000	1000000	0	98	75-125	1006000	2.61	20	
Methylene chloride	463800	100,000	500000	0	92.8	75-125	475700	2.53	20	
Styrene	514600	50,000	500000	0	103	75-125	524400	1.89	20	
Tetrachloroethene	470400	50,000	500000	0	94.1	75-125	481200	2.27	20	
Toluene	492200	50,000	500000	0	98.4	76-125	500000	1.57	20	
trans-1,3-Dichloropropene	534100	50,000	500000	0	107	70-130	550400	3.01	20	
Trichloroethene	460100	50,000	500000	0	92	71-120	470200	2.17	20	
Vinyl acetate	1059000	100,000	1000000	0	106	75-125	1084000	2.32	20	
Vinyl chloride	458000	20,000	500000	0	91.6	60-135	470400	2.66	20	
Xylenes, Total	1471000	150,000	1500000	0	98.1	75-125	1510000	2.6	20	
Surr: 1,2-Dichloroethane-d4	464700	50,000	500000	0	92.9	70-130	470000	1.14	20	
Surr: 4-Bromofluorobenzene	501900	50,000	500000	0	100	70-130	500000	0.37	20	
Surr: Dibromofluoromethane	462700	50,000	500000	0	92.5	70-130	466000	0.712	20	
Surr: Toluene-d8	491000	50,000	500000	0	98.2	70-130	495300	0.873	20	

Thefollowingsampleswereanalyzedinthisbatch: 0310201-01A

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Released to Imaging: 7/12/2022 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

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(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager:		e-Lab Work Order #:	13102U

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Wells	A	See List
Work Order		Project Number		B	
Company Name	Navajo	Bill To Company		C	
Send Report To	Charlie Plymale / Darrell Moore	Invoice Attn.	Charlie Plymale	D	
Address	501 E. Main	Address		E	
				F	
City/State/Zip	Artesia NM 88210	City/State/Zip		G	
Phone	505 748 3311	Phone		H	
Fax	505 746 5421	Fax		I	
e-Mail Address				J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Wells	10/15/03	1020			5	X										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign: Charlie Plymale

Shipment Method: FedEx

Required Turnaround Time: ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
	10/16/03	1615		
Relinquished by:	Date:	Time:	Received by (Laboratory): 10/16 10/17/03 08:45	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

QC Package: (Check Box Below)
- Level II: Standard QC
- Level III: Standard QC + Raw Data
- Level IV: SW846 Methods/CLP
- Other: _____

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 10/17/2003 8:45:00 AM

Work Order Number 0310201 Received by: RNG

Checklist completed by [signature] 10/17/03 (Signature / Date) Reviewed by LT 10/17/03 (Initials / Date)

Matrix: W Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.5c	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

October 9, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2003 to September 30, 2003. We have disposed a total of 16,577,663 bbls. of fluid into the two wells as of September 30, 2003. This is broken down as follows: 11,500,262 bbls. into WDW-1 and 5,077,401 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jul-03	191	274	94	181	215	143	477	500	417	6204	7387	4901	192,336
Aug-03	155	251	52	186	245	102	378	497	203	6361	8386	3486	197,176
Sep-03	190	353	113	198	284	110	364	500	249	6802	9737	3775	210,853
WDW-2													
Jul-03	195	285	59	142	164	83	138	144	132	4868	5630	2847	150,906
Aug-03	175	261	72	137	172	80	151	193	142	4707	5909	2759	145,913
Sep-03	216	389	57	152	203	43	152	161	148	5220	6958	1486	161,810

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5887

September 08, 2003

Darrell Moore
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5281
Fax: (505) 746-5421

Re: Inj. Wells Work Order : **0308325**

Dear Darrell Moore,

e-Lab, Inc. received 1 sample on 8/29/2003 9:30:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 14. If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Georgia Jones

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: **0308325**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0308325-01	Injection Wells	Wate1		8/28/2003 10:0C	8/29/2003 09:3C	☐

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells
Lab ID: 0308325-01

Client Sample ID: Injection Wells
Collection Date: 8/28/2003 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **8/29/2003**		Analyst: **HV**
1,2,4-Trichlorobenzene	U	0.83	10		µg/L	1	9/3/2003
2,4,5-Trichlorophenol	U	2.4	10		µg/L	1	9/3/2003
2,4,6-Trichlorophenol	U	2.7	10		µg/L	1	9/3/2003
2-Methylnaphthalene	U	0.86	10		µg/L	1	9/3/2003
2-Methylphenol	U	2.8	10		µg/L	1	9/3/2003
2-Nitroaniline	U	1.1	10		µg/L	1	9/3/2003
2-Nitrophenol	U	2.6	10		µg/L	1	9/3/2003
3-Nitroaniline	U	1.2	10		µg/L	1	9/3/2003
4-Methylphenol	U	4.6	10		µg/L	1	9/3/2003
4-Nitroaniline	U	0.95	10		µg/L	1	9/3/2003
4-Nitrophenol	U	2.7	10		µg/L	1	9/3/2003
Acenaphthene	U	1.1	10		µg/L	1	9/3/2003
Acenaphthylene	U	1.0	10		µg/L	1	9/3/2003
Aniline	U	10	10		µg/L	1	9/3/2003
Anthracene	U	0.36	10		µg/L	1	9/3/2003
Benz(a)anthracene	U	0.77	10		µg/L	1	9/3/2003
Benzidine	U	0.34	10		µg/L	1	9/3/2003
Hexachloroethane	U	0.64	10		µg/L	1	9/3/2003
Indeno(1,2,3-cd)pyrene	U	0.77	10		µg/L	1	9/3/2003
Isophorone	U	1.2	10		µg/L	1	9/3/2003
N-Nitrosodi-n-propylamine	U	1.5	10		µg/L	1	9/3/2003
N-Nitrosodimethylamine	U	1.1	10		µg/L	1	9/3/2003
N-Nitrosodiphenylamine	U	1.3	10		µg/L	1	9/3/2003
Naphthalene	U	1.0	10		µg/L	1	9/3/2003
Nitrobenzene	U	1.7	10		µg/L	1	9/3/2003
Pentachlorophenol	U	1.5	10		µg/L	1	9/3/2003
Phenanthrene	U	1.2	10		µg/L	1	9/3/2003
Phenol	U	3.5	10		µg/L	1	9/3/2003
Pyrene	U	0.92	10		µg/L	1	9/3/2003
Surr: 2,4,6-Tribromophenol	103	0	10-123		%REC	1	9/3/2003
Surr: 2-Fluorobiphenyl	92.9	0	43-116		%REC	1	9/3/2003
Surr: 2-Fluorophenol	37.2	0	21-100		%REC	1	9/3/2003
Surr: 4-Terphenyl-d14	99.3	0	33-141		%REC	1	9/3/2003
Surr: Nitrobenzene-d5	88.4	0	35-114		%REC	1	9/3/2003
Surr: Phenol-d6	23.9	0	10-94		%REC	1	9/3/2003
VOLATILES BY GC/MS		**SW8260**			Prep Date:		Analyst: **HLBW**
1,1,1-Trichloroethane	U	0.62	5.0		µg/L	1	9/4/2003
1,1,2,2-Tetrachloroethane	U	0.58	5.0		µg/L	1	9/4/2003
1,1,2-Trichloroethane	U	0.41	5.0		µg/L	1	9/4/2003

Qualifiers

U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells
Lab ID: 0308325-01

Client Sample ID: Injection Wells
Collection Date: 8/28/2003 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	U	0.43	5.0		µg/L	1	9/4/2003
1,1-Dichloroethene	U	0.53	5.0		µg/L	1	9/4/2003
1,2-Dichloroethane	U	0.38	5.0		µg/L	1	9/4/2003
2-Butanone	3.5	0.70	10	J	µg/L	1	9/4/2003
2-Chloroethyl vinyl ether	U	0.63	10		µg/L	1	9/4/2003
2-Hexanone	U	1.1	10		µg/L	1	9/4/2003
4-Methyl-2-pentanone	U	0.64	10		µg/L	1	9/4/2003
Acetone	41	1.2	10		µg/L	1	9/4/2003
Benzene	U	0.66	5.0		µg/L	1	9/4/2003
Bromodichloromethane	U	0.45	5.0		µg/L	1	9/4/2003
Bromoform	U	0.40	5.0		µg/L	1	9/4/2003
Bromomethane	U	0.70	5.0		µg/L	1	9/4/2003
Carbon disulfide	U	0.76	10		µg/L	1	9/4/2003
Carbon tetrachloride	U	0.65	5.0		µg/L	1	9/4/2003
Chlorobenzene	U	0.43	5.0		µg/L	1	9/4/2003
Chloroethane	U	0.56	5.0		µg/L	1	9/4/2003
Chloroform	U	0.52	5.0		µg/L	1	9/4/2003
Chloromethane	U	1.1	5.0		µg/L	1	9/4/2003
cis-1,3-Dichloropropene	U	0.47	5.0		µg/L	1	9/4/2003
Dibromochloromethane	U	0.53	5.0		µg/L	1	9/4/2003
Ethylbenzene	1.8	0.77	5.0	J	µg/L	1	9/4/2003
m,p-Xylene	3.0	1.3	10	J	µg/L	1	9/4/2003
Methyl tert-butyl ether	1.9	0.30	5.0	J	µg/L	1	9/4/2003
Methylene chloride	U	0.60	10		µg/L	1	9/4/2003
Styrene	U	0.56	5.0		µg/L	1	9/4/2003
Tetrachloroethene	U	0.43	5.0		µg/L	1	9/4/2003
Toluene	U	0.69	5.0		µg/L	1	9/4/2003
trans-1,3-Dichloropropene	U	0.44	5.0		µg/L	1	9/4/2003
Trichloroethene	U	0.70	5.0		µg/L	1	9/4/2003
Vinyl acetate	U	0.92	10		µg/L	1	9/4/2003
Vinyl chloride	U	0.79	2.0		µg/L	1	9/4/2003
Xylenes, Total	3.0	1.8	15	J	µg/L	1	9/4/2003
Surr: 1,2-Dichloroethane-d4	84.2	0	70-130		%REC	1	9/4/2003
Surr: 4-Bromofluorobenzene	92.1	0	70-130		%REC	1	9/4/2003
Surr: Dibromofluoromethane	93.3	0	70-130		%REC	1	9/4/2003
Surr: Toluene-d8	97.8	0	70-130		%REC	1	9/4/2003

Qualifiers

U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Sep 05 2003*

CLIENT: Navajo Refining Company

QC BATCH REPORT

Work Order: 0308325

Project: Inj. Wells

Batch ID: **6544** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 20:27**

Client ID: Run ID: **SV-2_030902A** SeqNo: **363914** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	U	10								
2,4,5-Trichlorophenol	U	10								
2,4,6-Trichlorophenol	U	10								
2-Methylnaphthalene	U	10								
2-Methylphenol	U	10								
2-Nitroaniline	U	10								
2-Nitrophenol	U	10								
3-Nitroaniline	U	10								
4-Methylphenol	U	10								
4-Nitroaniline	U	10								
4-Nitrophenol	U	10								
Acenaphthene	U	10								
Acenaphthylene	U	10								
Aniline	U	10								
Anthracene	U	10								
Benz(a)anthracene	U	10								
Benzidine	U	10								
Hexachloroethane	U	10								
Indeno(1,2,3-cd)pyrene	U	10								
Isophorone	U	10								
N-Nitrosodi-n-propylamine	U	10								
N-Nitrosodimethylamine	U	10								
N-Nitrosodiphenylamine	U	10								
Naphthalene	U	10								
Nitrobenzene	U	10								
Pentachlorophenol	U	10								
Phenanthrene	U	10								
Phenol	U	10								
Pyrene	U	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	94.95	0	100	0	94.9	10-123	0			
Surr: 2-Fluorobiphenyl	83.93	0	100	0	83.9	43-116	0			
Surr: 2-Fluorophenol	47.33	0	100	0	47.3	21-100	0			
Surr:4-Terphenyl-d14	96.76	0	100	0	96.8	33-141	0			
Surr: Nitrobenzene-d5	83.45	0	100	0	83.5	35-114	0			
Surr: Phenol-d6	29.37	0	100	0	29.4	10-94	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6544** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 20:52**
Client ID: Run ID: **SV-2_030902A** SeqNo: **363915** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	36.24	10	50	0	72.5	51-110	0			
2,4,5-Trichlorophenol	99.21	10	100	0	99.2	55-130	0			
2,4,6-Trichlorophenol	96.5	10	100	0	96.5	55-130	0			
2-Methylnaphthalene	37.11	10	50	0	74.2	50-125	0			
2-Methylphenol	75.67	10	100	0	75.7	45-120	0			
2-Nitroaniline	48.86	10	50	0	97.7	55-130	0			
2-Nitrophenol	92.95	10	100	0	92.9	55-125	0			
3-Nitroaniline	50.32	10	50	0	101	55-120	0			
4-Methylphenol	102.9	10	150	0	68.6	40-120	0			
4-Nitroaniline	49.51	10	50	0	99	60-130	0			
4-Nitrophenol	56.88	10	100	0	56.9	25-100	0			
Acenaphthene	44.06	10	50	0	88.1	50-120	0			
Acenaphthylene	44.04	10	50	0	88.1	55-130	0			
Anthracene	49.51	10	50	0	99	60-130	0			
Benz(a)anthracene	47.1	10	50	0	94.2	60-130	0			
Benzidine	18.48	10	50	0	37	10-85	0			
Hexachloroethane	33.99	10	50	0	68	40-120	0			
Indeno(1,2,3-cd)pyrene	48.89	10	50	0	97.8	60-130	0			
Isophorone	47.07	10	50	0	94.1	60-130	0			
N-Nitrosodi-n-propylamine	46.01	10	50	0	92	55-120	0			
N-Nitrosodimethylamine	25.79	10	50	0	51.6	35-110	0			
N-Nitrosodiphenylamine	53.89	10	50	0	108	60-130	0			
Naphthalene	38.88	10	50	0	77.8	55-130	0			
Nitrobenzene	45.5	10	50	0	91	60-130	0			
Pentachlorophenol	92.37	10	100	0	92.4	45-125	0			
Phenanthrene	47.78	10	50	0	95.6	60-130	0			
Phenol	35.14	10	100	0	35.1	20-100	0			
Pyrene	45.89	10	50	0	91.8	45-120	0			
Surr: 2,4,6-Tribromophenol	104.1	0	100	0	104	10-123	0			
Surr: 2-Fluorobiphenyl	90.54	0	100	0	90.5	43-116	0			
Surr: 2-Fluorophenol	54.46	0	100	0	54.5	21-100	0			
Surr:4-Terphenyl-d14	99.22	0	100	0	99.2	33-141	0			
Surr: Nitrobenzene-d5	90.28	0	100	0	90.3	35-114	0			
Surr: Phenol-d6	34.99	0	100	0	35	10-94	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6544** InstrumentID: **SV-2**

LCSD Sample ID: **SLCSDW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 21:18**
Client ID: Run ID: **SV-2_030902A** SeqNo: **363917** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	36.57	10	50	0	73.1	51-110	36.24	0.907	30	
2,4,5-Trichlorophenol	100.9	10	100	0	101	55-130	99.21	1.73	30	
2,4,6-Trichlorophenol	96.17	10	100	0	96.2	55-130	96.5	0.35	30	
2-Methylnaphthalene	37.8	10	50	0	75.6	50-125	37.11	1.85	30	
2-Methylphenol	76.54	10	100	0	76.5	45-120	75.67	1.14	30	
2-Nitroaniline	50.36	10	50	0	101	55-130	48.86	3.03	30	
2-Nitrophenol	93.07	10	100	0	93.1	55-125	92.95	0.131	30	
3-Nitroaniline	52.17	10	50	0	104	55-120	50.32	3.61	30	
4-Methylphenol	105.4	10	150	0	70.2	40-120	102.9	2.41	30	
4-Nitroaniline	51.7	10	50	0	103	60-130	49.51	4.33	30	
4-Nitrophenol	58.66	10	100	0	58.7	25-100	56.88	3.09	30	
Acenaphthene	43.86	10	50	0	87.7	50-120	44.06	0.443	30	
Acenaphthylene	44.01	10	50	0	88	55-130	44.04	0.0744	30	
Anthracene	49.66	10	50	0	99.3	60-130	49.51	0.298	30	
Benz(a)anthracene	46.45	10	50	0	92.9	60-130	47.1	1.39	30	
Benzidine	30.71	10	50	0	61.4	10-85	18.48	49.7	30	R
Hexachloroethane	34.69	10	50	0	69.4	40-120	33.99	2.05	30	
Indeno(1,2,3-cd)pyrene	45.54	10	50	0	91.1	60-130	48.89	7.11	30	
Isophorone	47.79	10	50	0	95.6	60-130	47.07	1.52	30	
N-Nitrosodi-n-propylamine	46.64	10	50	0	93.3	55-120	46.01	1.35	30	
N-Nitrosodimethylamine	26.37	10	50	0	52.7	35-110	25.79	2.2	30	
N-Nitrosodiphenylamine	53.46	10	50	0	107	60-130	53.89	0.802	30	
Naphthalene	39.15	10	50	0	78.3	55-130	38.88	0.703	30	
Nitrobenzene	45.91	10	50	0	91.8	60-130	45.5	0.893	30	
Pentachlorophenol	87.99	10	100	0	88	45-125	92.37	4.86	30	
Phenanthrene	47.34	10	50	0	94.7	60-130	47.78	0.921	30	
Phenol	36.53	10	100	0	36.5	20-100	35.14	3.9	30	
Pyrene	46.24	10	50	0	92.5	45-120	45.89	0.777	30	
Surr: 2,4,6-Tribromophenol	101.1	0	100	0	101	10-123	104.1	2.89	30	
Surr: 2-Fluorobiphenyl	90.67	0	100	0	90.7	43-116	90.54	0.141	30	
Surr: 2-Fluorophenol	54.74	0	100	0	54.7	21-100	54.46	0.517	30	
Surr:4-Terphenyl-d14	100.8	0	100	0	101	33-141	99.22	1.55	30	
Surr: Nitrobenzene-d5	91.28	0	100	0	91.3	35-114	90.28	1.1	30	
Surr: Phenol-d6	35.67	0	100	0	35.7	10-94	34.99	1.94	30	

Thefollowingsampleswereanalyzedinthisbatch: 0308325-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MBLK Sample ID: **VBLKW-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 11:19**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364169** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2-Dichloroethane	U	5.0								
2-Butanone	U	10								
2-Chloroethyl vinyl ether	U	10								
2-Hexanone	U	10								
4-Methyl-2-pentanone	U	10								
Acetone	U	10								
Benzene	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	5.0								
Carbon disulfide	U	10								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Dibromochloromethane	U	5.0								
Ethylbenzene	U	5.0								
m,p-Xylene	U	10								
Methyl tert-butyl ether	U	5.0								
Methylene chloride	U	10								
Styrene	U	5.0								
Tetrachloroethene	U	5.0								
Toluene	U	5.0								
trans-1,3-Dichloropropene	U	5.0								
Trichloroethene	U	5.0								
Vinyl acetate	U	10								
Vinyl chloride	U	2.0								
Xylenes, Total	U	15								
Surr:1,2-Dichloroethane-d4	44.69	5.0	50	0	89.4	70-130	0			
Surr:4-Bromofluorobenzene	46.1	5.0	50	0	92.2	70-130	0			
Surr: Dibromofluoromethane	48.14	5.0	50	0	96.3	70-130	0			
Surr: Toluene-d8	47.88	5.0	50	0	95.8	70-130	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

LCS Sample ID: **VLCSW-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 9:51**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364167** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	50.1	5.0	50	0	100	75-118	0			
1,1,2,2-Tetrachloroethane	51.87	5.0	50	0	104	79-120	0			
1,1,2-Trichloroethane	52.32	5.0	50	0	105	81-119	0			
1,1-Dichloroethane	52.71	5.0	50	0	105	80-120	0			
1,1-Dichloroethene	55.71	5.0	50	0	111	80-120	0			
1,2-Dichloroethane	52.78	5.0	50	0	106	80-120	0			
2-Butanone	98.7	10	100	0	98.7	70-130	0			
2-Chloroethyl vinyl ether	93.51	10	100	0	93.5	72-120	0			
2-Hexanone	101.5	10	100	0	102	70-130	0			
4-Methyl-2-pentanone	99.44	10	100	0	99.4	78-120	0			
Acetone	92.2	10	100	0	92.2	60-135	0			
Benzene	53.97	5.0	50	0	108	82-119	0			
Bromodichloromethane	52.6	5.0	50	0	105	81-119	0			
Bromoform	52.48	5.0	50	0	105	80-120	0			
Bromomethane	44.47	5.0	50	0	88.9	75-130	0			
Carbon disulfide	103.7	10	100	0	104	78-120	0			
Carbon tetrachloride	52.38	5.0	50	0	105	77-120	0			
Chlorobenzene	51.44	5.0	50	0	103	82-118	0			
Chloroethane	49.51	5.0	50	0	99	78-122	0			
Chloroform	51.9	5.0	50	0	104	78-120	0			
Chloromethane	45.43	5.0	50	0	90.9	75-125	0			
cis-1,3-Dichloropropene	53.12	5.0	50	0	106	81-120	0			
Dibromochloromethane	52.07	5.0	50	0	104	81-118	0			
Ethylbenzene	51.27	5.0	50	0	103	82-120	0			
m,p-Xylene	103.4	10	100	0	103	82-122	0			
Methyl tert-butyl ether	51.57	5.0	50	0	103	79-120	0			
Methylene chloride	51.14	10	50	0	102	80-122	0			
Styrene	52.77	5.0	50	0	106	82-121	0			
Tetrachloroethene	40.92	5.0	50	0	81.8	79-118	0			
Toluene	52.09	5.0	50	0	104	81-119	0			
trans-1,3-Dichloropropene	53.38	5.0	50	0	107	82-121	0			
Trichloroethene	53.57	5.0	50	0	107	78-118	0			
Vinyl acetate	108.7	10	100	0	109	75-120	0			
Vinyl chloride	49.29	2.0	50	0	98.6	73-127	0			
Xylenes, Total	155	15	150	0	103	80-120	0			
Surr:1,2-Dichloroethane-d4	43.49	5.0	50	0	87	70-130	0			
Surr:4-Bromofluorobenzene	47.03	5.0	50	0	94.1	70-130	0			
Surr:Dibromofluoromethane	46.93	5.0	50	0	93.9	70-130	0			
Surr: Toluene-d8	47.28	5.0	50	0	94.6	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

LCSD Sample ID: **VLCSWD-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 10:20**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364168** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.77	5.0	50	0	104	75-118	50.1	3.29	20	
1,1,2,2-Tetrachloroethane	54.18	5.0	50	0	108	79-120	51.87	4.35	20	
1,1,2-Trichloroethane	53.26	5.0	50	0	107	81-119	52.32	1.79	20	
1,1-Dichloroethane	53.86	5.0	50	0	108	80-120	52.71	2.14	20	
1,1-Dichloroethene	57.86	5.0	50	0	116	80-120	55.71	3.78	20	
1,2-Dichloroethane	53.38	5.0	50	0	107	80-120	52.78	1.14	20	
2-Butanone	99.95	10	100	0	100	70-130	98.7	1.26	20	
2-Chloroethyl vinyl ether	93.68	10	100	0	93.7	72-120	93.51	0.182	20	
2-Hexanone	104.3	10	100	0	104	70-130	101.5	2.63	20	
4-Methyl-2-pentanone	103	10	100	0	103	78-120	99.44	3.49	20	
Acetone	104.1	10	100	0	104	60-135	92.2	12.1	20	
Benzene	55.75	5.0	50	0	112	82-119	53.97	3.25	20	
Bromodichloromethane	53.22	5.0	50	0	106	81-119	52.6	1.17	20	
Bromoform	53.44	5.0	50	0	107	80-120	52.48	1.81	20	
Bromomethane	45.67	5.0	50	0	91.3	75-130	44.47	2.65	20	
Carbon disulfide	108.4	10	100	0	108	78-120	103.7	4.43	20	
Carbon tetrachloride	55.55	5.0	50	0	111	77-120	52.38	5.87	20	
Chlorobenzene	52.68	5.0	50	0	105	82-118	51.44	2.38	20	
Chloroethane	50.08	5.0	50	0	100	78-122	49.51	1.14	20	
Chloroform	52.38	5.0	50	0	105	78-120	51.9	0.912	20	
Chloromethane	45.93	5.0	50	0	91.9	75-125	45.43	1.09	20	
cis-1,3-Dichloropropene	53.98	5.0	50	0	108	81-120	53.12	1.6	20	
Dibromochloromethane	52.74	5.0	50	0	105	81-118	52.07	1.28	20	
Ethylbenzene	53.86	5.0	50	0	108	82-120	51.27	4.92	20	
m,p-Xylene	106.1	10	100	0	106	82-122	103.4	2.63	20	
Methyl tert-butyl ether	53.01	5.0	50	0	106	79-120	51.57	2.74	20	
Methylene chloride	54.25	10	50	0	108	80-122	51.14	5.89	20	
Styrene	53.8	5.0	50	0	108	82-121	52.77	1.93	20	
Tetrachloroethene	49.07	5.0	50	0	98.1	79-118	40.92	18.1	20	
Toluene	53.44	5.0	50	0	107	81-119	52.09	2.57	20	
trans-1,3-Dichloropropene	53.15	5.0	50	0	106	82-121	53.38	0.431	20	
Trichloroethene	54.67	5.0	50	0	109	78-118	53.57	2.02	20	
Vinyl acetate	106.9	10	100	0	107	75-120	108.7	1.69	20	
Vinyl chloride	48.41	2.0	50	0	96.8	73-127	49.29	1.8	20	
Xylenes, Total	159.1	15	150	0	106	80-120	155	2.57	20	
Surr: 1,2-Dichloroethane-d4	45.22	5.0	50	0	90.4	70-130	43.49	3.89	20	
Surr: 4-Bromofluorobenzene	46.99	5.0	50	0	94	70-130	47.03	0.0948	20	
Surr: Dibromofluoromethane	47.99	5.0	50	0	96	70-130	46.93	2.23	20	
Surr: Toluene-d8	47.65	5.0	50	0	95.3	70-130	47.28	0.774	20	

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MS Sample ID: **0309018-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 15:47**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364394** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	515	50	500	0	103	75-125	0			
1,1,2,2-Tetrachloroethane	543.4	50	500	0	109	75-125	0			
1,1,2-Trichloroethane	532.2	50	500	0	106	75-125	0			
1,1-Dichloroethane	567.7	50	500	11.67	111	75-125	0			
1,1-Dichloroethene	603.4	50	500	0	121	65-130	0			
1,2-Dichloroethane	482.3	50	500	0	96.5	70-130	0			
2-Butanone	1033	100	1000	0	103	64-128	0			
2-Chloroethyl vinyl ether	81.14	100	1000	0	8.11	75-125	0			JS
2-Hexanone	1050	100	1000	0	105	72-124	0			
4-Methyl-2-pentanone	1042	100	1000	0	104	75-125	0			
Acetone	772.7	100	1000	53.14	72	60-130	0			
Benzene	558.9	50	500	0	112	76-127	0			
Bromodichloromethane	501.3	50	500	0	100	75-125	0			
Bromoform	517.9	50	500	0	104	75-125	0			
Bromomethane	472.4	50	500	0	94.5	75-125	0			
Carbon disulfide	1120	100	1000	0	112	75-125	0			
Carbontetrachloride	2713	50	500	1890	165	70-130	0			SE
Chlorobenzene	510	50	500	0	102	75-126	0			
Chloroethane	486.6	50	500	0	97.3	70-130	0			
Chloroform	854.1	50	500	288.6	113	75-125	0			
Chloromethane	471	50	500	0	94.2	75-125	0			
cis-1,3-Dichloropropene	526.1	50	500	0	105	75-125	0			
Dibromochloromethane	499.6	50	500	0	99.9	75-125	0			
Ethylbenzene	522.2	50	500	0	104	75-125	0			
m,p-Xylene	1040	100	1000	0	104	75-125	0			
Methyl tert-butyl ether	529	50	500	0	106	75-125	0			
Methylene chloride	620.2	100	500	50.99	114	75-125	0			
Styrene	525.3	50	500	0	105	75-125	0			
Tetrachloroethene	406.4	50	500	20.72	77.1	75-125	0			
Toluene	533.9	50	500	0	107	76-125	0			
trans-1,3-Dichloropropene	506.8	50	500	0	101	70-130	0			
Trichloroethene	1042	50	500	447.3	119	71-120	0			
Vinyl acetate	1178	100	1000	0	118	75-125	0			
Vinyl chloride	502.1	20	500	0	100	60-135	0			
Xylenes, Total	1560	150	1500	0	104	75-125	0			
Surr:1,2-Dichloroethane-d4	428.6	50	500	0	85.7	70-130	0			
Surr:4-Bromofluorobenzene	444.2	50	500	0	88.8	70-130	0			
Surr: Dibromofluoromethane	477.1	50	500	0	95.4	70-130	0			
Surr: Toluene-d8	487.1	50	500	0	97.4	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MSD Sample ID: **0309018-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 16:17**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364553** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	536.2	50	500	0	107	75-125	515	4.05	20	
1,1,2,2-Tetrachloroethane	572.7	50	500	0	115	75-125	543.4	5.25	20	
1,1,2-Trichloroethane	562.9	50	500	0	113	75-125	532.2	5.61	20	
1,1-Dichloroethane	589.5	50	500	11.67	116	75-125	567.7	3.77	20	
1,1-Dichloroethene	627.1	50	500	0	125	65-130	603.4	3.86	20	
1,2-Dichloroethane	498	50	500	0	99.6	70-130	482.3	3.19	20	
2-Butanone	1103	100	1000	0	110	64-128	1033	6.56	20	
2-Chloroethyl vinyl ether	16.9	100	1000	0	1.69	75-125	81.14	0	20	JS
2-Hexanone	1106	100	1000	0	111	72-124	1050	5.16	20	
4-Methyl-2-pentanone	1115	100	1000	0	112	75-125	1042	6.8	20	
Acetone	861.8	100	1000	53.14	80.9	60-130	772.7	10.9	20	
Benzene	608.7	50	500	0	122	76-127	558.9	8.54	20	
Bromodichloromethane	530.8	50	500	0	106	75-125	501.3	5.71	20	
Bromoform	548.7	50	500	0	110	75-125	517.9	5.77	20	
Bromomethane	471.8	50	500	0	94.4	75-125	472.4	0.119	20	
Carbon disulfide	1171	100	1000	0	117	75-125	1120	4.44	20	
Carbontetrachloride	2764	50	500	1890	175	70-130	2713	1.85	20	SE
Chlorobenzene	545.2	50	500	0	109	75-126	510	6.67	20	
Chloroethane	551.8	50	500	0	110	70-130	486.6	12.6	20	
Chloroform	882.7	50	500	288.6	119	75-125	854.1	3.29	20	
Chloromethane	514	50	500	0	103	75-125	471	8.73	20	
cis-1,3-Dichloropropene	554.8	50	500	0	111	75-125	526.1	5.3	20	
Dibromochloromethane	528.8	50	500	0	106	75-125	499.6	5.68	20	
Ethylbenzene	556.5	50	500	0	111	75-125	522.2	6.35	20	
m,p-Xylene	1106	100	1000	0	111	75-125	1040	6.09	20	
Methyl tert-butyl ether	549.4	50	500	0	110	75-125	529	3.78	20	
Methylene chloride	621.1	100	500	50.99	114	75-125	620.2	0.148	20	
Styrene	558.2	50	500	0	112	75-125	525.3	6.09	20	
Tetrachloroethene	426.8	50	500	20.72	81.2	75-125	406.4	4.9	20	
Toluene	568.6	50	500	0	114	76-125	533.9	6.29	20	
trans-1,3-Dichloropropene	525.6	50	500	0	105	70-130	506.8	3.65	20	
Trichloroethene	1083	50	500	447.3	127	71-120	1042	3.87	20	S
Vinyl acetate	1204	100	1000	0	120	75-125	1178	2.22	20	
Vinyl chloride	543.7	20	500	0	109	60-135	502.1	7.96	20	
Xylenes, Total	1665	150	1500	0	111	75-125	1560	6.53	20	
Surr:1,2-Dichloroethane-d4	426	50	500	0	85.2	70-130	428.6	0.621	20	
Surr:4-Bromofluorobenzene	459.3	50	500	0	91.9	70-130	444.2	3.34	20	
Surr:Dibromofluoromethane	465.5	50	500	0	93.1	70-130	477.1	2.45	20	
Surr:Toluene-d8	490.6	50	500	0	98.1	70-130	487.1	0.705	20	

Thefollowingsampleswereanalyzedinthisbatch: 0308325-01A

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Released to Imaging: 7/12/2022 11:49:15 AM
Received by OCD: 5/16/2022 2:12:41 PM

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Chain of Custody Form

Page 1 of 1

e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager:

e-Lab Work Order #: 0308325

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Wells	A	TCLP VOCs (1311/8260)
Work Order		Project Number		B	TCLP SVOCs (1311/8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	TCLP Metals (1311/6020/7470)
Send Report To	Darrell Moore/Charlie Plymale	Invoice Attn	Charlie Plymale	D	Semi volatiles
Address	P.O. Box 159	Address	P.O. Box 159	E	Volatiles
				F	
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	
Phone	(505) 748-3311	Phone	(505) 748-3311	H	
Fax	(505) 746-5421	Fax	(505) 746-5421	I	
e-Mail Address				J	

No	Sample Description	Date	Time	Matrix	Pres	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. wells	8/28/03	1000			5				X	X						
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign: Charles Plymale

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
	8/28/03	1615		
Relinquished by:	Date:	Time:	Received by (Laboratory): RICHARD SANDOVAL 8/29/03	0930
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

e-Lab Cooler ID	Cooler Temp.	QC Package: (Check Box Below)	
		Level II: Standard QC	X
		Level III: Standard QC + Raw Data	
		Level IV: SW846 Methods/CLP	
		Other:	

Preservative Key: 1- HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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Sample Receipt Checklist

Client Name NAVAJO REFINING COMPAN Date/Time Received: 8/29/2003 9:30:00 AM

Work Order Number 0308325 Received by: RSZ

Checklist completed by RICHARD SANCHEZ 8.29.03 (Signature / Date) Reviewed by LT 9/2/03 (Initials / Date)

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.2c	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
JUL 14 2003
OIL CONSERVATION DIVISION

July 11, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2003 to March 31, 2003. We have disposed a total of 13,448,129 bbls. of fluid into the two wells as of March 31 2003. This is broken down as follows: 9,732,076 bbls. into WDW-1 and 3,715,473 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 2 of 15
N/A | Injection Wells | N/A

Analytical Report

Sample: 215473 - Inj Wells

Analysis: Alkalinity | Analytical Method: E 310.1 | QC Batch: QC25706 | Date Analyzed: 12/17/02
Analyst: MS | Preparation Method: N/A | Prep Batch: PB23811 | Date Prepared: 12/17/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		146	mg/L as CaCo3	1	4
Total Alkalinity		146	mg/L as CaCo3	1	4

Sample: 215473 - Inj Wells

Analysis: Conductivity | Analytical Method: SM 2510B | QC Batch: QC25592 | Date Analyzed: 12/16/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB23722 | Date Prepared: 12/16/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5070	µMHOS/cm	1	

Sample: 215473 - Inj Wells

Analysis: Corrosivity | Analytical Method: S 1110 | QC Batch: QC25828 | Date Analyzed: 12/26/02
Analyst: JH | Preparation Method: N/A | Prep Batch: PB23933 | Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non-corrosive	mm/yr	1	
pH		8.2	s.u.	1	

Sample: 215473 - Inj Wells

Analysis: Hg, Total | Analytical Method: S 7470A | QC Batch: QC25555 | Date Analyzed: 12/12/02
Analyst: BC | Preparation Method: N/A | Prep Batch: PB23652 | Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		0.00022	mg/L	1	0.0002

Sample: 215473 - Inj Wells

Analysis: Ignitability | Analytical Method: SW-846 Ch. 7.1 | QC Batch: QC25826 | Date Analyzed: 12/26/02
Analyst: JH | Preparation Method: N/A | Prep Batch: PB23931 | Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 215473 - Inj Wells

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC25539 | Date Analyzed: 12/11/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB23675 | Date Prepared: 12/11/02

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 15
N/A Injection Wells N/A

Param	Flag	Result	Units	Dilution	RDL
Chloride		1000	mg/L	100	1
Fluoride		66.05	mg/L	5	0.20
Nitrate-N		<1.0	mg/L	5	0.20
Sulfate		663	mg/L	100	1

Sample: 215473 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC25829 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23934 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 215473 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC25566 Date Analyzed: 12/12/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB23664 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		158	mg/L	1	0.50
Dissolved Magnesium		31.5	mg/L	1	0.50
Dissolved Potassium		17.2	mg/L	1	0.50
Dissolved Sodium		698	mg/L	1	0.50

Sample: 215473 - Inj Wells

Analysis: TDS Analytical Method: E 160.1 QC Batch: QC25540 Date Analyzed: 12/12/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23674 Date Prepared: 12/10/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		3005	mg/L	5	10

Sample: 215473 - Inj Wells

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC25543 Date Analyzed: 12/12/02
Analyst: RR Preparation Method: N/A Prep Batch: PB23651 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.411	mg/L	1	0.05
Total Arsenic		0.135	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.158	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		0.950	mg/L	1	0.05

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

Page 465 of 5828

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 4 of 15
N/A | Injection Wells | N/A

... *Continued* Sample: 215473 Analysis: Total Metals

Param	Flag	Result	Units	Dilution	RDL
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.0672	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.122	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.0586	mg/L	1	0.02

Sample: 215473 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC25623	Date Analyzed:	12/14/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB23747	Date Prepared:	12/14/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1

Continued ...

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Received by OCD: 5/16/2022 2:12:41 PM

Page 3466 of 5828

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 5 of 15
N/A | Injection Wells | N/A

... *Continued* Sample: 215473 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.6	µg/L	5	50	99	70 - 130
Toluene-d8		50.1	µg/L	5	50	100	70 - 130
4-Bromofluorobenzene		45.6	µg/L	5	50	91	70 - 130

Sample: 215473 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC25527	Date Analyzed:	12/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB23667	Date Prepared:	12/10/02

Param	Flag	Result	Units	Dilution	RDL
pH	[2]	7.5	s.u.	1	1

[1] elevated reporting limit due to matrix difficulty.
[2] The sample was received out of holding time

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 6 of 15
N/A | Injection Wells | N/A

Quality Control Report
Method Blank

Method Blank QCBatch: QC25539

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC25540

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC25543

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.05
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		0.0166	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC25555

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 7 of 15
N/A | Injection Wells | N/A

Method Blank QCBatch: QC25566

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank QCBatch: QC25592

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		9.25	µMHOS/cm	

Method Blank QCBatch: QC25623

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene	3	<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1

Continued ...

[3]estimated concentration=0.16 µg/L. Reported between MDL (.054 µg/L) and reporting limit.

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... *Continued*

Param	Flag	Results	Units	Reporting Limit
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene	4	<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene	5	<1.00	µg/L	1
m,p-Xylene	6	<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene	7	<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	70 - 130
Toluene-d8		52.8	µg/L	1	50	106	70 - 130
4-Bromofluorobenzene		47.7	µg/L	1	50	95	70 - 130

[4]estimated concentration=0.19 µg/L. Reported between MDL (.042 µg/L) and reporting limit.
[5]estimated concentration=0.04 µg/L. Reported between MDL (.018 µg/L) and reporting limit.
[6]estimated concentration=0.09 µg/L. Reported between MDL (.051 µg/L) and reporting limit.
[7]estimated concentration=0.05 µg/L. Reported between MDL (.028 µg/L) and reporting limit.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 9 of 15
N/A | Injection Wells | N/A

Method Blank QCBatch: QC25706

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	4
Total Alkalinity		<4.0	mg/L as CaCo3	4

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC25527

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.8	8.8	s.u.	1	0	0

Duplicate QCBatch: QC25540

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1270	1234	mg/L	1	2	9.7

Duplicate QCBatch: QC25592

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4130	4040	µMHOS/cm	1	2	20

Duplicate QCBatch: QC25706

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		690	684	mg/L as CaCo3	1	0	9.2
Total Alkalinity		690	684	mg/L as CaCo3	1	0	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC25539

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 10 of 15
N/A Injection Wells N/A

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.63	13.13	mg/L	1	12.50	<1.0	93	12	90 - 110	20
Fluoride	2.36	2.38	mg/L	1	2.50	<0.2	94	0	90 - 110	20
Nitrate-N	2.45	2.45	mg/L	1	2.50	<0.2	98	0	90 - 110	20
Sulfate	12.12	12.26	mg/L	1	12.50	<1.0	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25543

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Calcium	99.4	98.8	mg/L	1	100	<0.5	99	0	75 - 125	20
Total Iron	0.512	0.515	mg/L	1	0.50	<0.050	102	0	75 - 125	20
Total Magnesium	103	99.8	mg/L	1	100	<0.5	103	3	75 - 125	20
Total Potassium	105	105	mg/L	1	100	<0.5	105	0	75 - 125	20
Total Sodium	106	104	mg/L	1	100	<0.5	106	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25555

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00113	0.00116	mg/L	1	0.001	<0.0002	113	2	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25623

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	91.7	91.7	µg/L	1	100	<1.00	92	0	70 - 130	20
Benzene	98.7	100	µg/L	1	100	<1.00	99	1	70 - 130	20
Trichloroethene (TCE)	89.8	89.8	µg/L	1	100	<1.00	90	0	70 - 130	20
Toluene	98.8	99.6	µg/L	1	100	<1.00	99	1	70 - 130	20
Chlorobenzene	96.5	96.6	µg/L	1	100	<1.00	96	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	47.7	47.6	µg/L	1	50	95	95	70 - 130
Toluene-d8	50.5	50.0	µg/L	1	50	101	100	70 - 130
4-Bromofluorobenzene	47.2	45.4	µg/L	1	50	94	91	70 - 130

Quality Control Report
Matrix Spikes and Duplicate Spikes

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Matrix Spikes

QCBatch: QC25539

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	1300	1270	mg/L	1	1250	225	86	2	48 - 127	20
Fluoride	235	236	mg/L	1	250	4.10	92	0	82 - 101	20
Nitrate-N	260	258	mg/L	1	250	2.34	103	0	87 - 100	20
Sulfate	3030	3040	mg/L	1	1250	1840	95	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25543

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	0.971	0.965	mg/L	1	1		97	0	75 - 125	20
Total Arsenic	0.495	0.490	mg/L	1	0.50		99	1	75 - 125	20
Total Barium	1.06	1.05	mg/L	1	1		106	0	75 - 125	20
Total Beryllium	0.0233	0.023	mg/L	1	0.02		93	1	75 - 125	20
Total Boron	0.127	0.128	mg/L	1	0.05		95	2	75 - 125	20
Total Cadmium	0.218	0.216	mg/L	1	0.25		87	0	75 - 125	20
Total Chromium	0.0878	0.087	mg/L	1	0.10		87	0	75 - 125	20
Total Iron	0.855	0.843	mg/L	1	0.50	0.0801	98	2	75 - 125	20
Total Lead	0.453	0.455	mg/L	1	0.50		90	0	75 - 125	20
Total Molybdenum	0.537	0.533	mg/L	1	0.50		107	0	75 - 125	20
Total Selenium	0.458	0.455	mg/L	1	0.50		91	0	75 - 125	20
Total Silver	0.126	0.125	mg/L	1	0.12		100	0	75 - 125	20
Total Uranium	0.991	0.981	mg/L	1	1		99	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25555

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00110	0.00116	mg/L	1	0.001	<0.0002	110	5	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 12 of 15
N/A | Injection Wells | N/A

ICV (1) QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

CCV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.83	94	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.38	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.46	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.32	98	90 - 110	12/11/02

ICV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	12.01	96	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.39	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.47	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.59	100	90 - 110	12/11/02

CCV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1013	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	995	99	90 - 110	12/12/02

CCV (1) QCBatch: QC25543

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 13 of 15
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	23.6	94	90 - 110	12/12/02
Total Iron		mg/L	1	1.028	103	90 - 110	12/12/02
Total Magnesium		mg/L	25	23.8	95	90 - 110	12/12/02
Total Potassium		mg/L	25	26.1	104	90 - 110	12/12/02
Total Sodium		mg/L	25	26.4	105	90 - 110	12/12/02

ICV (1) QCBatch: QC25543

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	25.1	100	90 - 110	12/12/02
Total Iron		mg/L	1	1.04	104	90 - 110	12/12/02
Total Magnesium		mg/L	25	24.4	97	90 - 110	12/12/02
Total Potassium		mg/L	25	25	100	90 - 110	12/12/02
Total Sodium		mg/L	25	24.3	97	90 - 110	12/12/02

CCV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00098	98	80 - 120	12/12/02

ICV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	12/12/02

CCV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	24.6	98	90 - 110	12/12/02
Dissolved Magnesium		mg/L	25	24.8	99	90 - 110	12/12/02
Dissolved Potassium		mg/L	25	25.6	102	90 - 110	12/12/02
Dissolved Sodium		mg/L	25	25.3	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25566

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 14 of 15
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.1	100	95 - 105	12/12/02
Dissolved Magnesium		mg/L	25	24.4	97	95 - 105	12/12/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	12/12/02
Dissolved Sodium		mg/L	25	24.3	97	95 - 105	12/12/02

CCV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1414	100	90 - 110	12/16/02

ICV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1437	101	90 - 110	12/16/02

CCV (1) QCBatch: QC25623

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	49.0	98	80 - 120	12/14/02
1,1-Dichloroethene		µg/L	50	49.0	98	80 - 120	12/14/02
Chloroform		µg/L	50	54.0	108	80 - 120	12/14/02
1,2-Dichloropropane		µg/L	50	53.0	106	80 - 120	12/14/02
Toluene		µg/L	50	55.0	110	80 - 120	12/14/02
Chlorobenzene		µg/L	50	53.0	106	80 - 120	12/14/02
Ethylbenzene		µg/L	50	55.0	110	80 - 120	12/14/02
Dibromofluoromethane		µg/L	50	50.2	100	80 - 120	12/14/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	12/14/02
4-Bromofluorobenzene		µg/L	50	50.2	100	80 - 120	12/14/02

CCV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	16	0	-	12/17/02

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 15 of 15
N/A | Injection Wells | N/A

... Continued

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

ICV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	20	0	-	12/17/02
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

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Report Date: December 31, 2002 Order Number: A02121013 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215473 - Inj Wells

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		146	mg/L as CaCo3
Total Alkalinity		146	mg/L as CaCo3
Specific Conductance		5070	µMHOS/cm
Corrosivity		Non-corrosive	mm/yr
pH		8.2	s.u.
Total Mercury		0.00022	mg/L
Ignitability		non-ignitable	
Chloride		1000	mg/L
Fluoride		66.05	mg/L
Nitrate-N		<1.0	mg/L
Sulfate		663	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		158	mg/L
Dissolved Magnesium		31.5	mg/L
Dissolved Potassium		17.2	mg/L
Dissolved Sodium		698	mg/L
Total Dissolved Solids		3005	mg/L
Total Aluminum		0.411	mg/L
Total Arsenic		0.135	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.158	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

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Report Date: December 31, 2002 Order Number: A02121013 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215479 continued ...

Param	Flag	Result	Units
Total Copper		<0.0125	mg/L
Total Iron		0.950	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.0672	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.122	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.0586	mg/L
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<25.0	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone		<50.0	µg/L
Iodomethane (methyl iodide)		<25.0	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L

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Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215479 continued ...

Param	Flag	Result	Units
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroethene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene (meta)		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortho)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Test Comments	1	note:	µg/L
pH	2	7.5	s.u.

[1]elevated reporting limit due to matrix difficulty.
[2]The sample was received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

'15473

Page ____ of ____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A02121013

mpany Name: NAVAJO — Phone #: 505 748 3311

dress: (Street, City, Zip) 501 E Main — Fax #: 505 746 5421

ntact Person: Darrell Moore

oice to: (different from above)

ject #: — Project Name: Inj. wells

ject Location: Artesia — Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
15473	Inj. wells	4	40ml	X				X				X		12/9/02	940
	" "	1	500ml	X					X			X		12/9/02	940
	" "	2	1L	X								X	X	12/9/02	940

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | X 8240, 8260 | X anions, cations, TDS, cond, pH | X Al, As, Ba, B, Cd, Ca, Co, Cr, Mn, Pb | X Hg, Ni, Se, Ag, V, Zn, U, Mo | Turn Around Time if different from standard | Hold

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	12/9/02	1615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Crosby	Date: 12-10-02	Time: 1000

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact (Y) / N
Headspace Y (N)
Temp -1° C
Log-in Review MH

REMARKS:
8270 will be re-sampled per Charlie 12/10
12/31 CP
☐ Check if Special Reporting Limits Are Needed

Carrier # FedEx 7906-4982-1809

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TRACEANALYSIS

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 2, 2003

Order ID Number: A02121224

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215707	Inj Well	Water	12/11/02	14:30	12/12/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.
Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 8 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM Page 5482 of 5828

Report Date: January 2, 2003 | Order Number: A02121224 | Page Number: 2 of 8
N/A | Injection Wells | N/A

Analytical Report

Sample: 215707 - Inj Well

Analysis:	Semivolatiles	Analytical Method:	S 8270C	QC Batch:	QC25941	Date Analyzed:	12/16/02
Analyst:	RC	Preparation Method:	E 3510C	Prep Batch:	PB23757	Date Prepared:	12/12/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 3 of 8
N/A Injection Wells N/A

... *Continued* Sample: 215707 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		14.66	mg/L	1	80	18	0 - 66
Phenol-d5		11.44	mg/L	1	80	14	0 - 70

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 4 of 8
N/A Injection Wells N/A

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		33.80	mg/L	1	80	42	23 - 99
2-Fluorobiphenyl		39.19	mg/L	1	80	48	27 - 95
2,4,6-Tribromophenol		22.97	mg/L	1	80	28	0 - 199
Terphenyl-d14		25.21	mg/L	1	80	31	20 - 96

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 5 of 8
N/A Injection Wells N/A

Quality Control Report
Method Blank

Method Blank QCBatch: QC25941

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005

Continued ...

Report Date: January 2, 2003 | Order Number: A02121224 | Page Number: 6 of 8
N/A | Injection Wells | N/A

... *Continued*

Param	Flag	Results	Units	Reporting Limit
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		44.87	mg/L	1	80	56	0 - 66

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 7 of 8
N/A Injection Wells N/A

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Phenol-d5		43.42	mg/L	1	80	54	0 - 70
Nitrobenzene-d5		78.46	mg/L	1	80	98	23 - 99
2-Fluorobiphenyl		71.61	mg/L	1	80	89	27 - 95
2,4,6-Tribromophenol		53.86	mg/L	1	80	67	0 - 199
Terphenyl-d14		79.78	mg/L	1	80	99	20 - 96

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC25941

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	26.07	26.38	mg/L	1	80	<0.005	32	1	0 - 81	20
2-Chlorophenol	54.17	54.37	mg/L	1	80	<0.005	67	0	12 - 83	20
1,4-Dichlorobenzene	55.34	55.94	mg/L	1	80	<0.005	69	1	13 - 88	20
n-Nitrosodi-n-propylamine	64.45	63.76	mg/L	1	80	<0.005	80	1	9 - 101	20
1,2,4-Trichlorobenzene	57.51	57.66	mg/L	1	80	<0.005	71	0	21 - 87	20
4-Chloro-3-methylphenol	61.52	57.96	mg/L	1	80	<0.005	76	5	14 - 92	20
Acenaphthene	59.32	60.39	mg/L	1	80	<0.005	74	0	26 - 86	20
4-Nitrophenol	27.77	29.00	mg/L	1	80	<0.005	34	4	0 - 104	20
2,4-Dinitrotoluene	75.52	76.08	mg/L	1	80	<0.005	94	0	29 - 94	20
Pentachlorophenol	46.25	47.91	mg/L	1	80	<0.005	57	3	1 - 97	20
Pyrene	62.21	61.37	mg/L	1	80	<0.005	77	1	25 - 90	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	44.68	44.6	mg/L	1	80	55	55	0 - 66
Phenol-d5	33.33	37.22	mg/L	1	80	41	46	0 - 70
Nitrobenzene-d5	66.47	66.99	mg/L	1	80	83	83	23 - 99
2-Fluorobiphenyl	60.84	65.5	mg/L	1	80	76	81	27 - 95
2,4,6-Tribromophenol	67.69	68.69	mg/L	1	80	84	85	0 - 199
Terphenyl-d14	70.81	68.74	mg/L	1	80	88	85	20 - 96

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25941

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	63.89	106	80 - 120	12/16/02
1,4-Dichlorobenzene		mg/L	60	62.2	103	80 - 120	12/16/02
2-Nitrophenol		mg/L	60	66.21	110	80 - 120	12/16/02
2,4-Dichlorophenol		mg/L	60	67.75	112	80 - 120	12/16/02
Hexachlorobutadiene		mg/L	60	54.23	90	80 - 120	12/16/02

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 8 of 8
N/A Injection Wells N/A

... *Continued*

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
4-Chloro-3-methylphenol		mg/L	60	69.15	115	80 - 120	12/16/02
2,4,6-Trichlorophenol		mg/L	60	58.89	98	80 - 120	12/16/02
Acenaphthene		mg/L	60	60.52	100	80 - 120	12/16/02
Diphenylamine		mg/L	60	58.92	98	80 - 120	12/16/02
Pentachlorophenol		mg/L	60	58.79	97	80 - 120	12/16/02
Fluoranthene		mg/L	60	55.22	92	80 - 120	12/16/02
Di-n-octylphthalate		mg/L	60	59.71	99	80 - 120	12/16/02
Benzo(a)pyrene		mg/L	60	64.45	107	80 - 120	12/16/02
2-Fluorophenol		mg/L	60	63.66	106	80 - 120	12/16/02
Phenol-d5		mg/L	60	71.01	118	80 - 120	12/16/02
Nitrobenzene-d5		mg/L	60	60.76	101	80 - 120	12/16/02
2-Fluorobiphenyl		mg/L	60	57.7	96	80 - 120	12/16/02
2,4,6-Tribromophenol		mg/L	60	52.2	87	80 - 120	12/16/02
Terphenyl-d14		mg/L	60	49.65	82	80 - 120	12/16/02

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 2, 2003

Order ID Number: A02121224

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215707	Inj Well	Water	12/11/02	14:30	12/12/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215707 - Inj Well

Param	Flag	Result	Units
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene (meta)		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

Received by OCD: 5/16/2022 2:12:41 PM

Page 3490 of 5828

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215707 continued ...

Param	Flag	Result	Units
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene*		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215707 continued ...

Param	Flag	Result	Units
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L

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15707

Page ____ of ____

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Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # AD212122 4

Company Name: Navajo
Phone #: 505748-3311
Address: (Street, City, Zip) 501 E. Main
Fax #: 505746-5421
Contact Person: Darrell Moore
Invoice to: (if different from above)
Project #:
Project Name: Inj. wells
Project Location: Aztesia
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
15707	Inj. Wells	1	1L	X								X	X	12/1/02	1430

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Turn Around Time if different from standard	Hold

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

January 15, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2002 to December 31, 2003. We have disposed a total of 12,330,037 bbls. of fluid into the two wells as of December 31 2002. This is broken down as follows: 9,100,909 bbls. into WDW-1 and 3,229,128 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215473 - Inj Wells

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		146	mg/L as CaCo3
Total Alkalinity		146	mg/L as CaCo3
Specific Conductance		5070	μMHOS/cm
Corrosivity		Non-corrosive	mm/yr
pH		8.2	s.u.
Total Mercury		0.00022	mg/L
Ignitability		non-ignitable	
Chloride		1000	mg/L
Fluoride		66.05	mg/L
Nitrate-N		<1.0	mg/L
Sulfate		663	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		158	mg/L
Dissolved Magnesium		31.5	mg/L
Dissolved Potassium		17.2	mg/L
Dissolved Sodium		698	mg/L
Total Dissolved Solids		3005	mg/L
Total Aluminum		0.411	mg/L
Total Arsenic		0.135	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.158	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215473 continued ...

Param	Flag	Result	Units
Total Copper		<0.0125	mg/L
Total Iron		0.950	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.0672	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.122	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.0586	mg/L
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<25.0	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone		<50.0	µg/L
Iodomethane (methyl iodide)		<25.0	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215473 continued ...

Param	Flag	Result	Units
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroetbene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene (meta)		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortbo)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Test Comments	[1]	note:	µg/L
pH	[2]	7.5	s.u.

[1]elevated reporting limit due to matrix difficulty.
[2]The sample was received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Analytical Report

Sample: 215473 - Inj Wells

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC25706 Date Analyzed: 12/17/02
Analyst: MS Preparation Method: N/A Prep Batch: PB23811 Date Prepared: 12/17/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		146	mg/L as CaCo3	1	4
Total Alkalinity		146	mg/L as CaCo3	1	4

Sample: 215473 - Inj Wells

Analysis: Conductivity Analytical Method: SM 2510B QC Batch: QC25592 Date Analyzed: 12/16/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23722 Date Prepared: 12/16/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5070	μMHOS/cm	1	

Sample: 215473 - Inj Wells

Analysis: Corrosivity Analytical Method: S 1110 QC Batch: QC25828 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23933 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non-corrosive	mm/yr	1	
pH		8.2	s.u.	1	

Sample: 215473 - Inj Wells

Analysis: Hg, Total Analytical Method: S 7470A QC Batch: QC25555 Date Analyzed: 12/12/02
Analyst: BC Preparation Method: N/A Prep Batch: PB23652 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		0.00022	mg/L	1	0.0002

Sample: 215473 - Inj Wells

Analysis: Ignitability Analytical Method: SW-846 Ch. 7.1 QC Batch: QC25826 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23931 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 215473 - Inj Wells

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC25539 Date Analyzed: 12/11/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23675 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		1000	mg/L	100	1
Fluoride		66.05	mg/L	5	0.20
Nitrate-N		<1.0	mg/L	5	0.20
Sulfate		663	mg/L	100	1

Sample: 215473 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC25829 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23934 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 215473 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC25566 Date Analyzed: 12/12/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB23664 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		158	mg/L	1	0.50
Dissolved Magnesium		31.5	mg/L	1	0.50
Dissolved Potassium		17.2	mg/L	1	0.50
Dissolved Sodium		698	mg/L	1	0.50

Sample: 215473 - Inj Wells

Analysis: TDS Analytical Method: E 160.1 QC Batch: QC25540 Date Analyzed: 12/12/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23674 Date Prepared: 12/10/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		3005	mg/L	5	10

Sample: 215473 - Inj Wells

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC25543 Date Analyzed: 12/12/02
Analyst: RR Preparation Method: N/A Prep Batch: PB23651 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.411	mg/L	1	0.05
Total Arsenic		0.135	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.158	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		0.950	mg/L	1	0.05

Continued ...

... *Continued* Sample: 215473 Analysis: Total Metals

Param	Flag	Result	Units	Dilution	RDL
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.0672	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.122	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.0586	mg/L	1	0.02

Sample: 215473 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC25623	Date Analyzed:	12/14/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB23747	Date Prepared:	12/14/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 215473 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.6	µg/L	5	50	99	70 - 130
Toluene-d8		50.1	µg/L	5	50	100	70 - 130
4-Bromofluorobenzene		45.6	µg/L	5	50	91	70 - 130

Sample: 215473 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC25527	Date Analyzed:	12/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB23667	Date Prepared:	12/10/02

Param	Flag	Result	Units	Dilution	RDL
pH	[2]	7.5	s.u.	1	1

[1] elevated reporting limit due to matrix difficulty.
[2] The sample was received out of holding time

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Method Blank

QCBatch: QC25539

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank

QCBatch: QC25540

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank

QCBatch: QC25543

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.05
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		0.0166	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank

QCBatch: QC25555

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Released to Imaging: 7/12/2024 10:49:45 AM

Method Blank

QCBatch: QC25566

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank

QCBatch: QC25592

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		9.25	μMHOS/cm	

Method Blank

QCBatch: QC25623

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene	[3]	<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1

Continued ...

[3]estimated concentration=0.16 μg/L. Reported between MDL (.054 μg/L) and reporting limit.

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued*

Param	Flag	Results	Units	Reporting Limit
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene	[4]	<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene	[5]	<1.00	µg/L	1
m,p-Xylene	[6]	<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene	[7]	<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	70 - 130
Toluene-d8		52.8	µg/L	1	50	106	70 - 130
4-Bromofluorobenzene		47.7	µg/L	1	50	95	70 - 130

[4]estimated concentration=0.19 µg/L. Reported between MDL (.042 µg/L) and reporting limit.
[5]estimated concentration=0.04 µg/L. Reported between MDL (.018 µg/L) and reporting limit.
[6]estimated concentration=0.09 µg/L. Reported between MDL (.051 µg/L) and reporting limit.
[7]estimated concentration=0.05 µg/L. Reported between MDL (.028 µg/L) and reporting limit.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Method Blank QCBatch: QC25706

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	4
Total Alkalinity		<4.0	mg/L as CaCo3	4

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC25527

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.8	8.8	s.u.	1	0	0

Duplicate QCBatch: QC25540

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1270	1234	mg/L	1	2	9.7

Duplicate QCBatch: QC25592

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4130	4040	µMHOS/cm	1	2	20

Duplicate QCBatch: QC25706

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		690	684	mg/L as CaCo3	1	0	9.2
Total Alkalinity		690	684	mg/L as CaCo3	1	0	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC25539

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.63	13.13	mg/L	1	12.50	<1.0	93	12	90 - 110	20
Fluoride	2.36	2.38	mg/L	1	2.50	<0.2	94	0	90 - 110	20
Nitrate-N	2.45	2.45	mg/L	1	2.50	<0.2	98	0	90 - 110	20
Sulfate	12.12	12.26	mg/L	1	12.50	<1.0	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25543

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Calcium	99.4	98.8	mg/L	1	100	<0.5	99	0	75 - 125	20
Total Iron	0.512	0.515	mg/L	1	0.50	<0.050	102	0	75 - 125	20
Total Magnesium	103	99.8	mg/L	1	100	<0.5	103	3	75 - 125	20
Total Potassium	105	105	mg/L	1	100	<0.5	105	0	75 - 125	20
Total Sodium	106	104	mg/L	1	100	<0.5	106	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25555

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00113	0.00116	mg/L	1	0.001	<0.0002	113	2	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25623

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	91.7	91.7	µg/L	1	100	<1.00	92	0	70 - 130	20
Benzene	98.7	100	µg/L	1	100	<1.00	99	1	70 - 130	20
Trichloroethene (TCE)	89.8	89.8	µg/L	1	100	<1.00	90	0	70 - 130	20
Toluene	98.8	99.6	µg/L	1	100	<1.00	99	1	70 - 130	20
Chlorobenzene	96.5	96.6	µg/L	1	100	<1.00	96	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	47.7	47.6	µg/L	1	50	95	95	70 - 130
Toluene-d8	50.5	50.0	µg/L	1	50	101	100	70 - 130
4-Bromofluorobenzene	47.2	45.4	µg/L	1	50	94	91	70 - 130

Quality Control Report
Matrix Spikes and Duplicate Spikes

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Matrix Spikes

QCBatch: QC25539

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	1300	1270	mg/L	1	1250	225	86	2	48 - 127	20
Fluoride	235	236	mg/L	1	250	4.10	92	0	82 - 101	20
Nitrate-N	260	258	mg/L	1	250	2.34	103	0	87 - 100	20
Sulfate	3030	3040	mg/L	1	1250	1840	95	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25543

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	0.971	0.965	mg/L	1	1		97	0	75 - 125	20
Total Arsenic	0.495	0.490	mg/L	1	0.50		99	1	75 - 125	20
Total Barium	1.06	1.05	mg/L	1	1		106	0	75 - 125	20
Total Beryllium	0.0233	0.023	mg/L	1	0.02		93	1	75 - 125	20
Total Boron	0.127	0.128	mg/L	1	0.05		95	2	75 - 125	20
Total Cadmium	0.218	0.216	mg/L	1	0.25		87	0	75 - 125	20
Total Chromium	0.0878	0.087	mg/L	1	0.10		87	0	75 - 125	20
Total Iron	0.855	0.843	mg/L	1	0.50	0.0801	98	2	75 - 125	20
Total Lead	0.453	0.455	mg/L	1	0.50		90	0	75 - 125	20
Total Molybdenum	0.537	0.533	mg/L	1	0.50		107	0	75 - 125	20
Total Selenium	0.458	0.455	mg/L	1	0.50		91	0	75 - 125	20
Total Silver	0.126	0.125	mg/L	1	0.12		100	0	75 - 125	20
Total Uranium	0.991	0.981	mg/L	1	1		99	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25555

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00110	0.00116	mg/L	1	0.001	<0.0002	110	5	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

Released to Imaging: 7/12/2024 10:49:45 AM

ICV (1) QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

CCV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.83	94	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.38	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.46	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.32	98	90 - 110	12/11/02

ICV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	12.01	96	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.39	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.47	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.59	100	90 - 110	12/11/02

CCV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1013	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	995	99	90 - 110	12/12/02

CCV (1) QCBatch: QC25543

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 13 of 15
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	23.6	94	90 - 110	12/12/02
Total Iron		mg/L	1	1.028	103	90 - 110	12/12/02
Total Magnesium		mg/L	25	23.8	95	90 - 110	12/12/02
Total Potassium		mg/L	25	26.1	104	90 - 110	12/12/02
Total Sodium		mg/L	25	26.4	105	90 - 110	12/12/02

ICV (1) QCBatch: QC25543

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	25.1	100	90 - 110	12/12/02
Total Iron		mg/L	1	1.04	104	90 - 110	12/12/02
Total Magnesium		mg/L	25	24.4	97	90 - 110	12/12/02
Total Potassium		mg/L	25	25	100	90 - 110	12/12/02
Total Sodium		mg/L	25	24.3	97	90 - 110	12/12/02

CCV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00098	98	80 - 120	12/12/02

ICV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	12/12/02

CCV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	24.6	98	90 - 110	12/12/02
Dissolved Magnesium		mg/L	25	24.8	99	90 - 110	12/12/02
Dissolved Potassium		mg/L	25	25.6	102	90 - 110	12/12/02
Dissolved Sodium		mg/L	25	25.3	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.1	100	95 - 105	12/12/02
Dissolved Magnesium		mg/L	25	24.4	97	95 - 105	12/12/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	12/12/02
Dissolved Sodium		mg/L	25	24.3	97	95 - 105	12/12/02

CCV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1414	100	90 - 110	12/16/02

ICV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1437	101	90 - 110	12/16/02

CCV (1) QCBatch: QC25623

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	49.0	98	80 - 120	12/14/02
1,1-Dichloroethene		µg/L	50	49.0	98	80 - 120	12/14/02
Chloroform		µg/L	50	54.0	108	80 - 120	12/14/02
1,2-Dichloropropane		µg/L	50	53.0	106	80 - 120	12/14/02
Toluene		µg/L	50	55.0	110	80 - 120	12/14/02
Chlorobenzene		µg/L	50	53.0	106	80 - 120	12/14/02
Ethylbenzene		µg/L	50	55.0	110	80 - 120	12/14/02
Dibromofluoromethane		µg/L	50	50.2	100	80 - 120	12/14/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	12/14/02
4-Bromofluorobenzene		µg/L	50	50.2	100	80 - 120	12/14/02

CCV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	16	0	-	12/17/02

Continued ...

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... *Continued*

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

ICV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	20	0	-	12/17/02
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

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Page ____ of ____

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon,Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 402121013

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 746 5421
Contact Person: Darrell Moore
Invoice to: (if different from above)
Project #:
Project Name: Inj. wells
Project Location: Artesia
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
215473	Inj. wells	4 2	40ml	X				X				X		12/9/02	940
	" "	1	500ml	X					X			X		12/9/02	940
	" "	2	1L	X								X	X	12/9/02	940

ANALYSIS REQUEST (Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	8240, 8260	anions, cations, TDS, cond, pH	Al, As, Be, B, Cd, Ca, Co, Cr, Mn, Pb	Hg, Ni, Se, Ag, V, Zn, Li, Mo	Turn Around Time if different from standard	Hold
				See List											X	X	X	X		

Relinquished by: Date: 12/9/02 Time: 1615
Received by: Date: Time:
Relinquished by: Date: Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received at Laboratory by: Vicki Crowley Date: 12-10-02 Time: 10:00

LAB USE ONLY
Intact (Y) / N
Headspace Y (N)
Temp -1° C
Log-in Review MS

REMARKS:
8270 will be re-sampled per Charlie 12/10
12/31 FIP
☐ Check If Special Reporting Limits Are Needed

Carrier # FedEx 7906-4982-1807

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Oct-02	217	386	115	184	240	113	196	495	140	6325	8240	3882	196,066
Nov-02	158	279	70	197	266	141	128	210	1	6747	9118	4840	209,162
Dec-02	145	197	1	177	218	78	143	342	0	6084	7472	2667	188,597
WDW-2													
Oct-02	218	420	21	121	178	10	189	344	116	4161	6100	357	128,994
Nov-02	92	197	0	79	150	0	375	500	22	2699	5141	4	83,655
Dec-02	189	233	129	136	151	117	129	145	34	4676	5185	4011	144,963

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

October 15, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2002 to September 30, 2002. We have disposed a total of 11,378,600 bbls. of fluid into the two wells as of September 30 2002. This is broken down as follows: 8,507,084 bbls. into WDW-1 and 2,871,516 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: September 20, 2002 Order Number: A02091009 Page Number: 1 of 2
N/A ABT Inlet/RO Reject Artesia

Summary Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: September 20, 2002

Order ID Number: A02091009

Project Number: N/A
Project Name: ABT Inlet/RO Reject
Project Location: Artesia

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
207619	ABT Inlet Tk 836	Water	9/9/02	14:45	9/10/02
207620	RO Reject	Water	9/9/02	15:30	9/10/02

0 This report consists of a total of 2 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 207619 - ABT Inlet Tk 836

Param	Flag	Result	Units
Biological Oxygen Demand		1440	mg/L
Chemical Oxygen Demand		2820	mg/L
Phenolics		114	mg/L
Total Kjeldahl Nitrogen - N		166	mg/L

Sample: 207620 - RO Reject

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		618	mg/L as CaCo3
Total Alkalinity		618	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
Chloride		166	mg/L
Fluoride	[1]	3.46	mg/L
Nitrate-N	[2]	2.21	mg/L
Sulfate		1760	mg/L
Dissolved Calcium		609	mg/L
Dissolved Magnesium		205	mg/L
Dissolved Potassium		7.21	mg/L
Dissolved Sodium		114	mg/L
Total Aluminum		<0.100	mg/L
Total Arsenic		<0.050	mg/L

Continued on next page ...

[1]Reran on IC091602-2: LCS = 90 RPD = 4; ICV = 90 and CCV = 94.
[2]Reran on IC091602-2: LCS = 92 RPD = 0; ICV = 92 and CCV = 92.

This is only a summary. Please, refer to the complete report package for quality control data.

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Report Date: September 20, 2002 Order Number: A02091009 Page Number: 2 of 2
N/A ABT Inlet/RO Reject Artesia

Sample 207620 continued ...

Param	Flag	Result	Units
Total Barium		0.110	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.0713	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		<0.0125	mg/L
Total Iron		<0.050	mg/L
Total Lead		<0.010	mg/L
Total Manganese		<0.025	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		<0.050	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		<0.025	mg/L

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: September 20, 2002

Order ID Number: A02091009

Project Number: N/A
Project Name: ABT Inlet/RO Reject
Project Location: Artesia

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
207619	ABT Inlet Tk 836	Water	9/9/02	14:45	9/10/02
207620	RO Reject	Water	9/9/02	15:30	9/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 13 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

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Analytical Report

Sample: 207619 - ABT Inlet Tk 836

Analysis:	BOD5	Analytical Method:	SM 5210B	QC Batch:	QC23572	Date Analyzed:	9/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22068	Date Prepared:	9/11/02

Param	Flag	Result	Units	Dilution	RDL
Biological Oxygen Demand		1440	mg/L	1	1

Sample: 207619 - ABT Inlet Tk 836

Analysis:	COD	Analytical Method:	E 410.4	QC Batch:	QC23573	Date Analyzed:	9/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22067	Date Prepared:	9/16/02

Param	Flag	Result	Units	Dilution	RDL
Chemical Oxygen Demand		2820	mg/L	10	20

Sample: 207619 - ABT Inlet Tk 836

Analysis:	Phenolics	Analytical Method:	SM 5530D	QC Batch:	QC23594	Date Analyzed:	9/17/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB22084	Date Prepared:	9/17/02

Param	Flag	Result	Units	Dilution	RDL
Phenolics		114	mg/L	200	0.12

Sample: 207619 - ABT Inlet Tk 836

Analysis:	TKN	Analytical Method:	E 351.3	QC Batch:	QC23460	Date Analyzed:	9/11/02
Analyst:	MW	Preparation Method:	N/A	Prep Batch:	PB21990	Date Prepared:	9/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Kjeldahl Nitrogen - N		166	mg/L	1	4

Sample: 207620 - RO Reject

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC23490	Date Analyzed:	9/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22006	Date Prepared:	9/10/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		618	mg/L as CaCo3	1	1
Total Alkalinity		618	mg/L as CaCo3	1	1

Sample: 207620 - RO Reject

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC23549	Date Analyzed:	9/16/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB22048	Date Prepared:	9/16/02

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Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 207620 - RO Reject

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC23557 Date Analyzed: 9/11/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB22050 Date Prepared: 9/11/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		166	mg/L	5	1
Fluoride	[1]	3.46	mg/L	5	0.20
Nitrate-N	[2]	2.21	mg/L	5	0.20
Sulfate		1760	mg/L	50	1

Sample: 207620 - RO Reject

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC23525 Date Analyzed: 9/14/02
Analyst: RR Preparation Method: S 3005A Prep Batch: PB21982 Date Prepared: 9/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		609	mg/L	1.10	0.50
Dissolved Magnesium		205	mg/L	1.10	0.50
Dissolved Potassium		7.21	mg/L	1.10	0.50
Dissolved Sodium		114	mg/L	1.10	0.50

Sample: 207620 - RO Reject

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC23583 Date Analyzed: 9/17/02
Analyst: RR Preparation Method: S 3010A Prep Batch: PB22031 Date Prepared: 9/13/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		<0.050	mg/L	1	0.05
Total Barium		0.110	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.0713	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		<0.050	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		<0.025	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		<0.050	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		<0.025	mg/L	1	0.02

[1]Reran on IC091602-2: LCS = 90 RPD = 4; ICV = 90 and CCV = 94.
[2]Reran on IC091602-2: LCS = 92 RPD = 0; ICV = 92 and CCV = 92.

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Quality Control Report
Method Blank

Method Blank QCBatch: QC23460

Param	Flag	Results	Units	Reporting Limit
Total Kjeldahl Nitrogen - N		<4.0	mg/L	4

Method Blank QCBatch: QC23490

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank QCBatch: QC23525

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.550	mg/L	0.50
Dissolved Magnesium		<0.550	mg/L	0.50
Dissolved Potassium		<0.550	mg/L	0.50
Dissolved Sodium		<0.550	mg/L	0.50

Method Blank QCBatch: QC23549

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank QCBatch: QC23557

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC23572

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Param	Flag	Results	Units	Reporting Limit
Biological Oxygen Demand		< 1	mg/L	1

Method Blank QCBatch: QC23573

Param	Flag	Results	Units	Reporting Limit
Chemical Oxygen Demand		<20	mg/L	20

Method Blank QCBatch: QC23583

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.10
Total Arsenic		<0.050	mg/L	0.05
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		<0.0125	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.02	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC23594

Param	Flag	Results	Units	Reporting Limit
Phenolics		<0.12	mg/L	0.12

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC23490

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		50	49	mg/L as CaCo3	1	2	9.2
Total Alkalinity		50	49	mg/L as CaCo3	1	2	9.2

Duplicate

QCBatch: QC23572

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Biological Oxygen Demand		295	277	mg/L	1	6	25

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC23460

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Kjeldahl Nitrogen - N	45.1	44.0	mg/L	1	50	<4.0	90	2	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23525

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	98.2	99.9	mg/L	1.12	100	<0.550	98	1	75 - 125	20
Dissolved Magnesium	97.4	99.5	mg/L	1.12	100	<0.550	97	2	75 - 125	20
Dissolved Potassium	92.1	93.2	mg/L	1.12	100	<0.550	92	1	75 - 125	20
Dissolved Sodium	94.3	94.4	mg/L	1.12	100	<0.550	94	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23549

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00106	0.00107	mg/L	1	0.001	<0.0002	106	0	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23557

Released to Imaging: 7/12/2024 10:49:45 AM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.23	11.19	mg/L	1	12.50	<1.0	89	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23572

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Biological Oxygen Demand	206	196	mg/L	1	198	0.24	104	4	76 - 132	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23573

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chemical Oxygen Demand	246	251	mg/L	1	250	<20	98	2	95 - 105	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23583

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	1.01	1.00	mg/L	1	1	<0.100	101	1	75 - 125	20
Total Arsenic	0.569	0.585	mg/L	1	0.50	<0.050	114	3	75 - 125	20
Total Barium	1.06	1.06	mg/L	1	1	<0.100	106	0	75 - 125	20
Total Beryllium	0.0257	0.0257	mg/L	1	0.02	<0.0025	103	0	75 - 125	20
Total Boron	0.0479	0.0465	mg/L	1	0.05	<0.005	96	3	75 - 125	20
Total Cadmium	0.263	0.263	mg/L	1	0.25	<0.005	100	0	75 - 125	20
Total Chromium	0.105	0.105	mg/L	1	0.10	<0.010	105	0	75 - 125	20
Total Cobalt	0.262	0.262	mg/L	1	0.25	<0.025	105	0	75 - 125	20
Total Copper	0.133	0.132	mg/L	1	0.12	<0.0125	106	0	75 - 125	20
Total Iron	0.521	0.518	mg/L	1	0.50	<0.050	104	0	75 - 125	20
Total Lead	0.515	0.522	mg/L	1	0.50	<0.01	98	1	75 - 125	20
Total Manganese	0.265	0.263	mg/L	1	0.25	<0.025	106	1	75 - 125	20
Total Molybdenum	0.545	0.548	mg/L	1	0.50	<0.050	109	0	75 - 125	20
Total Nickel	0.265	0.265	mg/L	1	0.25	<0.025	106	0	75 - 125	20
Total Selenium	0.449	0.444	mg/L	1	0.50	<0.050	90	1	75 - 125	20
Total Silver	0.129	0.129	mg/L	1	0.12	<0.0125	103	0	75 - 125	20
Total Uranium	0.522	0.529	mg/L	1	0.50	<0.02	99	1	75 - 125	20
Total Vanadium	0.266	0.265	mg/L	1	0.25	<0.025	106	0	75 - 125	20
Total Zinc	0.268	0.268	mg/L	1	0.25	<0.025	107	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23594

Received by OCD: 5/16/2022 2:12:41 PM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenolics	0.829	0.850	mg/L	1	0.80	<0.12	103	2	95 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC23460

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Kjeldahl Nitrogen - N	[3] 23.8	[4] 24.6	mg/L	1	50	<4.0	47	3	18 - 158	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23525

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	118	116	mg/L	1.12	100	23.1	94	2	75 - 125	20
Dissolved Magnesium	128	126	mg/L	1.12	100	38.4	89	2	75 - 125	20
Dissolved Potassium	105	104	mg/L	1.12	100	14.6	90	1	75 - 125	20
Dissolved Sodium	195	195	mg/L	1.12	100	86.6	108	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23549

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00140	0.00141	mg/L	1	0.001	0.00021	119	0	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23557

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	2131	2135	mg/L	1	1250	974	92	0	48 - 127	20
Sulfate	2402	2387	mg/L	1	1250	1190	96	1	59 - 121	20

[3]Matrix spike difficulties.
[4]Matrix spike difficulties.

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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23573

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chemical Oxygen Demand	291	287	mg/L	1	250	61.4	91	1	75 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23583

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	1.16	1.18	mg/L	1	1	<0.100	116	2	75 - 125	20
Total Arsenic	0.552	0.542	mg/L	1	0.50	<0.050	110	2	75 - 125	20
Total Barium	1.05	1.06	mg/L	1	1	0.110	93	1	75 - 125	20
Total Beryllium	0.0233	0.0237	mg/L	1	0.02	<0.0025	93	2	75 - 125	20
Total Boron	0.119	0.120	mg/L	1	0.05	0.0713	95	2	75 - 125	20
Total Cadmium	0.233	0.234	mg/L	1	0.25	<0.005	93	0	75 - 125	20
Total Chromium	0.0979	0.0979	mg/L	1	0.10	<0.010	98	0	75 - 125	20
Total Cobalt	0.247	0.250	mg/L	1	0.25	<0.025	99	1	75 - 125	20
Total Copper	0.141	0.144	mg/L	1	0.12	<0.0125	112	2	75 - 125	20
Total Iron	0.495	0.494	mg/L	1	0.50	<0.050	99	0	75 - 125	20
Total Lead	0.510	0.513	mg/L	1	0.50	<0.010	102	0	75 - 125	20
Total Manganese	0.249	0.253	mg/L	1	0.25	<0.025	100	2	75 - 125	20
Total Molybdenum	0.513	0.518	mg/L	1	0.50	<0.050	103	1	75 - 125	20
Total Nickel	0.238	0.240	mg/L	1	0.25	<0.025	95	1	75 - 125	20
Total Selenium	0.460	0.474	mg/L	1	0.50	<0.050	92	3	75 - 125	20
Total Silver	0.125	0.128	mg/L	1	0.12	<0.0125	100	2	75 - 125	20
Total Uranium	0.528	0.542	mg/L	1	0.50	<0.020	106	3	75 - 125	20
Total Vanadium	0.254	0.259	mg/L	1	0.25	<0.025	102	2	75 - 125	20
Total Zinc	0.238	0.240	mg/L	1	0.25	<0.025	95	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23594

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenolics	0.801	0.818	mg/L	1	0.80	<0.10	100	2	68 - 154	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC23460

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5	4.48	89	85 - 115	9/11/02

ICV (1) QCBatch: QC23460

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5	4.82	96	85 - 115	9/11/02

CCV (1) QCBatch: QC23490

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	9/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	240	0	90 - 110	9/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	9/10/02
Total Alkalinity		mg/L as CaCo3	250	246	98	90 - 110	9/10/02

ICV (1) QCBatch: QC23490

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	9/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	90 - 110	9/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	11	0	90 - 110	9/10/02
Total Alkalinity		mg/L as CaCo3	250	243	97	90 - 110	9/10/02

CCV (1) QCBatch: QC23525

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.0	100	90 - 110	9/14/02
Dissolved Magnesium		mg/L	25	24.7	99	90 - 110	9/14/02
Dissolved Potassium		mg/L	25	25.1	100	90 - 110	9/14/02
Dissolved Sodium		mg/L	25	25.0	100	90 - 110	9/14/02

ICV (1) QCBatch: QC23525

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.2	101	95 - 105	9/14/02
Dissolved Magnesium		mg/L	25	25.0	100	95 - 105	9/14/02
Dissolved Potassium		mg/L	25	25.4	102	95 - 105	9/14/02
Dissolved Sodium		mg/L	25	25.3	101	95 - 105	9/14/02

CCV (1) QCBatch: QC23549

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00099	99	80 - 120	9/16/02

ICV (1) QCBatch: QC23549

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	9/16/02

CCV (1) QCBatch: QC23557

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.19	89	90 - 110	9/11/02

ICV (1) QCBatch: QC23557

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.51	92	90 - 110	9/11/02

CCV (1) QCBatch: QC23573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chemical Oxygen Demand		mg/L	250	246	98	95 - 105	9/16/02

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ICV (1) QCBatch: QC23573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chemical Oxygen Demand		mg/L	250	242	96	95 - 105	9/16/02

CCV (1) QCBatch: QC23583

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.98	99	90 - 110	9/17/02
Total Arsenic		mg/L	1	0.987	99	90 - 110	9/17/02
Total Barium		mg/L	2	2.00	100	90 - 110	9/17/02
Total Beryllium		mg/L	0.05	0.0499	100	90 - 110	9/17/02
Total Boron		mg/L	0.10	0.105	105	90 - 110	9/17/02
Total Cadmium		mg/L	0.50	0.496	97	90 - 110	9/17/02
Total Chromium		mg/L	0.20	0.200	100	90 - 110	9/17/02
Total Cobalt		mg/L	0.50	0.498	100	90 - 110	9/17/02
Total Copper		mg/L	0.25	0.250	100	90 - 110	9/17/02
Total Iron		mg/L	1	0.983	98	90 - 110	9/17/02
Total Lead		mg/L	1	0.989	96	90 - 110	9/17/02
Total Manganese		mg/L	0.50	0.501	100	90 - 110	9/17/02
Total Molybdenum		mg/L	1	1.00	100	90 - 110	9/17/02
Total Nickel		mg/L	0.50	0.502	100	90 - 110	9/17/02
Total Selenium		mg/L	1	0.993	99	90 - 110	9/17/02
Total Silver		mg/L	0.25	0.249	100	90 - 110	9/17/02
Total Uranium		mg/L	1	0.990	96	90 - 110	9/17/02
Total Vanadium		mg/L	0.50	0.501	100	90 - 110	9/17/02
Total Zinc		mg/L	0.50	0.499	100	90 - 110	9/17/02

ICV (1) QCBatch: QC23583

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	2.02	101	95 - 105	9/17/02
Total Arsenic		mg/L	1	1.03	103	95 - 105	9/17/02
Total Barium		mg/L	2	2.06	103	95 - 105	9/17/02
Total Beryllium		mg/L	0.05	0.0513	103	95 - 105	9/17/02
Total Boron		mg/L	0.10	0.109	109	95 - 105	9/17/02
Total Cadmium		mg/L	0.50	0.512	100	95 - 105	9/17/02
Total Chromium		mg/L	0.20	0.206	103	95 - 105	9/17/02
Total Cobalt		mg/L	0.50	0.513	103	95 - 105	9/17/02
Total Copper		mg/L	0.25	0.255	102	95 - 105	9/17/02
Total Iron		mg/L	1	1.03	103	95 - 105	9/17/02
Total Lead		mg/L	1	1.02	100	95 - 105	9/17/02
Total Manganese		mg/L	0.50	0.515	103	95 - 105	9/17/02
Total Molybdenum		mg/L	1	1.03	103	95 - 105	9/17/02
Total Nickel		mg/L	0.50	0.515	103	95 - 105	9/17/02

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1	1.02	102	95 - 105	9/17/02
Total Silver		mg/L	0.25	0.256	102	95 - 105	9/17/02
Total Uranium		mg/L	1	1.01	98	95 - 105	9/17/02
Total Vanadium		mg/L	0.50	0.514	103	95 - 105	9/17/02
Total Zinc		mg/L	0.50	0.515	103	95 - 105	9/17/02

CCV (1)

QCBatch: QC23594

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenolics		mg/L	0.80	0.801	100	85 - 115	9/17/02

ICV (1)

QCBatch: QC23594

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenolics		mg/L	0.80	0.822	102	85 - 115	9/17/02

Released to Imaging: 7/12/2024 10:49:45 AM

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Page_____of_____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 1D0291009

Company Name: NAVAJO
Phone #: 5057483311
Address: (Street, City, Zip) 501 E Main
Fax #: 5057465421
Contact Person: Charlie Plymale
Invoice to: (If different from above)
Project #:
Project Name: ABT Inlet / RO Reject
Project Location: Artesia
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
207619	ABT Inlet JK836	1	1L	X						X		X		9/9/02	1445
	" "	1	1L	X								X	X	9/9/02	1445
	" "	1	500ml	X						X		X		9/9/02	1445
207620	RO Reject	1	1L	X								X	X	9/9/02	1530
	" "	1	1L	X					X			X		9/9/02	1530

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Turn Around Time if different from standard	Hold
				Sent to Xenco												

Relinquished by: Date: 9/9/02 Time: 1615
Received by: Date: Time:
Relinquished by: Date: Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received at Laboratory by: Date: 9-10-02 Time: 10 am

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp °
Log-in Review

REMARKS:

☐ Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

Carrier # Fed Ex 7900-5576-0049

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo refining Company

WDW-1	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
Jul-02	443	500	0	205	232	0	213	240	0	7037	7939	0	218,136
Aug-02	279	500	157	197	232	149	169	240	146	6744	7949	5112	209,077
Sep-02	198	261	97	167	199	117	145	152	142	5737	6809	3999	177,855
WDW-2													
Jul-02	172	268	0	113	160	0	99	152	0	3887	5485	0	120,499
Aug-02	219	303	104	130	160	58	187	311	112	4448	5472	1976	137,893
Sep-02	228	287	128	130	154	94	180	257	128	4473	5271	3223	138,649

Received by OCD: 5/16/2022 2:12:41 PM

NAVAJO REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

October 30, 2001

RECEIVED
NOV 13 2001
Environmental Bureau
Oil Conservation Division

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2001 to September 30, 2001. We have disposed a total of 8,443,165 bbls. of fluid down the two wells as of September 30, 2001. This is broken down as follows: 6,446,668 bbls. down WDW-1 and 1,996,497 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 17, 2001

Order ID Number: A01100310

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
180928	Inj Well	Water	10/2/01	14:00	10/3/01

This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 180928 - Inj Well

Param	Flag	Result	Units
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L

Continued on next page ...

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 180928 continued ...

Param	Flag	Result	Units
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L

Continued on next page ...

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 180928 continued ...

Param	Flag	Result	Units
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 17, 2001

Order ID Number: A01100310

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
180928	Inj Well	Water	10/2/01	14:00	10/3/01

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 7 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report

Sample: 180928 - Inj Well

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC14881	Date Analyzed:	10/11/01
Analyst:	RC	Preparation Method:	E 3510C	Prep Batch:	PB12651	Date Prepared:	10/4/01

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 180928 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		16.26	mg/L	1	80	20	21 - 100
Phenol-d5		9.68	mg/L	1	80	12	11 - 94
Nitrobenzene-d5		47.77	mg/L	1	80	59	35 - 114
2-Fluorobiphenyl		47.08	mg/L	1	80	58	43 - 116
2,4,6-Tribromophenol		53.59	mg/L	1	80	66	10 - 123
Terphenyl-d14		28.71	mg/L	1	80	35	33 - 141

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Method Blank QCBatch: QC14881

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2.6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005

Continued ...

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... Continued

Param	Flag	Results	Units	Reporting Limit
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		14.24	mg/L	1	80	17	21 - 100
Phenol-d5		11.8	mg/L	1	80	14	11 - 94
Nitrobenzene-d5		68.41	mg/L	1	80	85	35 - 114
2-Fluorobiphenyl		63.26	mg/L	1	80	79	43 - 116
2,4,6-Tribromophenol		41.79	mg/L	1	80	52	10 - 123

Continued ...

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Terphenyl-d14		45.95	mg/L	1	80	57	33 - 141

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC14881

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	11.26	12.83	mg/L	1	80	<0.005	14	13	5 - 112	20
2-Chlorophenol	38.17	38.8	mg/L	1	80	<0.005	47	1	23 - 134	20
1,4-Dichlorobenzene	43.6	40.39	mg/L	1	80	<0.005	54	7	20 - 124	20
n-Nitrosodi-n-propylamine	46.61	48.78	mg/L	1	80	<0.005	58	4	0 - 230	20
1,2,4-Trichlorobenzene	53.13	55.74	mg/L	1	80	<0.005	66	4	44 - 142	20
4-Chloro-3-methylphenol	53.26	56.33	mg/L	1	80	<0.005	66	5	22 - 147	20
Acenaphthene	52.05	56.45	mg/L	1	80	<0.005	65	8	47 - 145	20
4-Nitrophenol	42.19	43.08	mg/L	1	80	<0.005	52	2	0 - 132	20
2,4-Dinitrotoluene	66.19	63.9	mg/L	1	80	<0.005	82	3	39 - 139	20
Pentachlorophenol	40.55	40.31	mg/L	1	80	<0.005	50	0	14 - 176	20
Pyrene	45.78	43.03	mg/L	1	80	<0.005	57	6	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	18.4	17.84	mg/L	1	80	23	22	21 - 100
Phenol-d5	10.42	10.48	mg/L	1	80	13	13	11 - 94
Nitrobenzene-d5	52.8	55.69	mg/L	1	80	66	69	35 - 114
2-Fluorobiphenyl	53.81	58.92	mg/L	1	80	67	73	43 - 116
2,4,6-Tribromophenol	71.61	67.1	mg/L	1	80	89	83	10 - 123
Terphenyl-d14	52.04	46.76	mg/L	1	80	65	58	33 - 141

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC14881

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	48.43	35.14	mg/L	1	80	<0.005	60	31	5 - 112	20
2-Chlorophenol	61.18	45.54	mg/L	1	80	<0.005	76	29	23 - 134	20
1,4-Dichlorobenzene	63.47	46.48	mg/L	1	80	<0.005	79	30	20 - 124	20
n-Nitrosodi-n-propylamine	63.08	47.76	mg/L	1	80	<0.005	78	27	0 - 230	20
1,2,4-Trichlorobenzene	77.67	60.88	mg/L	1	80	<0.005	97	24	44 - 142	20
4-Chloro-3-methylphenol	77.4	65.29	mg/L	1	80	<0.005	96	16	22 - 147	20
Acenaphthene	65.07	59.15	mg/L	1	80	<0.005	81	9	47 - 145	20
4-Nitrophenol	58.12	51.88	mg/L	1	80	<0.005	72	11	0 - 132	20
2,4-Dinitrotoluene	70.23	64.91	mg/L	1	80	<0.005	87	7	39 - 139	20
Pentachlorophenol	50.86	40.63	mg/L	1	80	<0.005	63	22	14 - 176	20
Pyrene	44.83	43.46	mg/L	1	80	<0.005	56	3	52 - 115	20

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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dilution	Spike Amount	MS % Rec	MSD % Rec	Recovery Limits
2-Fluorophenol	51.96	38.64	mg/L	1	80	64	48	21 - 100
Phenol-d5	48.84	35.33	mg/L	1	80	61	44	11 - 94
Nitrobenzene-d5	71.74	57.13	mg/L	1	80	89	71	35 - 114
2-Fluorobiphenyl	70.11	60.74	mg/L	1	80	87	75	43 - 116
2,4,6-Tribromophenol	76.72	67.75	mg/L	1	80	95	84	10 - 123
Terphenyl-d14	45.3	41.26	mg/L	1	80	56	51	33 - 141

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC14881

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	61.43	102	80 - 120	10/11/01
1,4-Dichlorobenzene		mg/L	60	62.38	103	80 - 120	10/11/01
2-Nitrophenol		mg/L	60	65.94	109	80 - 120	10/11/01
2,4-Dichlorophenol		mg/L	60	63.42	105	80 - 120	10/11/01
Hexachlorobutadiene		mg/L	60	66.39	110	80 - 120	10/11/01
4-Chloro-3-methylphenol		mg/L	60	60.2	100	80 - 120	10/11/01
2,4,6-Trichlorophenol		mg/L	60	65.44	109	80 - 120	10/11/01
Acenaphthene		mg/L	60	63.64	106	80 - 120	10/11/01
Diphenylamine		mg/L	60	60.27	100	80 - 120	10/11/01
Pentachlorophenol		mg/L	60	50.96	84	80 - 120	10/11/01
Fluoranthene		mg/L	60	68.23	113	80 - 120	10/11/01
Di-n-octylphthalate		mg/L	60	55.81	93	80 - 120	10/11/01
Benzo(a)pyrene		mg/L	60	60.73	101	80 - 120	10/11/01
2-Fluorophenol		mg/L	60	61.9	103	80 - 120	10/11/01
Phenol-d5		mg/L	60	61.44	102	80 - 120	10/11/01
Nitrobenzene-d5		mg/L	60	62.82	104	80 - 120	10/11/01
2-Fluorobiphenyl		mg/L	60	66.48	110	80 - 120	10/11/01
2,4,6-Tribromophenol		mg/L	60	67.15	111	80 - 120	10/11/01
Terphenyl-d14		mg/L	60	46.12	76	80 - 120	10/11/01

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180928

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A0110031O

Company Name: Navajo
Phone #: 505 7483311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 7465421
Contact Person: Darrell Moore or Charlie Bynum
Invoice to: (if different from above)
Project #:
Project Name: Inj well
Project Location:
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
180928	Inj well	1	1L	X								X	X	10/2/01	200

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See List

Extra bottle requested by Vicki

	Date:	Time:		Date:	Time:
Relinquished by:	10/2/01	1615	Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received at Laboratory by: Vicki Gusley	10-3-01	10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact Y / N
Headspace Y / N
Temp 4 °
Log-in Review MF

REMARKS:

10/8

☐ Check If Special Reporting Limits Are Needed

Carrier # UPS 1Z 762 46 6 03 452 3845

Page 3544 of 5828

Quarterly Injection Pressures, Rates, and Volumes

NAVAJO REFINING COMPANY

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max Pressure (psig)	Monthly Min Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max Flow Volume (bpd)	Monthly Min Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min Annular Pressure (psig)	Total Volume (bbls)
July 2001	258	412	0	200	393	0	6850	8267	5608	259	360	120	212,543
August 2001	262	500	0	195	482	0	6773	8857	1782	255	372	118	207,732
September 2001	201	326	0	259	381	0	8876	10148	5044	188	328	113	266,295
WDW-2	**Monthly Avg. Pressure (psig)**	**Monthly Max Pressure (psig)**	**Monthly Min Pressure (psig)**	**Monthly Avg. Flow Rate (gpm)**	**Monthly Max Flow Rate (gpm)**	**Monthly Min. Flow Rate (gpm)**	**Monthly Avg. Flow Volume (bpd)**	**Monthly Max Flow Volume (bpd)**	**Monthly Min Flow Volume (bpd)**	**Monthly Avg. Annular Pressure (psig)**	**Monthly Max Annular Pressure (psig)**	**Monthly Min Annular Pressure (psig)**	**Total Volume (bbls)**
July 2001	143	341	0	28	178	0	3281	5913	25	161	500	17	98,443
August 2001	183	500	0	106	520	0	3529	7171	6	213	495	25	108,769
September 2001	48	277	0	94	206	0	1101	6097	4	132	500	22	33,040

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Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

February 12, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2001 to December 31, 2001. We have disposed a total of 9,429,075 bbls. of fluid down the two wells as of December 31, 2001. This is broken down as follows: 7,171,582 bbls. down WDW-1 and 2,257,493 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 1 of 5
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 30, 2002

Order ID Number: A02010402

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
188362	Inj. Wells	Water	1/3/01	9:00	1/4/02

0 This report consists of a total of 5 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 188362 - Inj. Wells

Param	Flag	Result	Units
Bromochloromethane		<1.00	µg/L
Dichlorodifluoromethane		<1.00	µg/L
Chloromethane (methyl chloride)		<1.00	µg/L
Vinyl Chloride		<1.00	µg/L
Bromomethane (methyl bromide)		<5.00	µg/L
Chloroethane		<1.00	µg/L
Trichlorofluoromethane		<1.00	µg/L
Acetone		17.4	µg/L
Iodomethane (methyl iodide)		<5.00	µg/L
Carbon Disulfide		<1.00	µg/L
Acrylonitrile		<1.00	µg/L
2-Butanone (MEK)		<5.00	µg/L
4-methyl-2-pentanone (MIBK)		<5.00	µg/L
2-hexanone		<5.00	µg/L
trans 1,4-Dichloro-2-butene		<10.0	µg/L
1,1-Dichloroethene		<1.00	µg/L
Methylene chloride		<5.00	µg/L
MTBE		<1.00	µg/L
trans-1,2-Dichloroethene		<1.00	µg/L
1,1-Dichloroethane		<1.00	µg/L
cis-1,2-Dichloroethene		<1.00	µg/L
2,2-Dichloropropane		<1.00	µg/L
1,2-Dichloroethane (EDC)		<1.00	µg/L
Chloroform		<1.00	µg/L
1,1,1-Trichloroethane		<1.00	µg/L
1,1-Dichloropropene		<1.00	µg/L
Benzene		<1.00	µg/L
Carbon Tetrachloride		<1.00	µg/L
1,2-Dichloropropane		<1.00	µg/L
Trichloroethene (TCE)		<1.00	µg/L
Dibromomethane (methylene bromide)		<1.00	µg/L
Bromodichloromethane		<1.00	µg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 2 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
2-Chloroethyl vinyl ether		<5.00	µg/L
cis-1,3-Dichloropropene		<1.00	µg/L
trans-1,3-Dichloropropene		<1.00	µg/L
Toluene		<1.00	µg/L
1,1,2-Trichloroethane		<1.00	µg/L
1,3-Dichloropropane		<1.00	µg/L
Dibromochloromethane		<1.00	µg/L
1,2-Dibromoethane (EDB)		<1.00	µg/L
Tetrachloroethene (PCE)		<1.00	µg/L
Chlorobenzene		<1.00	µg/L
1,1,1,2-Tetrachloroethane		<1.00	µg/L
Ethylbenzene		2.20	µg/L
m,p-Xylene		3.72	µg/L
Bromoform		<1.00	µg/L
Styrene		<1.00	µg/L
o-Xylene		1.19	µg/L
1,1,2,2-Tetrachloroethane		<1.00	µg/L
2-Chlorotoluene		<1.00	µg/L
1,2,3-Trichloropropane		<1.00	µg/L
Isopropylbenzene		<1.00	µg/L
Bromobenzene		<1.00	µg/L
n-Propylbenzene		<1.00	µg/L
1,3,5-Trimethylbenzene		<1.00	µg/L
tert-Butylbenzene		<1.00	µg/L
1,2,4-Trimethylbenzene		1.08	µg/L
1,4-Dichlorobenzene (para)		<1.00	µg/L
sec-Butylbenzene		<1.00	µg/L
1,3-Dichlorobenzene		<1.00	µg/L
p-Isopropyltoluene		<1.00	µg/L
4-Chlorotoluene		<1.00	µg/L
1,2-Dichlorobenzene (ortho)		<1.00	µg/L
n-Butylbenzene		<1.00	µg/L
1,2-Dibromo-3-chloropropane		<5.00	µg/L
1,2,3-Trichlorobenzene		<5.00	µg/L
1,2,4-Trichlorobenzene		<5.00	µg/L
Naphthalene		<5.00	µg/L
Hexachlorobutadiene		<5.00	µg/L
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 3 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 4 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		12	mg/L as CaCo3
Bicarbonate Alkalinity		282	mg/L as CaCo3
Total Alkalinity		294	mg/L as CaCo3
Specific Conductance		4150	μMHOS/cm
Corrosivity		non-corrosive	mm/yr
pH		8.5	s.u.
Flashpoint	[1]	>150	F
Total Mercury		<0.0002	mg/L
Chloride		718	mg/L
Sulfate	[2]	500	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		157	mg/L
Dissolved Magnesium		25.3	mg/L
Dissolved Potassium		38.3	mg/L
Dissolved Sodium		452	mg/L
Total Dissolved Solids		1990	mg/L
Total Aluminum		0.842	mg/L
Total Arsenic		0.181	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.207	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L

Continued on next page ...

[1]There was not enough sample to duplicate.
[2]Sulfate re-ran on IC011002-1.sch (PB17016; QC17285). ICV %IA = 94; CCV %IA = 93; matrix spikes RPD = 0, %EA = 85; LCS spikes RPD = 1, %EA = 93.

This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 5 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Total Cobalt		<0.025	mg/L
Total Copper		0.0129	mg/L
Total Iron		1.77	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.080	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.292	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		0.0759	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.182	mg/L
pH	[3]	8.5	s.u.

[3] received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 30, 2002

Order ID Number: A02010402

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
188362	Inj. Wells	Water	1/3/01	9:00	1/4/02

0
These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.

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Dr. Blair Leftwich, Director

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Analytical Report

Sample: 188362 - Inj. Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC17387	Date Analyzed:	1/7/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB17091	Date Prepared:	1/7/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<1.00	µg/L	1	1
Dichlorodifluoromethane		<1.00	µg/L	1	1
Chloromethane (methyl chloride)		<1.00	µg/L	1	1
Vinyl Chloride		<1.00	µg/L	1	1
Bromomethane (methyl bromide)		<5.00	µg/L	1	5
Chloroethane		<1.00	µg/L	1	1
Trichlorofluoromethane		<1.00	µg/L	1	1
Acetone		17.4	µg/L	1	10
Iodomethane (methyl iodide)		<5.00	µg/L	1	5
Carbon Disulfide		<1.00	µg/L	1	1
Acrylonitrile		<1.00	µg/L	1	1
2-Butanone (MEK)		<5.00	µg/L	1	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	1	5
2-hexanone		<5.00	µg/L	1	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	1	10
1,1-Dichloroethene		<1.00	µg/L	1	1
Methylene chloride		<5.00	µg/L	1	5
MTBE		<1.00	µg/L	1	1
trans-1,2-Dichloroethene		<1.00	µg/L	1	1
1,1-Dichloroethane		<1.00	µg/L	1	1
cis-1,2-Dichloroethene		<1.00	µg/L	1	1
2,2-Dichloropropane		<1.00	µg/L	1	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1
Chloroform		<1.00	µg/L	1	1
1,1,1-Trichloroethane		<1.00	µg/L	1	1
1,1-Dichloropropene		<1.00	µg/L	1	1
Benzene		<1.00	µg/L	1	1
Carbon Tetrachloride		<1.00	µg/L	1	1
1,2-Dichloropropane		<1.00	µg/L	1	1
Trichloroethene (TCE)		<1.00	µg/L	1	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1
Bromodichloromethane		<1.00	µg/L	1	1
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5
cis-1,3-Dichloropropene		<1.00	µg/L	1	1
trans-1,3-Dichloropropene		<1.00	µg/L	1	1
Toluene		<1.00	µg/L	1	1
1,1,2-Trichloroethane		<1.00	µg/L	1	1
1,3-Dichloropropane		<1.00	µg/L	1	1
Dibromochloromethane		<1.00	µg/L	1	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1
Tetrachloroethene (PCE)		<1.00	µg/L	1	1
Chlorobenzene		<1.00	µg/L	1	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1
Ethylbenzene		2.20	µg/L	1	1
m,p-Xylene		3.72	µg/L	1	1
Bromoform		<1.00	µg/L	1	1
Styrene		<1.00	µg/L	1	1
o-Xylene		1.19	µg/L	1	1

Continued ...

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... *Continued* Sample: 188362 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1
2-Chlorotoluene		<1.00	µg/L	1	1
1,2,3-Trichloropropane		<1.00	µg/L	1	1
Isopropylbenzene		<1.00	µg/L	1	1
Bromobenzene		<1.00	µg/L	1	1
n-Propylbenzene		<1.00	µg/L	1	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1
tert-Butylbenzene		<1.00	µg/L	1	1
1,2,4-Trimethylbenzene		1.08	µg/L	1	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1
sec-Butylbenzene		<1.00	µg/L	1	1
1,3-Dichlorobenzene		<1.00	µg/L	1	1
p-Isopropyltoluene		<1.00	µg/L	1	1
4-Chlorotoluene		<1.00	µg/L	1	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1	1
n-Butylbenzene		<1.00	µg/L	1	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	1	5
1,2,3-Trichlorobenzene		<5.00	µg/L	1	5
1,2,4-Trichlorobenzene		<5.00	µg/L	1	5
Naphthalene		<5.00	µg/L	1	5
Hexachlorobutadiene		<5.00	µg/L	1	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	84 - 122
Toluene-d8		48.5	µg/L	1	50	97	95 - 105
4-Bromofluorobenzene		50	µg/L	1	50	100	91 - 108

Sample: 188362 - Inj. Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC17449	Date Analyzed:	1/10/02
Analyst:	RC	Preparation Method:	E 3510C	Prep Batch:	PB17140	Date Prepared:	1/7/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 188362 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 188362 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		11.27	mg/L	1	80	14	21 - 100
Phenol-d5	[1]	6.21	mg/L	1	80	7	11 - 94
Nitrobenzene-d5		33.48	mg/L	1	80	41	35 - 114
2-Fluorobiphenyl		31.91	mg/L	1	80	39	43 - 116
2,4,6-Tribromophenol		55.66	mg/L	1	80	69	10 - 123
Terphenyl-d14		33.05	mg/L	1	80	41	33 - 141

Sample: 188362 - Inj. Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC17283	Date Analyzed:	1/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB17018	Date Prepared:	1/10/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		12	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		282	mg/L as CaCo3	1	1
Total Alkalinity		294	mg/L as CaCo3	1	1

Sample: 188362 - Inj. Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC17280	Date Analyzed:	1/9/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17013	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		4150	μMHOS/cm	1	

[1] Sample surrogate out of limits due to sample matrix.

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Sample: 188362 - Inj. Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC17689	Date Analyzed:	1/24/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17318	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		non-corrosive	mm/yr	1	
pH		8.5	s.u.	1	

Sample: 188362 - Inj. Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC17688	Date Analyzed:	1/23/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17317	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Flashpoint	[2]	>150	F	1	

Sample: 188362 - Inj. Wells

Analysis:	Hg, Total	Analytical Method:	E 245.2	QC Batch:	QC17473	Date Analyzed:	1/17/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB17163	Date Prepared:	1/16/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 188362 - Inj. Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC17284	Date Analyzed:	1/8/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17015	Date Prepared:	1/8/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		718	mg/L	50	0.50
Sulfate	[3]	500	mg/L	50	0.50

Sample: 188362 - Inj. Wells

Analysis:	Reactivity	Analytical Method:	ASTM D 5049-90/4978-95	QC Batch:	QC17690	Date Analyzed:	1/23/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17319	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 188362 - Inj. Wells

Analysis:	Salts	Analytical Method:	E 200.7	QC Batch:	QC17367	Date Analyzed:	1/14/02
Analyst:	BC	Preparation Method:	S 3005A	Prep Batch:	PB16960	Date Prepared:	1/10/02

[2]There was not enough sample to duplicate.
[3]Sulfate re-ran on IC011002-1.sch (PB17016; QC17285). ICV %IA = 94; CCV %IA = 93; matrix spikes RPD = 0, %EA = 85; LCS spikes RPD = 1, %EA = 93.

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Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		157	mg/L	1	0.50
Dissolved Magnesium		25.3	mg/L	1	0.50
Dissolved Potassium		38.3	mg/L	1	0.50
Dissolved Sodium		452	mg/L	1	0.50

Sample: 188362 - Inj. Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC17251	Date Analyzed:	1/10/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB16995	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		1990	mg/L	5	10

Sample: 188362 - Inj. Wells

Analysis:	Total Metals	Analytical Method:	E 200.7	QC Batch:	QC17264	Date Analyzed:	1/11/01
Analyst:	RR	Preparation Method:	N/A	Prep Batch:	PB16946	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.842	mg/L	1	0.10
Total Arsenic		0.181	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.207	mg/L	1	0.01
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		0.0129	mg/L	1	0.01
Total Iron		1.77	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.080	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.292	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		0.0759	mg/L	1	0.05
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.182	mg/L	1	0.02

Sample: 188362 - Inj. Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC17324	Date Analyzed:	1/8/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB17046	Date Prepared:	1/8/02

Param	Flag	Result	Units	Dilution	RDL
pH	[4]	8.5	s.u.	1	1

[4] received out of holding time

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Method Blank QCBatch: QC17251

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC17280

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		10.3	µMHOS/cm	

Method Blank QCBatch: QC17283

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank QCBatch: QC17284

Param	Flag	Results	Units	Reporting Limit
Chloride		<2.0	mg/L	0.50

Method Blank QCBatch: QC17367

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank QCBatch: QC17387

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		48.6	µg/L	1	50	97	84 - 122
Toluene-d8		48.6	µg/L	1	50	97	95 - 105
4-Bromofluorobenzene		48.1	µg/L	1	50	96	91 - 108

Method Blank

QCBatch: QC17449

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Results	Units	Reporting Limit
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		34.33	mg/L	1	80	42	21 - 100
Phenol-d5		15.74	mg/L	1	80	19	11 - 94
Nitrobenzene-d5		88.13	mg/L	1	80	110	35 - 114
2-Fluorobiphenyl		90.46	mg/L	1	80	113	43 - 116
2,4,6-Tribromophenol		50.64	mg/L	1	80	63	10 - 123
Terphenyl-d14		101.21	mg/L	1	80	126	33 - 141

Method Blank

QCBatch: QC17473

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Quality Control Report
Duplicate Samples

Duplicate

QCBatch: QC17251

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		2035	1990	mg/L	1	2	8.9

Duplicate

QCBatch: QC17280

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4494	4490	µMHOS/cm	1	0	5.9

Received by OCD: 5/16/2022 2:12:41 PM

Duplicate QCBatch: QC17283

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	7
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	7
Bicarbonate Alkalinity		528	532	mg/L as CaCo3	1	0	7
Total Alkalinity		528	532	mg/L as CaCo3	1	0	7

Duplicate QCBatch: QC17324

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	0.99

Duplicate QCBatch: QC17689

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		non-corrosive	non-corrosive	mm/yr	1	0	20
pH		8.5	8.5	s.u.	1	0	20

Duplicate QCBatch: QC17690

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		non-reactive	Non-reactive		1	0	20

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC17284

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.40	11.43	mg/L	1	12.50	<2.0	91	0	90 - 110	20
Nitrate-N	2.39	2.40	mg/L	1	2.50	<0.2	95	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes QCBatch: QC17387

Released to Imaging: 7/12/2024 10:49:45 AM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	105	107	µg/L	1	100	<1.00	105	1	92 - 129	20
Benzene	100	102	µg/L	1	100	<1.00	100	1	94 - 112	20
Trichloroethene (TCE)	105	107	µg/L	1	100	<1.00	105	1	90 - 113	20
Toluene	98	99	µg/L	1	100	<1.00	98	1	89 - 109	20
Chlorobenzene	101	104	µg/L	1	100	<1.00	101	2	93 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	48.8	48.5	µg/L	1	50	97	97	84 - 122
Toluene-d8	48.2	48.4	µg/L	1	50	96	96	95 - 105
4-Bromofluorobenzene	49.6	48.9	µg/L	1	50	99	97	91 - 108

Laboratory Control Spikes

QCBatch: QC17449

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	18.67	15.7	mg/L	1	80	<0.005	23	17	5 - 112	20
2-Chlorophenol	54.98	48.68	mg/L	1	80	<0.005	68	12	23 - 134	20
1,4-Dichlorobenzene	77.53	73.98	mg/L	1	80	<0.005	96	4	20 - 124	20
n-Nitrosodi-n-propylamine	69.29	53.43	mg/L	1	80	<0.005	86	25	0 - 230	20
1,2,4-Trichlorobenzene	88.58	87.4	mg/L	1	80	<0.005	110	1	44 - 142	20
4-Chloro-3-methylphenol	50.17	41.2	mg/L	1	80	<0.005	62	19	22 - 147	20
Acenaphthene	89.13	92.62	mg/L	1	80	<0.005	111	3	47 - 145	20
4-Nitrophenol	7.99	7.97	mg/L	1	80	<0.005	9	0	0 - 132	20
2,4-Dinitrotoluene	84.12	78.26	mg/L	1	80	<0.005	105	7	39 - 139	20
Pentachlorophenol	44.65	27.62	mg/L	1	80	<0.005	55	47	14 - 176	20
Pyrene	79.77	70.62	mg/L	1	80	<0.005	99	12	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	27.55	24.99	mg/L	1	80	34	31	21 - 100
Phenol-d5	14.57	11.59	mg/L	1	80	18	14	11 - 94
Nitrobenzene-d5	84.82	79.23	mg/L	1	80	106	99	35 - 114
2-Fluorobiphenyl	84.29	78.19	mg/L	1	80	105	97	43 - 116
2,4,6-Tribromophenol	70.76	62.61	mg/L	1	80	88	78	10 - 123
Terphenyl-d14	82.84	67.84	mg/L	1	80	103	84	33 - 141

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC17284

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	187.73	188.76	mg/L	1	125	72.0	90	0	52 - 131	20

Received by OCD: 5/16/2022 2:12:41 PM

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1) QCBatch: QC17251

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1014	101	90 - 110	1/10/02

ICV (1) QCBatch: QC17251

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	998	99	90 - 110	1/10/02

CCV (1) QCBatch: QC17264

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.97	98	90 - 110	1/11/01
Total Arsenic		mg/L	1	1.01	101	90 - 110	1/11/01
Total Barium		mg/L	2	2.00	100	90 - 110	1/11/01
Total Beryllium		mg/L	0.05	0.0495	99	90 - 110	1/11/01
Total Boron		mg/L	0.10	0.102	102	90 - 110	1/11/01
Total Cadmium		mg/L	0.50	0.502	100	90 - 110	1/11/01
Total Chromium		mg/L	0.20	0.200	100	90 - 110	1/11/01
Total Cobalt		mg/L	0.50	0.501	100	90 - 110	1/11/01
Total Copper		mg/L	0.25	0.249	100	90 - 110	1/11/01
Total Iron		mg/L	1	1.01	101	90 - 110	1/11/01
Total Lead		mg/L	1	0.995	100	90 - 110	1/11/01
Total Manganese		mg/L	0.50	0.498	100	90 - 110	1/11/01
Total Molybdenum		mg/L	1	0.995	100	90 - 110	1/11/01
Total Nickel		mg/L	0.50	0.500	100	90 - 110	1/11/01
Total Selenium		mg/L	1	0.991	99	90 - 110	1/11/01
Total Silver		mg/L	0.25	0.247	99	90 - 110	1/11/01
Total Uranium		mg/L	1	1.03	103	90 - 110	1/11/01
Total Vanadium		mg/L	0.50	0.493	99	90 - 110	1/11/01
Total Zinc		mg/L	0.50	0.508	102	90 - 110	1/11/01

ICV (1) QCBatch: QC17264

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.97	98	90 - 110	1/11/01
Total Arsenic		mg/L	1	1.02	102	90 - 110	1/11/01
Total Barium		mg/L	2	2.01	100	90 - 110	1/11/01
Total Beryllium		mg/L	0.05	0.050	100	90 - 110	1/11/01
Total Boron		mg/L	0.10	0.104	104	90 - 110	1/11/01
Total Cadmium		mg/L	0.50	0.504	101	90 - 110	1/11/01
Total Chromium		mg/L	0.20	0.202	101	90 - 110	1/11/01
Total Cobalt		mg/L	0.50	0.507	101	90 - 110	1/11/01
Total Copper		mg/L	0.25	0.250	100	90 - 110	1/11/01
Total Iron		mg/L	1	1.01	101	90 - 110	1/11/01
Total Lead		mg/L	1	1.01	101	90 - 110	1/11/01
Total Manganese		mg/L	0.50	0.503	101	90 - 110	1/11/01
Total Molybdenum		mg/L	1	1.01	101	90 - 110	1/11/01
Total Nickel		mg/L	0.50	0.504	101	90 - 110	1/11/01
Total Selenium		mg/L	1	1.01	101	90 - 110	1/11/01
Total Silver		mg/L	0.25	0.250	100	90 - 110	1/11/01
Total Uranium		mg/L	1	1.01	101	90 - 110	1/11/01
Total Vanadium		mg/L	0.50	0.500	100	90 - 110	1/11/01
Total Zinc		mg/L	0.50	0.502	100	90 - 110	1/11/01

CCV (1) QCBatch: QC17280

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1447	102	90 - 110	1/9/02

ICV (1) QCBatch: QC17280

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1400	1449	103	90 - 110	1/9/02

CCV (1) QCBatch: QC17283

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	1/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	90 - 110	1/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	12	0	90 - 110	1/10/02
Total Alkalinity		mg/L as CaCo3	250	236	94	90 - 110	1/10/02

ICV (1) QCBatch: QC17283

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	1/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	236	0	90 - 110	1/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	1/10/02
Total Alkalinity		mg/L as CaCo3	250	242	96	90 - 110	1/10/02

CCV (1) QCBatch: QC17284

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.44	91	90 - 110	1/8/02
Nitrate-N		mg/L	2.50	2.39	95	90 - 110	1/8/02

ICV (1) QCBatch: QC17284

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.31	90	90 - 110	1/8/02
Nitrate-N		mg/L	2.50	2.37	94	90 - 110	1/8/02

CCV (1) QCBatch: QC17324

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	1/8/02

ICV (1) QCBatch: QC17324

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	1/8/02

CCV (1) QCBatch: QC17367

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	27.2	108	90 - 110	1/14/02
Dissolved Magnesium		mg/L	25	27.5	110	90 - 110	1/14/02
Dissolved Potassium		mg/L	25	23.5	94	90 - 110	1/14/02

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Sodium		mg/L	25	26.1	104	90 - 110	1/14/02

ICV (1)

QCBatch: QC17367

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.6	102	95 - 105	1/14/02
Dissolved Magnesium		mg/L	25	25.4	101	95 - 105	1/14/02
Dissolved Potassium		mg/L	25	25.7	102	95 - 105	1/14/02
Dissolved Sodium		mg/L	25	25.8	103	95 - 105	1/14/02

CCV (1)

QCBatch: QC17387

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	86	86	80 - 120	1/7/02
1,1-Dichloroethene		µg/L	100	100	100	80 - 120	1/7/02
Chloroform		µg/L	100	96	96	80 - 120	1/7/02
1,2-Dichloropropane		µg/L	100	96	96	80 - 120	1/7/02
Toluene		µg/L	100	98	98	80 - 120	1/7/02
Chlorobenzene		µg/L	100	100	100	80 - 120	1/7/02
Ethylbenzene		µg/L	100	99	99	80 - 120	1/7/02
Dibromofluoromethane		µg/L	50	48.8	97	80 - 120	1/7/02
Toluene-d8		µg/L	50	47.9	95	80 - 120	1/7/02
4-Bromofluorobenzene		µg/L	50	51.7	103	80 - 120	1/7/02

CCV (1)

QCBatch: QC17449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	58.4	97	80 - 120	1/10/02
1,4-Dichlorobenzene		mg/L	60	61.28	102	80 - 120	1/10/02
2-Nitrophenol		mg/L	60	50.66	84	80 - 120	1/10/02
2,4-Dichlorophenol		mg/L	60	59.77	99	80 - 120	1/10/02
Hexachlorobutadiene		mg/L	60	67.23	112	80 - 120	1/10/02
4-Chloro-3-methylphenol		mg/L	60	57.54	95	80 - 120	1/10/02
2,4,6-Trichlorophenol		mg/L	60	63.18	105	80 - 120	1/10/02
Acenaphthene		mg/L	60	63.72	106	80 - 120	1/10/02
Diphenylamine		mg/L	60	60.31	100	80 - 120	1/10/02
Pentachlorophenol		mg/L	60	64.31	107	80 - 120	1/10/02
Fluoranthene		mg/L	60	63.95	106	80 - 120	1/10/02
Di-n-octylphthalate		mg/L	60	57.07	95	80 - 120	1/10/02
Benzo(a)pyrene		mg/L	60	53.49	89	80 - 120	1/10/02

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
2-Fluorophenol		mg/L	60	62.05	103	80 - 120	1/10/02
Phenol-d5		mg/L	60	59.75	99	80 - 120	1/10/02
Nitrobenzene-d5		mg/L	60	65.33	108	80 - 120	1/10/02
2-Fluorobiphenyl		mg/L	60	71.3	118	80 - 120	1/10/02
2,4,6-Tribromophenol		mg/L	60	66.34	110	80 - 120	1/10/02
Terphenyl-d14		mg/L	60	71.42	119	80 - 120	1/10/02

CCV (1)

QCBatch: QC17473

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00091	91	80 - 120	1/17/02

ICV (1)

QCBatch: QC17473

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00099	99	80 - 120	1/17/02

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Page_____of_____

501 Aberdeen Avenue, Ste. 9
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TraceAnalysis, Inc.

155 McCutcheon,Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # H02010402

Company Name: NAVASO Phone #:

Address: (Street, City, Zip) Fax #:

Contact Person: Darrell Moore

Invoice to: (If different from above)

Project #: Project Name: Inj. wells

Project Location: Artesia Sampler Signature:

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
188362	Inj. Wells	2	1L	X								X	X	1/3/02	900
	" "	1	500ml	X					X			X		1/3/02	900
	" "	2	40ml	X				X				X		1/3/02	900

ANALYSIS REQUEST columns: MTBE 8021B/602; BTEX 8021B/602; TPH 418.1/TX1005; PAH 8270C; Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7; TCLP Metals Ag As Ba Cd Cr Pb Se Hg; TCLP Volatiles; TCLP Semi Volatiles; TCLP Pesticides; RCI; GC/MS Vol. 8260B/624; GC/MS Semi. Vol. 8270C/625; PCB's 8082/608; Pesticides 8081A/608; BOD, TSS, pH; Turn Around Time if different from standard; Hold

See L-57

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	1/3/02	615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Beasley	1-4-01	10:00

LAB USE ONLY

Intact Y N

Headspace Y / N

Temp 1 °

Log-in Review MS

REMARKS:

1/3 1P

☐ Check If Special Reporting Limits Are Needed

Carrier # Fed Ex 346464224 44

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Received by OCD: 5/16/2022 2:12:41 PM

Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max. Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max. Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Oct-01	236	350	0	262	393	0	8982	13474	0	197	269	140	278,442
Nov-01	223	363	0	214	649	0	7337	22251	0	192	414	110	220,110
Dec-01	500	500	111	219	647	0	7508	22182	0	239	499	108	232,748

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max. Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max. Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Oct-01	71	299	0	45	647	0	1542	22182	0	161	466	22	47,802
Nov-01	93	336	0	52	647	0	1782	22182	0	146	448	15	53,460
Dec-01	462	500	44	155	647	0	5314	22182	0	225	339	160	164,734

REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

September 3, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 2nd quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from April 1, 2002 to June 30, 2002. We have disposed a total of 10,376,491 bbls. of fluid into the two wells as of December 31, 2001. This is broken down as follows: 7,902,016 bbls. into WDW-1 and 2,474,475 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: August 29, 2002

Order ID Number: A02071026

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
201170	Inj Wells	Water	7/9/02	9:00	7/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 20 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report

Sample: 201170 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC21973	Date Analyzed:	7/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20783	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		90	mg/L as CaCo3	1	1
Total Alkalinity		90	mg/L as CaCo3	1	1

Sample: 201170 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC21780	Date Analyzed:	7/11/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB20631	Date Prepared:	7/11/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5830	μMHOS/cm	1	

Sample: 201170 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC21915	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:		Prep Batch:	PB20741	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		0.4970 non-corrosive	mm/yr	1	
pH		7.57	s.u.	1	

Sample: 201170 - Inj Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC21917	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB20743	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Flashpoint		>140	F	1	

Sample: 201170 - Inj Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC22023	Date Analyzed:	7/19/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB20842	Date Prepared:	7/19/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 201170 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC21914	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:		Prep Batch:	PB20740	Date Prepared:	7/16/02

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Param	Flag	Result	Units	Dilution	RDL

Sample: 201170 - Inj Wells

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC21805 Date Analyzed: 7/10/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB20648 Date Prepared: 7/10/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		1090	mg/L	100	1
Nitrate-N		<0.2	mg/L	5	0.20
Sulfate		934	mg/L	100	1

Sample: 201170 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC21916 Date Analyzed: 7/16/02
Analyst: BC Preparation Method: Prep Batch: PB20742 Date Prepared: 7/16/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 201170 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC22163 Date Analyzed: 7/22/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB20704 Date Prepared: 7/15/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		170	mg/L	1	0.50
Dissolved Magnesium		31.7	mg/L	1	0.50
Dissolved Potassium		19.3	mg/L	1	0.50
Dissolved Sodium		691	mg/L	1	0.50

Sample: 201170 - Inj Wells

Analysis: Semivolatiles Analytical Method: S 8270C QC Batch: QC22072 Date Analyzed: 7/16/02
Analyst: RC Preparation Method: E 3510C Prep Batch: PB20791 Date Prepared: 7/15/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.017	mg/L	3.33	0.005
n-Nitrosodimethylamine		<0.017	mg/L	3.33	0.005
2-Picoline		<0.017	mg/L	3.33	0.005
Methyl methanesulfonate		<0.017	mg/L	3.33	0.005
Ethyl methanesulfonate		<0.017	mg/L	3.33	0.005
Phenol		<0.017	mg/L	3.33	0.005
Aniline		<0.017	mg/L	3.33	0.005
bis (2-chloroethyl) ether		<0.017	mg/L	3.33	0.005
2-Chlorophenol		<0.017	mg/L	3.33	0.005
1,3-Dichlorobenzene (meta)		<0.017	mg/L	3.33	0.005
1,4-Dichlorobenzene		<0.017	mg/L	3.33	0.005
Benzyl alcohol		<0.017	mg/L	3.33	0.005

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Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 201170 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
1,2-Dichlorobenzene		<0.017	mg/L	3.33	0.005
2-Methylphenol		<0.017	mg/L	3.33	0.005
bis (2-chloroisopropyl) ether		<0.017	mg/L	3.33	0.005
4-Methylphenol/3-Methylphenol		<0.017	mg/L	3.33	0.005
Acetophenone		<0.017	mg/L	3.33	0.005
n-Nitrosodi-n-propylamine		<0.017	mg/L	3.33	0.005
Hexachloroethane		<0.017	mg/L	3.33	0.005
Nitrobenzene		<0.017	mg/L	3.33	0.005
n-Nitrosopiperidine		<0.017	mg/L	3.33	0.005
Isophorone		<0.017	mg/L	3.33	0.005
2-Nitrophenol		<0.017	mg/L	3.33	0.005
2,4-Dimethylphenol		<0.017	mg/L	3.33	0.005
bis (2-chloroethoxy) methane		<0.017	mg/L	3.33	0.005
Benzoic acid		<0.017	mg/L	3.33	0.005
2,4-Dichlorophenol		<0.017	mg/L	3.33	0.005
1,2,4-Trichlorobenzene		<0.017	mg/L	3.33	0.005
a,a-Dimethylphenethylamine		<0.017	mg/L	3.33	0.005
Naphthalene		<0.017	mg/L	3.33	0.005
4-Chloroaniline		<0.017	mg/L	3.33	0.005
2,6-Dichlorophenol		<0.017	mg/L	3.33	0.005
Hexachlorobutadiene		<0.017	mg/L	3.33	0.005
n-Nitroso-di-n-butylamine		<0.017	mg/L	3.33	0.005
4-Chloro-3-methylphenol		<0.017	mg/L	3.33	0.005
1-Methylnaphthalene		<0.017	mg/L	3.33	0.005
2-Methylnaphthalene		<0.017	mg/L	3.33	0.005
1,2,4,5-Tetrachlorobenzene		<0.017	mg/L	3.33	0.005
Hexachlorocyclopentadiene		<0.017	mg/L	3.33	0.005
2,4,6-Trichlorophenol		<0.017	mg/L	3.33	0.005
2,4,5-Trichlorophenol		<0.017	mg/L	3.33	0.005
2-Chloronaphthalene		<0.017	mg/L	3.33	0.005
1-Chloronaphthalene		<0.017	mg/L	3.33	0.005
2-Nitroaniline		<0.017	mg/L	3.33	0.005
Dimethylphthalate		<0.017	mg/L	3.33	0.005
Acenaphthylene		<0.017	mg/L	3.33	0.005
2,6-Dinitrotoluene		<0.017	mg/L	3.33	0.005
3-Nitroaniline		<0.017	mg/L	3.33	0.005
Acenaphthene		<0.017	mg/L	3.33	0.005
2,4-Dinitrophenol		<0.017	mg/L	3.33	0.005
Dibenzofuran		<0.017	mg/L	3.33	0.005
Pentachlorobenzene		<0.017	mg/L	3.33	0.005
4-Nitrophenol		<0.017	mg/L	3.33	0.005
1-Naphthylamine		<0.017	mg/L	3.33	0.005
2,4-Dinitrotoluene		<0.017	mg/L	3.33	0.005
2-Naphthylamine		<0.017	mg/L	3.33	0.005
2,3,4,6-Tetrachlorophenol		<0.017	mg/L	3.33	0.005
Fluorene		<0.017	mg/L	3.33	0.005
Diethylphthalate		<0.017	mg/L	3.33	0.005
4-Chlorophenyl-phenylether		<0.017	mg/L	3.33	0.005
4-Nitroaniline		<0.017	mg/L	3.33	0.005
4,6-Dinitro-2-methylphenol		<0.017	mg/L	3.33	0.005
Diphenylamine		<0.017	mg/L	3.33	0.005
Diphenylhydrazine		<0.017	mg/L	3.33	0.005
4-Bromophenyl-phenylether		<0.017	mg/L	3.33	0.005

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 201170 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
Phenacetin		<0.017	mg/L	3.33	0.005
Hexachlorobenzene		<0.017	mg/L	3.33	0.005
4-Aminobiphenyl		<0.017	mg/L	3.33	0.005
Pentachlorophenol		<0.017	mg/L	3.33	0.005
Pentachloronitrobenzene		<0.017	mg/L	3.33	0.005
Pronamide		<0.017	mg/L	3.33	0.005
Phenanthrene		<0.017	mg/L	3.33	0.005
Anthracene		<0.017	mg/L	3.33	0.005
Di-n-butylphthalate		<0.017	mg/L	3.33	0.005
Fluoranthene		<0.017	mg/L	3.33	0.005
Benzidine		<0.017	mg/L	3.33	0.005
Pyrene		<0.017	mg/L	3.33	0.005
p-Dimethylaminoazobenzene		<0.017	mg/L	3.33	0.005
Butylbenzylphthalate		<0.017	mg/L	3.33	0.005
Benzo(a)anthracene		<0.017	mg/L	3.33	0.005
3,3-Dichlorobenzidine		<0.017	mg/L	3.33	0.005
Chrysene		<0.017	mg/L	3.33	0.005
Bis (2-ethylhexyl) phthalate		<0.017	mg/L	3.33	0.005
Di-n-octylphthalate		<0.017	mg/L	3.33	0.005
Benzo(b)fluoranthene		<0.017	mg/L	3.33	0.005
7,12-Dimethylbenz(a)anthracene		<0.017	mg/L	3.33	0.005
Benzo(k)fluoranthene		<0.017	mg/L	3.33	0.005
Benzo(a)pyrene		<0.017	mg/L	3.33	0.005
3-Methylcholanthrene		<0.017	mg/L	3.33	0.005
Dibenzo(a,j)acridine		<0.017	mg/L	3.33	0.005
Indeno(1,2,3-cd)pyrene		<0.017	mg/L	3.33	0.005
Dibenzo(a,h)anthracene		<0.017	mg/L	3.33	0.005
Benzo(g,h,i)perylene		<0.017	mg/L	3.33	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		26.51	mg/L	3.33	80	33	0 - 66
Phenol-d5		25.68	mg/L	3.33	80	32	0 - 70
Nitrobenzene-d5		63.42	mg/L	3.33	80	79	23 - 99
2-Fluorobiphenyl		52.98	mg/L	3.33	80	66	27 - 95
2,4,6-Tribromophenol		47.99	mg/L	3.33	80	59	0 - 199
Terphenyl-d14		57.69	mg/L	3.33	80	72	20 - 96

Sample: 201170 - Inj Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC21968	Date Analyzed:	7/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20788	Date Prepared:	7/15/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2920	mg/L	5	10

Sample: 201170 - Inj Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC21824	Date Analyzed:	7/12/02
Analyst:	RR	Preparation Method:	S 3010A	Prep Batch:	PB20632	Date Prepared:	7/11/02

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.347	mg/L	1	0.10
Total Arsenic		0.142	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.285	mg/L	10	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		4.08	mg/L	10	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.124	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.422	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.316	mg/L	1	0.02

Sample: 201170 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC22002	Date Analyzed:	7/17/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB20818	Date Prepared:	7/17/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 201170 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		51.6	µg/L	5	50	103	77 - 122
Toluene-d8		54.9	µg/L	5	50	109	96 - 111
4-Bromofluorobenzene		45.9	µg/L	5	50	91	87 - 113

[1] elevated reporting limits due to matrix problems.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 201170 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC21883	Date Analyzed:	7/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20720	Date Prepared:	7/10/02

Param	Flag	Result	Units	Dilution	RDL
pH		7.2	s.u.	1	1

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Method Blank

QCBatch: QC21780

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		3.32	µMHOS/cm	

Method Blank

QCBatch: QC21805

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank

QCBatch: QC21824

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.10
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		<0.0125	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank

QCBatch: QC21968

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Method Blank

QCBatch: QC21973

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank

QCBatch: QC22002

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1

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Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Results	Units	Reporting Limit
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.7	µg/L	1	50	101	77 - 122
Toluene-d8		54.7	µg/L	1	50	109	96 - 111
4-Bromofluorobenzene		43.4	µg/L	1	50	86	87 - 113

Method Blank

QCBatch: QC22023

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank

QCBatch: QC22072

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Results	Units	Reporting Limit
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		26.07	mg/L	1	80	32	0 - 66
Phenol-d5		25.47	mg/L	1	80	31	0 - 70
Nitrobenzene-d5		67.96	mg/L	1	80	84	23 - 99
2-Fluorobiphenyl		65.91	mg/L	1	80	82	27 - 95
2,4,6-Tribromophenol		38.44	mg/L	1	80	48	0 - 199
Terphenyl-d14		74.16	mg/L	1	80	92	20 - 96

Method Blank QCBatch: QC22163

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC21780

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		5830	5830	µMHOS/cm	1	0	20

Duplicate QCBatch: QC21883

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		9.2	9.2	s.u.	1	0	0

Duplicate QCBatch: QC21915

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		0.7441 non-corrosive	0.4970 non-corrosive	mm/yr	1	39	20
pH		7.57	7.57	s.u.	1	0	0

Duplicate QCBatch: QC21916

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Reactivity		non-reactive	Non-reactive		1	0	20

Duplicate QCBatch: QC21917

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Flashpoint		>140	>140	F	1	0	20

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Duplicate QCBatch: QC21968

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		3230	2920	mg/L	1	10	9.7

Duplicate QCBatch: QC21973

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		212	208	mg/L as CaCo3	1	1	9.2
Total Alkalinity		212	208	mg/L as CaCo3	1	1	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC21805

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.78	11.16	mg/L	1	12.50	<1.0	94	5	90 - 110	20
Nitrate-N	2.33	2.34	mg/L	1	2.50	<0.2	93	0	90 - 110	20
Sulfate	11.6	11.57	mg/L	1	12.50	<1.0	92	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes QCBatch: QC22002

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	110	111	µg/L	1	100	<1.00	110	0	84 - 124	20
Benzene	100	101	µg/L	1	100	<1.00	100	0	87 - 112	20
Trichloroethene (TCE)	91	92	µg/L	1	100	<1.00	91	1	81 - 105	20
Toluene	98	98	µg/L	1	100	<1.00	98	0	90 - 108	20
Chlorobenzene	98	97	µg/L	1	100	<1.00	98	1	84 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	50.4	50.0	µg/L	1	50	100	100	77 - 122
Toluene-d8	53.3	52.4	µg/L	1	50	106	104	96 - 111
4-Bromofluorobenzene	46.3	44.6	µg/L	1	50	92	89	87 - 113

Laboratory Control Spikes QCBatch: QC22023

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00116	0.00115	mg/L	1	0.001	<0.0002	116	0	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC22072

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	33.00	30.27	mg/L	1	80	<0.005	41	8	0 - 81	20
2-Chlorophenol	62.6	59.26	mg/L	1	80	<0.005	78	5	12 - 83	20
1,4-Dichlorobenzene	72.36	66.83	mg/L	1	80	<0.005	90	7	13 - 88	20
n-Nitrosodi-n-propylamine	76.72	72.71	mg/L	1	80	<0.005	95	5	9 - 101	20
1,2,4-Trichlorobenzene	69.72	67.82	mg/L	1	80	<0.005	87	2	21 - 87	20
4-Chloro-3-methylphenol	62.44	63.16	mg/L	1	80	<0.005	78	1	14 - 92	20
Acenaphthene	66.04	63.46	mg/L	1	80	<0.005	82	3	26 - 86	20
4-Nitrophenol	23.40	27.78	mg/L	1	80	<0.005	29	17	0 - 104	20
2,4-Dinitrotoluene	73.07	79.28	mg/L	1	80	<0.005	91	8	29 - 94	20
Pentachlorophenol	[2] 43.16	54.00	mg/L	1	80	<0.005	53	22	1 - 97	20
Pyrene	73.53	66.03	mg/L	1	80	<0.005	91	10	25 - 90	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	41.00	39.53	mg/L	1	80	51	49	0 - 66
Phenol-d5	27.97	26.74	mg/L	1	80	34	33	0 - 70
Nitrobenzene-d5	59.2	58.00	mg/L	1	80	74	72	23 - 99
2-Fluorobiphenyl	57.39	54.89	mg/L	1	80	71	68	27 - 95
2,4,6-Tribromophenol	53.32	58.67	mg/L	1	80	66	73	0 - 199
Terphenyl-d14	64.51	59.09	mg/L	1	80	80	73	20 - 96

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC21805

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	2210	2200	mg/L	1	1250		89	0	48 - 127	20
Chloride	2210	2200	mg/L	1	1250	1090	89	0	48 - 127	20
Nitrate-N	243	235	mg/L	1	250		97	3	87 - 100	20
Nitrate-N	243	235	mg/L	1	250	<0.2	97	3	87 - 100	20
Sulfate	2090	2090	mg/L	1	1250		92	0	59 - 121	20
Sulfate	2090	2090	mg/L	1	1250	934	92	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[2]Irradic recovery of penta chlorophenol other analytes show process is in control.

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Matrix Spikes

QCBatch: QC22023

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00104	0.00105	mg/L	1	0.001	<0.0002	104	0	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC21780

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1385	98	90 - 110	7/11/02

ICV (1)

QCBatch: QC21780

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1400	99	90 - 110	7/11/02

CCV (1)

QCBatch: QC21805

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.74	93	90 - 110	7/10/02
Nitrate-N		mg/L	2.50	2.33	93	90 - 110	7/10/02
Sulfate		mg/L	12.50	11.49	91	90 - 110	7/10/02

ICV (1)

QCBatch: QC21805

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.89	95	90 - 110	7/10/02
Nitrate-N		mg/L	2.50	2.34	93	90 - 110	7/10/02
Sulfate		mg/L	12.50	11.69	93	90 - 110	7/10/02

CCV (1) QCBatch: QC21824

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	0.25	0.246	98	90 - 110	7/12/02
Total Zinc		mg/L	0.50	0.498	99	90 - 110	7/12/02

ICV (1) QCBatch: QC21824

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	0.25	0.248	99	95 - 105	7/12/02
Total Zinc		mg/L	0.50	0.500	100	95 - 105	7/12/02

CCV (1) QCBatch: QC21883

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	7/10/02

ICV (1) QCBatch: QC21883

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	7/10/02

CCV (1) QCBatch: QC21968

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	965	96	90 - 110	7/16/02

ICV (1) QCBatch: QC21968

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1029	102	90 - 110	7/16/02

CCV (1) QCBatch: QC21973

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	7/16/02
Carbonate Alkalinity		mg/L as CaCo3	0	228	0	90 - 110	7/16/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	8	0	90 - 110	7/16/02
Total Alkalinity		mg/L as CaCo3	250	236	94	90 - 110	7/16/02

ICV (1) QCBatch: QC21973

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	7/16/02
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	90 - 110	7/16/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	7/16/02
Total Alkalinity		mg/L as CaCo3	250	238	95	90 - 110	7/16/02

CCV (1) QCBatch: QC22002

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	51	102	80 - 120	7/17/02
1,1-Dichloroethene		µg/L	50	50	100	80 - 120	7/17/02
Chloroform		µg/L	50	50	100	80 - 120	7/17/02
1,2-Dichloropropane		µg/L	50	52	104	80 - 120	7/17/02
Toluene		µg/L	50	50	100	80 - 120	7/17/02
Chlorobenzene		µg/L	50	50	100	80 - 120	7/17/02
Ethylbenzene		µg/L	50	51	102	80 - 120	7/17/02
Dibromofluoromethane		µg/L	50	49.9	99	80 - 120	7/17/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	7/17/02
4-Bromofluorobenzene		µg/L	50	50.9	101	80 - 120	7/17/02

CCV (1) QCBatch: QC22023

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00105	105	80 - 120	7/19/02

ICV (1) QCBatch: QC22023

Report Date: August 29, 2002 Order Number: A02071026 Page Number: 20 of 20
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00095	95	80 - 120	7/19/02

CCV (1) QCBatch: QC22072

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	58.5	97	80 - 120	7/16/02
1,4-Dichlorobenzene		mg/L	60	59.73	99	80 - 120	7/16/02
2-Nitrophenol		mg/L	60	62.14	103	80 - 120	7/16/02
2,4-Dichlorophenol		mg/L	60	61.05	101	80 - 120	7/16/02
Hexachlorobutadiene		mg/L	60	60.03	100	80 - 120	7/16/02
4-Chloro-3-methylphenol		mg/L	60	60.24	100	80 - 120	7/16/02
2,4,6-Trichlorophenol		mg/L	60	57.57	95	80 - 120	7/16/02
Acenaphthene		mg/L	60	59.24	98	80 - 120	7/16/02
Diphenylamine		mg/L	60	60.37	100	80 - 120	7/16/02
Pentachlorophenol		mg/L	60	51.44	85	80 - 120	7/16/02
Fluoranthene		mg/L	60	60.02	100	80 - 120	7/16/02
Di-n-octylphthalate		mg/L	60	60.12	100	80 - 120	7/16/02
Benzo(a)pyrene		mg/L	60	59.34	98	80 - 120	7/16/02
2-Fluorophenol		mg/L	60	58.33	97	80 - 120	7/16/02
Phenol-d5		mg/L	60	57.94	96	80 - 120	7/16/02
Nitrobenzene-d5		mg/L	60	60.01	100	80 - 120	7/16/02
2-Fluorobiphenyl		mg/L	60	59.77	99	80 - 120	7/16/02
2,4,6-Tribromophenol		mg/L	60	58.63	97	80 - 120	7/16/02
Terphenyl-d14		mg/L	60	58.81	98	80 - 120	7/16/02

CCV (1) QCBatch: QC22163

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	26.0	104	90 - 110	7/22/02
Dissolved Magnesium		mg/L	25	25.6	102	90 - 110	7/22/02
Dissolved Potassium		mg/L	25	24.0	96	90 - 110	7/22/02
Dissolved Sodium		mg/L	25	25.5	102	90 - 110	7/22/02

ICV (1) QCBatch: QC22163

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	26.0	104	95 - 105	7/22/02
Dissolved Magnesium		mg/L	25	25.7	102	95 - 105	7/22/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	7/22/02
Dissolved Sodium		mg/L	25	26.2	104	95 - 105	7/22/02

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P.O. BOX 159
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(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

OIL CONSERVATION DIV.
01 JUL 27 PM 1:26

July 3, 2001

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2000 to March 30, 2001. Due to an oversight on our part, quarterly samples for the 4th quarter of 2000 were not collected. Samples for the 2nd quarter of 2001 have been collected and those results will be forwarded as soon as we receive them.

We have disposed a total of 6,619,428 bbls. of fluid down the two wells as of March 31, 2001. This is broken down as follows: 5,145,012 bbls. down WDW-1 and 1,474,416 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 1 of 5
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: June 29, 2001

Order ID Number: A01040410

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
168299	Injection Wells	Water	4/3/01	10:10	4/4/01

This report consists of a total of 5 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 168299 - Injection Wells

Param	Flag	Result	Units
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<5.00	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone	1	74.3	µg/L
Iodomethane (methyl iodide)		<5.00	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L

Continued on next page . . .

[1]estimated concentration, RSD value above 15% on initial calibration

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 2 of 5
N/A Injection Wells N/A

Sample 168299 continued . . .

Param	Flag	Result	Units
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroethene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortho)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L

Continued on next page . . .

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 3 of 5
N/A Injection Wells N/A

Sample 168299 continued ...

Param	Flag	Result	Units
bis (2-chloroisopropyl) ether		<0.005	mg/L
4 Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di n butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L

Continued on next page

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Sample 168299 continued ...

Param	Flag	Result	Units
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		514	mg/L as CaCo3
Total Alkalinity		514	mg/L as CaCo3
Specific Conductance		7300	µMHOS/cm
Corrosivity		0.4327	mm/yr
pH		8.63	s.u.
Total Mercury		<0.0002	mg/L
Ignitability		non-ignitable	
CL		1700	mg/L
Fluoride		76	mg/L
Nitrate-N	2	<1.0	mg/L
Sulfate		460	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	
Hydrogen Cyanide		<2.5	
Dissolved Calcium		110	mg/L
Dissolved Magnesium		32	mg/L
Dissolved Potassium		28	mg/L
Dissolved Sodium		1100	mg/L
Total Dissolved Solids		3800	mg/L
Total Aluminum		0.23	mg/L
Total Arsenic		0.309	mg/L
Total Barium		<0.1	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.512	mg/L

Continued on next page ...

[2]Sample re-ran out of hold time for NO3.

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Report Date: June 29, 2001 Order Number: A01040410 Page Number: 5 of 5
N/A Injection Wells N/A

Sample 168299 continued . . .

Param	Flag	Result	Units
Total Cadmium		<0.025	mg/L
Total Chromium		0.0106	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		0.0144	mg/L
Total Iron		3.14	mg/L
Total Lead		<0.01	mg/L
Total Manganese		0.108	mg/L
Total Molybdenum		<0.05	mg/L
Total Nickel		<0.25	mg/L
Total Selenium		0.552	mg/L
Total Silver		<0.125	mg/L
Total Uranium		0.0502	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.118	mg/L
pH	3	8.3	s.u.

[3]Sample run out of holding time

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutchen Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: NAVAJO Refining — Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E. Main — Fax #: 505 746 5421
Contact Person: Darrell Moore
Invoice to: (if different from above)
Project #: — Project Name: Injection wells
Project Location: Artesia — Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
16129	Injection wells	2	40ml	X				X				X		4/5/01	1040
	" "	2	1L	X								X	X	4/5/01	1050
	" "	1	200ml	X					X			X		4/5/01	1010

MTBE 8021B/602	8015 mod. DRO/ORO	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg combined for 6000.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH				Turn Around Time if different from standard	Hold

See Lab

Relinquished by: Date: 4/5/01 Time: 16:15 — Received by: Date: Time:
Relinquished by: Date: Time: — Received by: Date: Time:
Relinquished by: Date: Time: — Received by: Date: Time:

LAB USE ONLY
Received on Ice: Y / N
Temperature: 4 °C

REMARKS:

☐ Check if Special Reporting Limits Are Needed

Carrier # Fed Ex 917-7348-474

Submittal of sample constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Page 3600 of 5828

Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Jan 2001	197	305	86	230	317	84	7885.71	10868.57	2880.00	226	299	146	236,571
Feb 2001	227	297	142	261	293	208	8948.57	10045.71	7131.43	208	297	161	268,457
March 2001	210	292	104	243	290	192	8331.43	9942.86	6582.86	212	309	153	249,943

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Jan 2001	251	251	0	92	144	0	3154.286	4937.143	0	131	164	121	94,629
Feb 2001	118	175	0	47	176	0	1611.429	6034.286	0	152	177	129	48,343
March 2001	116	160	0	23	171	0	788.5714	5862.857	0	163	220	141	23,657

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Page 3601 of 5828

Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
April 2001	258	318	63	237	272	145	8125.71	9325.71	4971.43	258	324	169	243,771
May 2001	245	304	114	199	251	100	6822.86	8605.71	3428.57	245	308	164	204,686
June 2001	243	308	104	162	223	119	5554.29	7645.71	4080.00	245	302	182	166,629

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
April 2001	83	127	0	17	138	0	582.8571	4731.429	0	145	167	126	17,486
May 2001	115	249	0	115	184	0	3942.857	6308.571	0	185	325	72	118,286
June 2001	142	258	37	142	168	35	4868.571	5760	1200	163	262	91	146,057

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TELEPHONE
(505) 748-3311

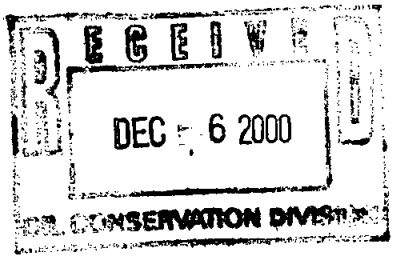
EASYLINK
62905278

NAVAJO REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

December 4, 2000



Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2000 to September 30, 2000. We have disposed a total of 4,464,244 bbls. of fluid down the two wells. This is broken down as follows: 3,620,341 bbls. down WDW-1 and 843,903 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Page 3603 of 5828

Qrtly Injection Press

Navajo R

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthl Min. Flo Rate (gp
July 2000	210	289	-12.1	201	480	10.1
August 2000	276	397	-12.4	210	261	12.1
September 2000	314	380	-12.3	221	265	11.6

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthl Min. Flo Rate (gp
July 2000	215	281	-14.6	156	203	0
August 2000	272	367	-15.4	188	209	100
September 2000	192	358	-15.4	159	202	110

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TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 24, 2000

Order ID Number: A00100302

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
154738	Injection Wells	Water	10/2/00	9:30	10/3/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 25 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Received by OCD: 5/16/2022 2:12:41 PM

Analytical and Quality Control Report

Sample: 154738 - Injection Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC05404	Date Analyzed:	10/6/00
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB04714	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<10.0	µg/L	5	1
Dichlorodifluoromethane		<10.0	µg/L	5	1
Chloromethane (methyl chloride)		<10.0	µg/L	5	1
Vinyl Chloride		<10.0	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	1
Chloroethane		<10.0	µg/L	5	1
Trichlorofluoromethane		<10.0	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<10.0	µg/L	5	1
Carbon Disulfide		<10.0	µg/L	5	1
Acrylonitrile		<25.0	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<10.0	µg/L	5	5
1,1-Dichloroethene		<10.0	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<10.0	µg/L	5	1
trans-1,2-Dichloroethene		<10.0	µg/L	5	1
1,1-Dichloroethane		<10.0	µg/L	5	1
cis-1,2-dichloroethene		<10.0	µg/L	5	1
2,2-Dichloropropane		<10.0	µg/L	5	1
1,2-Dichloroethane (EDC)		<10.0	µg/L	5	1
Chloroform		<10.0	µg/L	5	1
1,1,1-Trichloroethane		<10.0	µg/L	5	1
1,1-Dichloropropene		<10.0	µg/L	5	1
Benzene		<10.0	µg/L	5	1
Carbon Tetrachloride		<10.0	µg/L	5	1
1,2-Dichloropropane		<10.0	µg/L	5	1
Trichloroethene (TCE)		<10.0	µg/L	5	1
Dibromomethane (methylene bromide)		<10.0	µg/L	5	1
Bromodichloromethane		<10.0	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<10.0	µg/L	5	1
trans-1,3-Dichloropropene		<10.0	µg/L	5	1
Toluene		<10.0	µg/L	5	1
1,1,2-Trichloroethane		<10.0	µg/L	5	1
1,3-Dichloropropane		<10.0	µg/L	5	1
Dibromochloromethane		<10.0	µg/L	5	1
1,2-Dibromoethane (EDB)		<10.0	µg/L	5	1
Tetrachloroethene (PCE)		<10.0	µg/L	5	1
Chlorobenzene		<10.0	µg/L	5	1
1,1,1,2-Tetrachloroethane		<10.0	µg/L	5	1
Ethylbenzene		<10.0	µg/L	5	1
m,p-Xylene		<10.0	µg/L	5	1
Bromoform		<10.0	µg/L	5	1

Continued ...

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... *Continued* Sample: 154738 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
Styrene		<10.0	µg/L	5	1
o-Xylene		<10.0	µg/L	5	1
1,1,2,2-Tetrachloroethane		<10.0	µg/L	5	1
2-Chlorotoluene		<10.0	µg/L	5	1
1,2,3-Trichloropropane		<10.0	µg/L	5	1
Isopropylbenzene		<10.0	µg/L	5	1
Bromobenzene		<10.0	µg/L	5	1
n-Propylbenzene		<10.0	µg/L	5	1
1,3,5-Trimethylbenzene		<10.0	µg/L	5	1
tert-Butylbenzene		<10.0	µg/L	5	1
1,2,4-Trimethylbenzene		<10.0	µg/L	5	1
1,4-Dichlorobenzene (para)		<10.0	µg/L	5	1
sec-Butylbenzene		<10.0	µg/L	5	1
1,3-Dichlorobenzene		<10.0	µg/L	5	1
p-Isopropyltoluene		<10.0	µg/L	5	1
4-Chlorotoluene		<10.0	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<10.0	µg/L	5	1
n-Butylbenzene		<10.0	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		15.8	µg/L	5	1
Hexachlorobutadiene		<25.0	µg/L	5	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.88	µg/L	1	50	101	85 - 117
Toluene-d8		51.11	µg/L	1	50	102	93 - 109
4-Bromofluorobenzene		46.96	µg/L	1	50	93	76 - 109

Sample: 154738 - Injection Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC05390	Date Analyzed:	10/5/00
Analyst:	MA	Preparation Method:	E 3510C	Prep Batch:	PB04703	Date Prepared:	10/3/00

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 154738 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		0.015	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

... *Continued* Sample: 154738 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		23.99	mg/L	1	80	29	8 - 73
Phenol-d5		17.95	mg/L	1	80	22	8 - 62
Nitrobenzene-d5		49.72	mg/L	1	80	62	44 - 109
2-Fluorobiphenyl		51.99	mg/L	1	80	64	45 - 109
2,4,6-Tribromophenol		53.92	mg/L	1	80	67	39 - 132
Terphenyl-d14		38.24	mg/L	1	80	47	46 - 121

Sample: 154738 - Injection Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC05424	Date Analyzed:	10/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04729	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		156	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		516	mg/L as CaCo3	1	1
Total Alkalinity		672	mg/L as CaCo3	1	1

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 154738 - Injection Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC05428	Date Analyzed:	10/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04725	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		6500	uMHOS/cm	1	

Sample: 154738 - Injection Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC05800	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:		Prep Batch:	PB05078	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		0.053	mm/yr	1	
pH		8.60	s.u.	1	

Sample: 154738 - Injection Wells

Analysis:	Dissolved Metals	Analytical Method:	E 200.7	QC Batch:	QC05813	Date Analyzed:	10/4/00
Analyst:	RR	Preparation Method:		Prep Batch:	PB05088	Date Prepared:	10/4/00

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		70	mg/L	1	0.50
Dissolved Magnesium		40	mg/L	1	0.50
Dissolved Potassium		6.7	mg/L	1	0.50
Dissolved Sodium		920	mg/L	1	0.50

Sample: 154738 - Injection Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC05801	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:	N/A	Prep Batch:	PB05081	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Flashpoint		>150	F	1	

Sample: 154738 - Injection Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC05733	Date Analyzed:	10/13/00
Analyst:	MHS	Preparation Method:	N/A	Prep Batch:	PB05017	Date Prepared:	10/10/00

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 154738 - Injection Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC05435	Date Analyzed:	10/5/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB04738	Date Prepared:	10/5/00

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Result	Units	Dilution	RDL
CL		940	mg/L	1	0.50
Sulfate		890	mg/L	1	0.50

Sample: 154738 - Injection Wells

Analysis:	Reactivity	Analytical Method:	S 7.3	QC Batch:	QC05799	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:		Prep Batch:	PB05087	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10		1	
Hydrogen Cyanide		<2.5		1	

Sample: 154738 - Injection Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC05422	Date Analyzed:	10/5/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04731	Date Prepared:	10/4/00

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2700	mg/L	1	10

Sample: 154738 - Injection Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC05814	Date Analyzed:	10/7/00
Analyst:	RR	Preparation Method:	E 3010A	Prep Batch:	PB05089	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.44	mg/L	1	0.20
Total Arsenic		0.27	mg/L	1	0.01
Total Barium		<0.01	mg/L	1	0.01
Total Beryllium		<0.01	mg/L	1	0.01
Total Boron		0.56	mg/L	1	0.20
Total Cadmium		<0.01	mg/L	1	0.01
Total Chromium		<0.01	mg/L	1	0.01
Total Cobalt		<0.01	mg/L	1	0.01
Total Copper		0.08	mg/L	1	0.01
Total Iron		1.3	mg/L	1	0.01
Total Lead		<0.01	mg/L	1	0.01
Total Manganese		0.15	mg/L	1	0.01
Total Molybdenum		<0.01	mg/L	1	0.01
Total Nickel		<0.01	mg/L	1	0.01
Total Selenium		0.44	mg/L	1	0.01
Total Silver		<0.01	mg/L	1	0.01
Total Uranium		<0.50	mg/L	1	0.50
Total Vanadium		<0.01	mg/L	1	0.01
Total Zinc		0.02	mg/L	1	0.01

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 154738 - Injection Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC05449	Date Analyzed:	10/3/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04752	Date Prepared:	10/3/00

Param	Flag	Result	Units	Dilution	RDL
pH	[1]	8.7	s.u.	1	1

Quality Control Report
Method Blank

Sample: Method Blank QCBatch: QC05390

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005

Continued ...

[1] Sample was run out of holding time, but was tested the day it was received.

Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Results	Units	Reporting Limit
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005

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Param	Flag	Results	Units	Reporting Limit
Bis (2-ethylhexyl) phthalate		0.029	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorophenol		31.70	mg/L	80	39	8 - 73
Phenol-d5		21.81	mg/L	80	27	8 - 62
Nitrobenzene-d5		64.33	mg/L	80	80	44 - 109
2-Fluorobiphenyl		60.92	mg/L	80	76	45 - 109
2,4,6-Tribromophenol		68.44	mg/L	80	85	39 - 132
Terphenyl-d14		82.55	mg/L	80	103	46 - 121

Sample: Method Blank

QCBatch: QC05404

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<2.00	µg/L	1
Dichlorodifluoromethane		<2.00	µg/L	1
Chloromethane (methyl chloride)		<2.00	µg/L	1
Vinyl Chloride		<2.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	1
Chloroethane		<2.00	µg/L	1
Trichlorofluoromethane		<2.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<2.00	µg/L	1
Carbon Disulfide		<2.00	µg/L	1
Acrylonitrile		<5.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<2.00	µg/L	5
1,1-Dichloroethene		<2.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<2.00	µg/L	1
trans-1,2-Dichloroethene		<2.00	µg/L	1
1,1-Dichloroethane		<2.00	µg/L	1
cis-1,2-dichloroethene		<2.00	µg/L	1
2,2-Dichloropropane		<2.00	µg/L	1
1,2-Dichloroethane (EDC)		<2.00	µg/L	1

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
Chloroform		<2.00	µg/L	1
1,1,1-Trichloroethane		<2.00	µg/L	1
1,1-Dichloropropene		<2.00	µg/L	1
Benzene		<2.00	µg/L	1
Carbon Tetrachloride		<2.00	µg/L	1
1,2-Dichloropropane		<2.00	µg/L	1
Trichloroethene (TCE)		<2.00	µg/L	1
Dibromomethane (methylene bromide)		<2.00	µg/L	1
Bromodichloromethane		<2.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<2.00	µg/L	1
trans-1,3-Dichloropropene		<2.00	µg/L	1
Toluene		<2.00	µg/L	1
1,1,2-Trichloroethane		<2.00	µg/L	1
1,3-Dichloropropane		<2.00	µg/L	1
Dibromochloromethane		<2.00	µg/L	1
1,2-Dibromoethane (EDB)		<2.00	µg/L	1
Tetrachloroethene (PCE)		<2.00	µg/L	1
Chlorobenzene		<2.00	µg/L	1
1,1,1,2-Tetrachloroethane		<2.00	µg/L	1
Ethylbenzene		<2.00	µg/L	1
m,p-Xylene		<2.00	µg/L	1
Bromoform		<2.00	µg/L	1
Styrene		<2.00	µg/L	1
o-Xylene		<2.00	µg/L	1
1,1,2,2-Tetrachloroethane		<2.00	µg/L	1
2-Chlorotoluene		<2.00	µg/L	1
1,2,3-Trichloropropane		<2.00	µg/L	1
Isopropylbenzene		<2.00	µg/L	1
Bromobenzene		<2.00	µg/L	1
n-Propylbenzene		<2.00	µg/L	1
1,3,5-Trimethylbenzene		<2.00	µg/L	1
tert-Butylbenzene		<2.00	µg/L	1
1,2,4-Trimethylbenzene		<2.00	µg/L	1
1,4-Dichlorobenzene (para)		<2.00	µg/L	1
sec-Butylbenzene		<2.00	µg/L	1
1,3-Dichlorobenzene		<2.00	µg/L	1
p-Isopropyltoluene		<2.00	µg/L	1
4-Chlorotoluene		<2.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<2.00	µg/L	1
n-Butylbenzene		<2.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<2.00	µg/L	1
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Dibromofluoromethane		50.44	µg/L	50	100	85 - 117

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Toluene-d8		50.69	µg/L	50	101	93 - 109
4-Bromofluorobenzene		47.32	µg/L	50	94	76 - 109

Sample: Method Blank QCBatch: QC05422

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Sample: Method Blank QCBatch: QC05424

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Sample: Method Blank QCBatch: QC05428

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		6.2	uMHOS/cm	

Sample: Method Blank QCBatch: QC05435

Param	Flag	Results	Units	Reporting Limit
CL		<0.5	mg/L	0.50
Sulfate		<0.5	mg/L	0.50

Sample: Method Blank QCBatch: QC05733

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Sample: Method Blank QCBatch: QC05813

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.50	mg/L	0.50
Dissolved Magnesium		<0.50	mg/L	0.50
Dissolved Potassium		<0.50	mg/L	0.50
Dissolved Sodium		<0.50	mg/L	0.50

Sample: Method Blank QCBatch: QC05814

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.20	mg/L	0.20
Total Arsenic		<0.01	mg/L	0.01
Total Barium		<0.01	mg/L	0.01
Total Beryllium		<0.01	mg/L	0.01
Total Boron		<0.20	mg/L	0.20
Total Cadmium		<0.01	mg/L	0.01
Total Chromium		<0.01	mg/L	0.01
Total Cobalt		<0.01	mg/L	0.01
Total Copper		<0.01	mg/L	0.01
Total Iron		<0.01	mg/L	0.01
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.01	mg/L	0.01
Total Molybdenum		<0.01	mg/L	0.01
Total Nickel		<0.01	mg/L	0.01
Total Selenium		<0.01	mg/L	0.01
Total Silver		<0.01	mg/L	0.01
Total Uranium		<0.50	mg/L	0.50
Total Vanadium		<0.01	mg/L	0.01
Total Zinc		<0.01	mg/L	0.01

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Sample: LCS QC Batch: QC05390

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		20.905	mg/L	1	80	<0.005	26		5 - 57	20
2-Chlorophenol		48.293	mg/L	1	80	<0.005	60		29 - 110	20
1,4-Dichlorobenzene		55.729	mg/L	1	80	<0.005	69		25 - 94	20
n-Nitrosodi-n-propylamine		72.637	mg/L	1	80	<0.005	90		36 - 119	20
1,2,4-Trichlorobenzene		61.425	mg/L	1	80	<0.005	76		28 - 110	20
4-Chloro-3-methylphenol		55.224	mg/L	1	80	<0.005	69		40 - 126	20
Acenaphthene		64.238	mg/L	1	80	<0.005	80		47 - 118	20
4-Nitrophenol		20.895	mg/L	1	80	<0.005	26		0 - 69	20

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
2,4-Dinitrotoluene		84.211	mg/L	1	80	<0.005	105		46 - 133	20
Pentachlorophenol		52.617	mg/L	1	80	<0.005	65		21 - 131	20
Pyrene		73.392	mg/L	1	80	<0.005	91		44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		33.96	mg/L	1	80	42	8 - 73
Phenol-d5		22.60	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		68.20	mg/L	1	80	85	44 - 109
2-Fluorobiphenyl		69.55	mg/L	1	80	86	45 - 109
2,4,6-Tribromophenol		75.50	mg/L	1	80	94	39 - 132
Terphenyl-d14		78.63	mg/L	1	80	98	46 - 121

Sample: LCSD

QC Batch: QC05390

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		20.796	mg/L	1	80	<0.005	25	0	5 - 57	20
2-Chlorophenol		48.069	mg/L	1	80	<0.005	60	0	29 - 110	20
1,4-Dichlorobenzene		56.142	mg/L	1	80	<0.005	70	1	25 - 94	20
n-Nitrosodi-n-propylamine		74.847	mg/L	1	80	<0.005	93	3	36 - 119	20
1,2,4-Trichlorobenzene		61.727	mg/L	1	80	<0.005	77	0	28 - 110	20
4-Chloro-3-methylphenol		55.437	mg/L	1	80	<0.005	69	0	40 - 126	20
Acenaphthene		64.974	mg/L	1	80	<0.005	81	1	47 - 118	20
4-Nitrophenol		19.242	mg/L	1	80	<0.005	24	8	0 - 69	20
2,4-Dinitrotoluene		85.367	mg/L	1	80	<0.005	106	1	46 - 133	20
Pentachlorophenol		52.533	mg/L	1	80	<0.005	65	0	21 - 131	20
Pyrene		74.244	mg/L	1	80	<0.005	92	1	44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		33.33	mg/L	1	80	41	8 - 73
Phenol-d5		22.45	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		68.50	mg/L	1	80	85	44 - 109
2-Fluorobiphenyl		69.49	mg/L	1	80	86	45 - 109
2,4,6-Tribromophenol		77.03	mg/L	1	80	96	39 - 132
Terphenyl-d14		79.52	mg/L	1	80	99	46 - 121

Sample: LCS

QC Batch: QC05404

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		126	µg/L	1	100	<2.00	126		65 - 147	20
Benzene		114	µg/L	1	100	<2.00	114		79 - 124	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103		80 - 119	20
Toluene		111	µg/L	1	100	<2.00	111		78 - 118	20
Chlorobenzene		110	µg/L	1	100	<2.00	110		85 - 118	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		50.59	µg/L	1	50	101	85 - 117
Toluene-d8		49.17	µg/L	1	50	98	93 - 109
4-Bromofluorobenzene		47.76	µg/L	1	50	95	76 - 109

Sample: LCSD

QC Batch: QC05404

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		125	µg/L	1	100	<2.00	125	1	65 - 147	20
Benzene		114	µg/L	1	100	<2.00	114	0	79 - 124	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103	0	80 - 119	20
Toluene		111	µg/L	1	100	<2.00	111	0	78 - 118	20
Chlorobenzene		110	µg/L	1	100	<2.00	110	0	85 - 118	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		51.04	µg/L	1	50	102	85 - 117
Toluene-d8		50.26	µg/L	1	50	100	93 - 109
4-Bromofluorobenzene		46.44	µg/L	1	50	92	76 - 109

Sample: LCS

QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00101	mg/L	1	0.001	<0.0002	101		80 - 120	20

Sample: LCSD

QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00114	mg/L	1	0.001	<0.0002	114	12	80 - 120	20

Received by OCD: 5/16/2022 2:12:41 PM

Sample: LCS QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		979	mg/L	1	1000	<0.50	97		75 - 125	20
Dissolved Magnesium		944	mg/L	1	1000	<0.50	94		75 - 125	20
Dissolved Potassium		1067	mg/L	1	1000	<0.50	106		75 - 125	20
Dissolved Sodium		1061	mg/L	1	1000	<0.50	106		75 - 125	20

Sample: LCSD QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1011	mg/L	1	1000	<0.50	101	3	75 - 125	20
Dissolved Magnesium		982	mg/L	1	1000	<0.50	98	4	75 - 125	20
Dissolved Potassium		1104	mg/L	1	1000	<0.50	110	3	75 - 125	20
Dissolved Sodium		1085	mg/L	1	1000	<0.50	108	2	75 - 125	20

Sample: LCS QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.16	mg/L	1	2	<0.20	108		75 - 125	20
Total Arsenic		1.00	mg/L	1	1	<0.01	100		75 - 125	20
Total Barium		2.12	mg/L	1	2	<0.01	106		75 - 125	20
Total Beryllium		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Boron		1.09	mg/L	1	1	<0.20	109		75 - 125	20
Total Cadmium		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Chromium		0.43	mg/L	1	0.40	<0.01	107		75 - 125	20
Total Cobalt		1.05	mg/L	1	1	<0.01	105		75 - 125	20
Total Copper		0.41	mg/L	1	0.40	<0.01	102		75 - 125	20
Total Iron		2.12	mg/L	1	2	<0.01	106		75 - 125	20
Total Lead		1.03	mg/L	1	1	<0.01	103		75 - 125	20
Total Manganese		0.21	mg/L	1	0.20	<0.01	105		75 - 125	20
Total Molybdenum		1.07	mg/L	1	1	<0.01	107		75 - 125	20
Total Nickel		1.01	mg/L	1	1	<0.01	101		75 - 125	20
Total Selenium		0.90	mg/L	1	1	<0.01	90		75 - 125	20
Total Silver		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Uranium		2.18	mg/L	1	2	<0.50	109		75 - 125	20
Total Vanadium		1.05	mg/L	1	1	<0.01	105		75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	<0.01	110		75 - 125	20

Sample: LCSD QC Batch: QC05814

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.14	mg/L	1	2	<0.20	107	1	75 - 125	20
Total Arsenic		0.98	mg/L	1	1	<0.01	98	2	75 - 125	20
Total Barium		2.10	mg/L	1	2	<0.01	105	1	75 - 125	20
Total Beryllium		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Boron		1.09	mg/L	1	1	<0.20	109	0	75 - 125	20
Total Cadmium		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Chromium		0.42	mg/L	1	0.40	<0.01	105	2	75 - 125	20
Total Cobalt		1.04	mg/L	1	1	<0.01	104	1	75 - 125	20
Total Copper		0.40	mg/L	1	0.40	<0.01	100	2	75 - 125	20
Total Iron		2.11	mg/L	1	2	<0.01	105	0	75 - 125	20
Total Lead		1.02	mg/L	1	1	<0.01	102	1	75 - 125	20
Total Manganese		0.21	mg/L	1	0.20	<0.01	105	0	75 - 125	20
Total Molybdenum		1.06	mg/L	1	1	<0.01	106	1	75 - 125	20
Total Nickel		1.00	mg/L	1	1	<0.01	100	1	75 - 125	20
Total Selenium		0.90	mg/L	1	1	<0.01	90	0	75 - 125	20
Total Silver		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Uranium		2.15	mg/L	1	2	<0.50	107	1	75 - 125	20
Total Vanadium		1.04	mg/L	1	1	<0.01	104	1	75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	<0.01	110	0	75 - 125	20

Quality Control Report
Matrix Spikes and Duplicate Spikes

Sample: MS QC Batch: QC05435

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		1289.87	mg/L	1	625	660	100		80 - 120	20
Sulfate		814.53	mg/L	1	625	150	106		80 - 120	20

Sample: MSD QC Batch: QC05435

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		1285.88	mg/L	1	625	660	100	1	80 - 120	20
Sulfate		799.39	mg/L	1	625	150	103	2	80 - 120	20

Sample: MS QC Batch: QC05733

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00098	mg/L	1	0.001	<0.0002	98		80 - 120	20

Sample: MSD QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00104	mg/L	1	0.001	<0.0002	104	6	80 - 120	20

Sample: MS QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1038	mg/L	1	1000	70	96		75 - 125	20
Dissolved Magnesium		986	mg/L	1	1000	40	94		75 - 125	20
Dissolved Potassium		1090	mg/L	1	1000	6.7	108		75 - 125	20
Dissolved Sodium		1965	mg/L	1	1000	920	104		75 - 125	20

Sample: MSD QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1014	mg/L	1	1000	70	94	2	75 - 125	20
Dissolved Magnesium		963	mg/L	1	1000	40	92	2	75 - 125	20
Dissolved Potassium		1063	mg/L	1	1000	6.7	105	2	75 - 125	20
Dissolved Sodium		1898	mg/L	1	1000	920	97	7	75 - 125	20

Sample: MS QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.52	mg/L	1	2	0.44	104		75 - 125	20
Total Arsenic		1.21	mg/L	1	1	0.27	94		75 - 125	20
Total Barium		1.89	mg/L	1	2	<0.01	94		75 - 125	20
Total Beryllium		0.18	mg/L	1	0.20	<0.01	90		75 - 125	20
Total Boron		1.54	mg/L	1	1	0.56	98		75 - 125	20
Total Cadmium		0.18	mg/L	1	0.20	<0.01	90		75 - 125	20
Total Chromium		0.37	mg/L	1	0.40	<0.01	92		75 - 125	20
Total Cobalt		0.92	mg/L	1	1	<0.01	92		75 - 125	20

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Copper		0.47	mg/L	1	0.40	0.08	97		75 - 125	20
Total Iron		3.2	mg/L	1	2	1.3	95		75 - 125	20
Total Lead		0.88	mg/L	1	1	<0.01	88		75 - 125	20
Total Manganese		0.34	mg/L	1	0.20	0.15	95		75 - 125	20
Total Molybdenum		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Nickel		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Selenium		1.29	mg/L	1	1	0.44	85		75 - 125	20
Total Silver		0.19	mg/L	1	0.20	<0.01	95		75 - 125	20
Total Uranium		1.76	mg/L	1	2	<0.50	88		75 - 125	20
Total Vanadium		0.95	mg/L	1	1	<0.01	95		75 - 125	20
Total Zinc		0.26	mg/L	1	0.20	0.02	120		75 - 125	20

Sample: MSD QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.46	mg/L	1	2	0.44	101	3	75 - 125	20
Total Arsenic		1.21	mg/L	1	1	0.27	94	0	75 - 125	20
Total Barium		1.87	mg/L	1	2	<0.01	93	1	75 - 125	20
Total Beryllium		0.18	mg/L	1	0.20	<0.01	90	0	75 - 125	20
Total Boron		1.43	mg/L	1	1	0.56	87	12	75 - 125	20
Total Cadmium		0.18	mg/L	1	0.20	<0.01	90	0	75 - 125	20
Total Chromium		0.37	mg/L	1	0.40	<0.01	92	0	75 - 125	20
Total Cobalt		0.92	mg/L	1	1	<0.01	92	0	75 - 125	20
Total Copper		0.46	mg/L	1	0.40	0.08	95	2	75 - 125	20
Total Iron		3.2	mg/L	1	2	1.3	95	0	75 - 125	20
Total Lead		0.87	mg/L	1	1	<0.01	87	1	75 - 125	20
Total Manganese		0.34	mg/L	1	0.20	0.15	95	0	75 - 125	20
Total Molybdenum		0.95	mg/L	1	1	<0.01	95	1	75 - 125	20
Total Nickel		0.94	mg/L	1	1	<0.01	94	0	75 - 125	20
Total Selenium		1.28	mg/L	1	1	0.44	84	1	75 - 125	20
Total Silver		0.18	mg/L	1	0.20	<0.01	90	5	75 - 125	20
Total Uranium		1.75	mg/L	1	2	<0.50	87	0	75 - 125	20
Total Vanadium		0.94	mg/L	1	1	<0.01	94	1	75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	0.02	100	18	75 - 125	20

Quality Control Report
Duplicate Samples

Sample: Duplicate QC Batch: QC05422

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Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1326	1400	mg/L	1	5	20

Sample: Duplicate QC Batch: QC05424

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity		212	214	mg/L as CaCo3	1	1	20
Total Alkalinity		212	214	mg/L as CaCo3	1	1	20

Sample: Duplicate QC Batch: QC05428

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		2623	2600	uMHOS/cm	1	1	20

Sample: Duplicate QC Batch: QC05449

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	20

Sample: Duplicate QC Batch: QC05799

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		Non-reactive	Non-reactive		1	0	20

Sample: Duplicate QC Batch: QC05800

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		0.053	0.053	mm/yr	1	0	20
pH		8.62	8.60	s.u.	1	0	20

Sample: Duplicate QC Batch: QC05801

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Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Flashpoint		>150	>150	F	1	0	20

Quality Control Report
Continuing Calibration Verification Standards

Sample: CCV (1)

QC Batch: QC05390

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	61.43	102	5 - 57	10/5/00
1,4-Dichlorobenzene		mg/L	60	62.16	103	25 - 94	10/5/00
2-Nitrophenol		mg/L	60	64.78	107	80 - 120	10/5/00
2,4-Dichlorophenol		mg/L	60	62.37	103	80 - 120	10/5/00
Hexachlorobutadiene		mg/L	60	61.30	102	80 - 120	10/5/00
4-Chloro-3-methylphenol		mg/L	60	62.56	104	40 - 126	10/5/00
2,4,6-Trichlorophenol		mg/L	60	63.41	105	80 - 120	10/5/00
Acenaphthene		mg/L	60	60.76	101	47 - 118	10/5/00
Diphenylamine		mg/L	60	60.83	101	80 - 120	10/5/00
Pentachlorophenol		mg/L	60	67.19	111	21 - 131	10/5/00
Fluoranthene		mg/L	60	60.33	100	80 - 120	10/5/00
Di-n-octylphthalate		mg/L	60	59.88	99	80 - 120	10/5/00
Benzo(a)pyrene		mg/L	60	64.30	107	80 - 120	10/5/00
2-Fluorophenol		mg/L	60	63.36	105	8 - 73	10/5/00
Phenol-d5		mg/L	60	62.44	104	8 - 62	10/5/00
Nitrobenzene-d5		mg/L	60	63.47	105	44 - 109	10/5/00
2-Fluorobiphenyl		mg/L	60	61.53	102	45 - 109	10/5/00
2,4,6-Tribromophenol		mg/L	60	63.19	105	39 - 132	10/5/00
Terphenyl-d14		mg/L	60	63.08	105	46 - 121	10/5/00

Sample: CCV (1)

QC Batch: QC05404

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	95	95	80 - 120	10/6/00
1,1-Dichloroethene		µg/L	100	103	103	73 - 154	10/6/00
Chloroform		µg/L	100	106	106	80 - 120	10/6/00
1,2-Dichloropropane		µg/L	100	102	102	80 - 120	10/6/00
Toluene		µg/L	100	100	100	81 - 122	10/6/00
Chlorobenzene		µg/L	100	96	96	86 - 121	10/6/00
Ethylbenzene		µg/L	100	99	99	80 - 120	10/6/00
Dibromofluoromethane		µg/L	50	55.86	111	80 - 120	10/6/00
Toluene-d8		µg/L	50	49.08	98	80 - 120	10/6/00
4-Bromofluorobenzene		µg/L	50	51.43	102	80 - 120	10/6/00

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Sample: CCV (1) QC Batch: QC05422

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	972	97	80 - 120	10/5/00

Sample: ICV (1) QC Batch: QC05422

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	953	95	80 - 120	10/5/00

Sample: CCV (1) QC Batch: QC05424

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	8.0	0	80 - 120	10/6/00
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	80 - 120	10/6/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Total Alkalinity		mg/L as CaCo3	250	228	91	80 - 120	10/6/00

Sample: ICV (1) QC Batch: QC05424

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Carbonate Alkalinity		mg/L as CaCo3	0	240	0	80 - 120	10/6/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Total Alkalinity		mg/L as CaCo3	250	240	96	80 - 120	10/6/00

Sample: CCV (1) QC Batch: QC05428

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1408	99	80 - 120	10/6/00

Sample: ICV (1) QC Batch: QC05428

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1408	99	80 - 120	10/6/00

Sample: CCV (1) QC Batch: QC05435

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	12.43	99	80 - 120	10/5/00
Sulfate		mg/L	12.50	12.77	102	80 - 120	10/5/00

Sample: ICV (1) QC Batch: QC05435

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	12.28	98	80 - 120	10/5/00
Sulfate		mg/L	12.50	12.79	102	80 - 120	10/5/00

Sample: CCV (1) QC Batch: QC05449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	10/3/00

Sample: ICV (1) QC Batch: QC05449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	10/3/00

Sample: CCV (1) QC Batch: QC05733

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00100	100	80 - 120	10/13/00

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Sample: ICV (1) QC Batch: QC05733

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00092	92	80 - 120	10/13/00

Sample: CCV (1) QC Batch: QC05813

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	100	119	119	75 - 125	10/4/00
Dissolved Magnesium		mg/L	100	117	117	75 - 125	10/4/00
Dissolved Potassium		mg/L	100	129	129	75 - 125	10/4/00
Dissolved Sodium		mg/L	100	128	128	75 - 125	10/4/00

Sample: ICV (1) QC Batch: QC05813

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	100	120	120	75 - 125	10/4/00
Dissolved Magnesium		mg/L	100	121	121	75 - 125	10/4/00
Dissolved Potassium		mg/L	100	128	128	75 - 125	10/4/00
Dissolved Sodium		mg/L	100	128	128	75 - 125	10/4/00

Sample: CCV (1) QC Batch: QC05814

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.85	97	75 - 125	10/7/00
Total Arsenic		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Barium		mg/L	5	4.98	99	75 - 125	10/7/00
Total Beryllium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Boron		mg/L	2.50	2.44	97	75 - 125	10/7/00
Total Cadmium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Chromium		mg/L	1	0.99	99	75 - 125	10/7/00
Total Cobalt		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Copper		mg/L	1	0.99	99	75 - 125	10/7/00
Total Iron		mg/L	5	4.98	99	75 - 125	10/7/00
Total Lead		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Manganese		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Molybdenum		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Nickel		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Selenium		mg/L	2.50	2.47	98	75 - 125	10/7/00

Continued . . .

... Continued

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Uranium		mg/L	5	4.93	98	75 - 125	10/7/00
Total Vanadium		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Zinc		mg/L	0.50	0.49	98	75 - 125	10/7/00

Sample: ICV (1)

QC Batch: QC05814

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.90	98	75 - 125	10/7/00
Total Arsenic		mg/L	2.50	2.49	99	75 - 125	10/7/00
Total Barium		mg/L	5	5.02	100	75 - 125	10/7/00
Total Beryllium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Boron		mg/L	2.50	2.45	98	75 - 125	10/7/00
Total Cadmium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Chromium		mg/L	1	0.99	99	75 - 125	10/7/00
Total Cobalt		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Copper		mg/L	1	1.00	100	75 - 125	10/7/00
Total Iron		mg/L	5	5.00	100	75 - 125	10/7/00
Total Lead		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Manganese		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Molybdenum		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Nickel		mg/L	2.50	2.49	99	75 - 125	10/7/00
Total Selenium		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	10/7/00
Total Uranium		mg/L	5	5.00	100	75 - 125	10/7/00
Total Vanadium		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Zinc		mg/L	0.50	0.49	98	75 - 125	10/7/00

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Page ____ of ____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A000160302

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 746 5421
Contact Person:
Invoice to: (if different from above)
Project #:
Project Name: Injection Wells
Project Location:
Sampler Signature: Charles Lloyd

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	NaHSO4	H2SO4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
154738	Injection Wells	2	1L	X									X	X	10/2/00	930
	" "	2	40ml	X						X			X		10/2/00	930
	" "	1	500ml	X					X				X		10/2/00	930

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See List

Relinquished by: Charles Lloyd Date: 10/2/00 Time: 1615 Received by: Date: Time:
Relinquished by: Date: Time: Received by: Date: Time:
Relinquished by: Date: Time: Received at Laboratory by: Nicki Crosby Date: 10-2-00 Time: 9:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 4 °
Log-in Review MS

REMARKS: 10/25

Carrier # FED EX 304 4184 017

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TELEPHONE
(505) 748-3311

EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

August 3, 2000

AUG – 4 2000

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from April 1, 2000 to June 30, 2000. We have disposed a total of 3,296,815 bbls. of fluid down the two wells. This is broken down as follows: 2,970,284 bbls. down WDW-1 and 326,531 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Page 3631 of 5828

WDW-1

Month	Wellhead Pressure			Injection Flow Rate			Flow Rate		Annulus Pressure			Annulus Level		
	Avg	Min	Max	Avg	Min	Max	Average	Total	Avg	Min	Max	Avg	Min	Max
	psig	psig	psig	gpm	gpm	gpm	BPD	Bbl	psig	psig	psig	%	%	%
Oct-99	87	-12.7	328	330	11	499	11,314	350,743						
Nov-99	161	-12.4	410	249	0	344	8,534	256,011						
Dec-99	156	-12.3	322	272	14	377	9,309	288,566						
Jan-00	297	-12	400	369	0	350	12,651	392,195	NA	NA	NA	NA	NA	NA
Feb-00	319	-12	400	319	0	350	10,937	317,173	243	145	318	91	90	92
Mar-00	309	-12	400	309	0	350	10,584	328,114	252	155	325	91	90	92
Apr-00	76	-12	455	297	0	455	10,183	305,486	393	372	500	88	86	89
May-00	230	-12	361	342	0	418	11,726	363,497	476	314	500	86	84	89
Jun-00	241	-12	350	310	0	353	10,629	318,857	496	370	500	85	83	86

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Page 3632 of 5828

WDW-2

Month	Wellhead Pressure			Injection Flow Rate			Avg Flow	Total Flow	Annulus Pressure			Annulus Level		
	Avg	Min	Max	Avg	Min	Max	BPD	Bbl	Avg	Min	Max	Avg	Min	Max
	psig	psig	psig	gpm	gpm	gpm			psig	psig	psig	%	%	%
Oct-99	NA	NA	NA	NA	NA	NA	NA	NA						
Nov-99	140	-13	337	159	0	437	5,434	163,029						
Dec-99	140	-13	338	70	0	341	2,390	74,081						
Jan-00	-13	-13	-13	0	0	0	0	0	NA	NA	NA	NA	NA	NA
Feb-00	-13	-13	-13	0	0	0	0	0	252	232	295	88	86	89
Mar-00	-13	-13	-13	0	0	0	0	0	201	181	243	89	87	90
Apr-00	10	-13	245	33	221	0	1,131	33,943	128	81	196	83	83	86
May-00	59	-13	234	36	122	0	1,234	38,263	161	71	311	83	79	88
Jun-00	105	-13	294	65	158	0	2,229	66,857	302	127	500	78	76	80

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TRACEANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Charlie Plymale or Darrell Moore
501 E. Main
Artesia, NM 88210

July 13,2000
Receiving Date: 07/06/2000
Sample Type: Water
Project No: NA
Project Location: Artesia

Sampling Date: 07/05/2000
Sample Condition: Intact & Cool
Sample Received by: VH
Project Name: Injection Wells

TA#	FIELD CODE	TOTAL Hg (mg/L)	TOTAL U (mg/L)
T149250	Inj. Wells	<0.0002	<0.10
ICV		0.00098	1.00
CCV		0.00110	0.98
REPORTING LIMIT		0.0002	0.10
PREP DATE		07/07/2000	07/06/2000
ANALYSIS DATE		07/10/2000	07/10/2000
RPD		3*	1
% Extraction Accuracy		70*	85
% Instrument Accuracy		98	98

*NOTE: Low spike recovery due to nature of sample: extremely high dissolved solids with precipitate. Used LCS/LCSD for RPD and % Extraction Accuracy.

METHODS: EPA SW 846-3010B, 6010B, 7471A.
CHEMIST: TOTAL Hg: JM TOTAL U: RR
TOTAL Hg SPIKE: 0.001 mg/L TOTAL Hg.
TOTAL Hg CV: 0.001 mg/L TOTAL Hg.
TOTAL U SPIKE: 2.0 mg/L TOTAL U.
TOTAL U CV: 1.0 mg/L TOTAL U.

Director, Dr. Blair Leftwich

7-13-00
DATE

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: July 14, 2000

Order ID Number: A00070613

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
149250	Inj Wells	Water	7/5/00	10:30	7/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 25 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Received by OCD: 5/16/2022 2:12:41 PM

Analytical and Quality Control Report

Sample: 149250 - Inj Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC03650	Date Analyzed:	7/7/00
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB03149	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<10.00	µg/L	5	2
Dichlorodifluoromethane		<10.00	µg/L	5	2
Chloromethane (methyl chloride)		<10.00	µg/L	5	2
Vinyl Chloride		<10.00	µg/L	5	2
Bromomethane (methyl bromide)		<25.00	µg/L	5	5
Chloroethane		<10.00	µg/L	5	2
Trichlorofluoromethane		<10.00	µg/L	5	2
Acetone		<50.00	µg/L	5	10
Iodomethane (methyl iodide)		<10.00	µg/L	5	2
Carbon Disulfide		<10.00	µg/L	5	2
Acrylonitrile		<10.00	µg/L	5	2
2-Butanone (MEK)		<10.00	µg/L	5	2
4-methyl-2-pentanone (MIBK)		<50.00	µg/L	5	10
2-hexanone		<10.00	µg/L	5	2
trans 1,4-Dichloro-2-butene		<50.00	µg/L	5	10
1,1-Dichloroethene		<10.00	µg/L	5	2
Methylene chloride		<25.00	µg/L	5	5
MTBE		<10.00	µg/L	5	2
trans-1,2-Dichloroethene		<10.00	µg/L	5	2
1,1-Dichloroethane		<10.00	µg/L	5	2
cis-1,2-dichloroethene		<10.00	µg/L	5	2
2,2-Dichloropropane		<10.00	µg/L	5	2
1,2-Dichloroethane (EDC)		<10.00	µg/L	5	2
Chloroform		<10.00	µg/L	5	2
1,1,1-Trichloroethane		<10.00	µg/L	5	2
1,1-Dichloropropene		<10.00	µg/L	5	2
Benzene		<10.00	µg/L	5	2
Carbon Tetrachloride		<10.00	µg/L	5	2
1,2-Dichloropropane		<10.00	µg/L	5	2
Trichloroethene (TCE)		<10.00	µg/L	5	2
Dibromomethane (methylene bromide)		<10.00	µg/L	5	2
Bromodichloromethane		<10.00	µg/L	5	2
2-Chloroethyl vinyl ether		<50.00	µg/L	5	10
cis-1,3-Dichloropropene		<10.00	µg/L	5	2
trans-1,3-Dichloropropene		<10.00	µg/L	5	2
Toluene		<10.00	µg/L	5	2
1,1,2-Trichloroethane		<10.00	µg/L	5	2
1,3-Dichloropropane		<10.00	µg/L	5	2
Dibromochloromethane		<10.00	µg/L	5	2
1,2-Dibromoethane (EDB)		<10.00	µg/L	5	2
Tetrachloroethene (PCE)		<10.00	µg/L	5	2
Chlorobenzene		<10.00	µg/L	5	2
1,1,1,2-Tetrachloroethane		<10.00	µg/L	5	2
Ethylbenzene		<10.00	µg/L	5	2
m,p-Xylene		12.80	µg/L	5	2

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 149250 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
Bromoform		<10.00	µg/L	5	2
Styrene		<10.00	µg/L	5	2
o-Xylene		<10.00	µg/L	5	2
1,1,2,2-Tetrachloroethane		<10.00	µg/L	5	2
2-Chlorotoluene		<10.00	µg/L	5	2
1,2,3-Trichloropropane		<10.00	µg/L	5	2
Isopropylbenzene		<10.00	µg/L	5	2
Bromobenzene		<10.00	µg/L	5	2
n-Propylbenzene		<10.00	µg/L	5	2
1,3,5-Trimethylbenzene		19.63	µg/L	5	2
tert-Butylbenzene		<10.00	µg/L	5	2
1,2,4-Trimethylbenzene		47.55	µg/L	5	2
1,4-Dichlorobenzene (para)		<10.00	µg/L	5	2
sec-Butylbenzene		<10.00	µg/L	5	2
1,3-Dichlorobenzene		<10.00	µg/L	5	2
p-Isopropyltoluene		<10.00	µg/L	5	2
4-Chlorotoluene		<10.00	µg/L	5	2
1,2-Dichlorobenzene (ortho)		<10.00	µg/L	5	2
n-Butylbenzene		<10.00	µg/L	5	2
1,2-Dibromo-3-chloropropane		<25.00	µg/L	5	5
1,2,3-Trichlorobenzene		<25.00	µg/L	5	5
1,2,4-Trichlorobenzene		<25.00	µg/L	5	5
Naphthalene		109.02	µg/L	5	2
Hexachlorobutadiene		<25.00	µg/L	5	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.88	µg/L	1	50	105	84 - 116
Toluene-d8		49.86	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		49.84	µg/L	1	50	99	80 - 110

Sample: 149250 - Inj Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC03678	Date Analyzed:	7/11/00
Analyst:	MA	Preparation Method:	E 3510C	Prep Batch:	PB03137	Date Prepared:	7/10/00

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 149250 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		0.050	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		0.020	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		0.052	mg/L	1	0.005
2-Methylnaphthalene		0.017	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Napthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Napthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

... *Continued* Sample: 149250 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		27.61	mg/L	1	80	34	8 - 73
Phenol-d5		22.85	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		43.84	mg/L	1	80	54	44 - 109
2-Fluorobiphenyl		45.99	mg/L	1	80	57	45 - 109
2,4,6-Tribromophenol		40.31	mg/L	1	80	50	39 - 132
Terphenyl-d14		30.72	mg/L	1	80	38	46 - 121

Sample: 149250 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC03622	Date Analyzed:	7/7/00
Analyst:	LD	Preparation Method:	N/A	Prep Batch:	PB03116	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		360	mg/L as CaCo3	1	1
Total Alkalinity		360	mg/L as CaCo3	1	1

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 149250 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC03621	Date Analyzed:	7/6/00
Analyst:	LD	Preparation Method:	N/A	Prep Batch:	PB03115	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		4700	uMHOS/cm	1	

Sample: 149250 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC03709	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03199	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non 0.91	mm/yr	1	
pH		8.24	s.u.	1	

Sample: 149250 - Inj Wells

Analysis:	Dissolved Metals	Analytical Method:	E 200.7	QC Batch:	QC03653	Date Analyzed:	7/10/00
Analyst:	RR	Preparation Method:	E 3005A	Prep Batch:	PB03097	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		123	mg/L	1	0.50
Dissolved Magnesium		48	mg/L	1	0.50
Dissolved Potassium		35	mg/L	1	0.50
Dissolved Sodium		475	mg/L	1	0.50

Sample: 149250 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC03710	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03200	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 149250 - Inj Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC03642	Date Analyzed:	7/7/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB03142	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
CL		650	mg/L	1	0.50
Sulfate		820	mg/L	1	0.50

Sample: 149250 - Inj Wells

Analysis:	Reactivity	Analytical Method:	S 7.3	QC Batch:	QC03708	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03198	Date Prepared:	7/7/00

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10		1	
Hydrogen Cyanide		<2.5		1	

Sample: 149250 - Inj Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC03649	Date Analyzed:	7/10/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB03148	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2100	mg/L	1	10

Sample: 149250 - Inj Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC03651	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	E 3010A	Prep Batch:	PB03078	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		2.7	mg/L	1	0.05
Total Arsenic		0.21	mg/L	1	0.01
Total Barium		<0.01	mg/L	1	0.01
Total Beryllium		<0.01	mg/L	1	0.01
Total Boron		0.54	mg/L	1	0.10
Total Cadmium		<0.002	mg/L	1	0.002
Total Chromium		<0.005	mg/L	1	0.005
Total Cobalt		<0.02	mg/L	1	0.02
Total Copper		<0.02	mg/L	1	0.02
Total Iron		1.5	mg/L	1	0.05
Total Lead		<0.01	mg/L	1	0.01
Total Manganese		0.11	mg/L	1	0.01
Total Molybdenum		<0.05	mg/L	1	0.05
Total Nickel		<0.02	mg/L	1	0.02
Total Selenium		0.39	mg/L	1	0.01
Total Silver		<0.005	mg/L	1	0.005
Total Vanadium		<0.01	mg/L	1	0.01
Total Zinc		0.05	mg/L	1	0.05

Sample: 149250 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC03616	Date Analyzed:	7/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB03110	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
pH		7.8	s.u.	1	1

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Sample: Method Blank QCBatch: QC03621

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		4.8	uMHOS/cm	

Sample: Method Blank QCBatch: QC03642

Param	Flag	Results	Units	Reporting Limit
CL		<0.5	mg/L	0.50
Sulfate		<0.5	mg/L	0.50

Sample: Method Blank QCBatch: QC03649

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Sample: Method Blank QCBatch: QC03650

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<2.00	µg/L	2
Dichlorodifluoromethane		<2.00	µg/L	2
Chloromethane (methyl chloride)		<2.00	µg/L	2
Vinyl Chloride		<2.00	µg/L	2
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<2.00	µg/L	2
Trichlorofluoromethane		<2.00	µg/L	2
Acetone		<10.00	µg/L	10
Iodomethane (methyl iodide)		<2.00	µg/L	2
Carbon Disulfide		<2.00	µg/L	2
Acrylonitrile		<2.00	µg/L	2
2-Butanone (MEK)		<2.00	µg/L	2
4-methyl-2-pentanone (MIBK)		<10.00	µg/L	10
2-hexanone		<2.00	µg/L	2
trans 1,4-Dichloro-2-butene		<10.00	µg/L	10
1,1-Dichloroethene		<2.00	µg/L	2
Methylene chloride		<5.00	µg/L	5
MTBE		<2.00	µg/L	2
trans-1,2-Dichloroethene		<2.00	µg/L	2

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
1,1-Dichloroethane		<2.00	µg/L	2
cis-1,2-dichloroethene		<2.00	µg/L	2
2,2-Dichloropropane		<2.00	µg/L	2
1,2-Dichloroethane (EDC)		<2.00	µg/L	2
Chloroform		<2.00	µg/L	2
1,1,1-Trichloroethane		<2.00	µg/L	2
1,1-Dichloropropene		<2.00	µg/L	2
Benzene		<2.00	µg/L	2
Carbon Tetrachloride		<2.00	µg/L	2
1,2-Dichloropropane		<2.00	µg/L	2
Trichloroethene (TCE)		<2.00	µg/L	2
Dibromomethane (methylene bromide)		<2.00	µg/L	2
Bromodichloromethane		<2.00	µg/L	2
2-Chloroethyl vinyl ether		<10.00	µg/L	10
cis-1,3-Dichloropropene		<2.00	µg/L	2
trans-1,3-Dichloropropene		<2.00	µg/L	2
Toluene		<2.00	µg/L	2
1,1,2-Trichloroethane		<2.00	µg/L	2
1,3-Dichloropropane		<2.00	µg/L	2
Dibromochloromethane		<2.00	µg/L	2
1,2-Dibromoethane (EDB)		<2.00	µg/L	2
Tetrachloroethene (PCE)		<2.00	µg/L	2
Chlorobenzene		<2.00	µg/L	2
1,1,1,2-Tetrachloroethane		<2.00	µg/L	2
Ethylbenzene		<2.00	µg/L	2
m,p-Xylene		<2.00	µg/L	2
Bromoform		<2.00	µg/L	2
Styrene		<2.00	µg/L	2
o-Xylene		<2.00	µg/L	2
1,1,2,2-Tetrachloroethane		<2.00	µg/L	2
2-Chlorotoluene		<2.00	µg/L	2
1,2,3-Trichloropropane		<2.00	µg/L	2
Isopropylbenzene		<2.00	µg/L	2
Bromobenzene		<2.00	µg/L	2
n-Propylbenzene		<2.00	µg/L	2
1,3,5-Trimethylbenzene		<2.00	µg/L	2
tert-Butylbenzene		<2.00	µg/L	2
1,2,4-Trimethylbenzene		<2.00	µg/L	2
1,4-Dichlorobenzene (para)		<2.00	µg/L	2
sec-Butylbenzene		<2.00	µg/L	2
1,3-Dichlorobenzene		<2.00	µg/L	2
p-Isopropyltoluene		<2.00	µg/L	2
4-Chlorotoluene		<2.00	µg/L	2
1,2-Dichlorobenzene (ortho)		<2.00	µg/L	2
n-Butylbenzene		<2.00	µg/L	2
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<2.00	µg/L	2
Hexachlorobutadiene		<5.00	µg/L	5

Released to Imaging: 7/12/2024 10:49:45 AM

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Dibromofluoromethane		53.42	µg/L	50	106	84 - 116
Toluene-d8		51.43	µg/L	50	102	92 - 108
4-Bromofluorobenzene		45.60	µg/L	50	91	80 - 110

Sample: Method Blank QCBatch: QC03651

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.05	mg/L	0.05
Total Arsenic		<0.01	mg/L	0.01
Total Barium		<0.01	mg/L	0.01
Total Beryllium		<0.01	mg/L	0.01
Total Boron		<0.10	mg/L	0.10
Total Cadmium		<0.002	mg/L	0.002
Total Chromium		<0.005	mg/L	0.005
Total Cobalt		<0.02	mg/L	0.02
Total Copper		<0.02	mg/L	0.02
Total Iron		<0.05	mg/L	0.05
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.01	mg/L	0.01
Total Molybdenum		<0.05	mg/L	0.05
Total Nickel		<0.02	mg/L	0.02
Total Selenium		<0.01	mg/L	0.01
Total Silver		<0.005	mg/L	0.005
Total Vanadium		<0.01	mg/L	0.01
Total Zinc		<0.05	mg/L	0.05

Sample: Method Blank QCBatch: QC03653

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.50	mg/L	0.50
Dissolved Magnesium		<0.50	mg/L	0.50
Dissolved Potassium		<0.50	mg/L	0.50
Dissolved Sodium		<0.50	mg/L	0.50

Sample: Method Blank QCBatch: QC03678

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005

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Param	Flag	Results	Units	Reporting Limit
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Napthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
2-Napthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorophenol		31.91	mg/L	80	39	8 - 73
Phenol-d5		23.93	mg/L	80	29	8 - 62
Nitrobenzene-d5		38.82	mg/L	80	48	44 - 109
2-Fluorobiphenyl		40.47	mg/L	80	50	45 - 109
2,4,6-Tribromophenol		37.81	mg/L	80	47	39 - 132
Terphenyl-d14		42.21	mg/L	80	52	46 - 121

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Sample: LCS

QC Batch: QC03650

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		111	µg/L	1	100	<2.00	111		73 - 154	20
Benzene		107	µg/L	1	100	<2.00	107		84 - 126	20
Trichloroethene (TCE)		104	µg/L	1	100	<2.00	104		82 - 123	20
Toluene		105	µg/L	1	100	<2.00	105		81 - 122	20
Chlorobenzene		102	µg/L	1	100	<2.00	102		86 - 121	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		52.19	µg/L	1	50	104	84 - 116
Toluene-d8		49.92	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		46.05	µg/L	1	50	92	80 - 110

Sample: LCSD

QC Batch: QC03650

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		112	µg/L	1	100	<2.00	112	1	73 - 154	20
Benzene		107	µg/L	1	100	<2.00	107	0	84 - 126	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103	1	82 - 123	20
Toluene		105	µg/L	1	100	<2.00	105	0	81 - 122	20
Chlorobenzene		101	µg/L	1	100	<2.00	101	1	86 - 121	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		52.87	µg/L	1	50	105	84 - 116
Toluene-d8		49.59	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		46.22	µg/L	1	50	92	80 - 110

Sample: LCS

QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.0	mg/L	2	2	<0.05	100		75 - 125	20
Total Arsenic		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Barium		2.0	mg/L	2	2	<0.01	100		75 - 125	20

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Beryllium		0.18	mg/L	0.20	0.20	<0.01	90		75 - 125	20
Total Boron		0.99	mg/L	1	1	<0.10	99		75 - 125	20
Total Cadmium		0.19	mg/L	0.20	0.20	<0.002	95		75 - 125	20
Total Chromium		0.40	mg/L	0.40	0.40	<0.005	100		75 - 125	20
Total Cobalt		1.0	mg/L	1	1	<0.02	100		75 - 125	20
Total Copper		0.39	mg/L	0.40	0.40	<0.02	97		75 - 125	20
Total Iron		2.1	mg/L	2	2	<0.05	105		75 - 125	20
Total Lead		0.98	mg/L	1	1	<0.01	98		75 - 125	20
Total Manganese		0.21	mg/L	0.20	0.20	<0.01	105		75 - 125	20
Total Molybdenum		1.0	mg/L	1	1	<0.05	100		75 - 125	20
Total Nickel		0.96	mg/L	1	1	<0.02	96		75 - 125	20
Total Selenium		0.82	mg/L	1	1	<0.01	82		75 - 125	20
Total Silver		0.20	mg/L	0.20	0.20	<0.005	100		75 - 125	20
Total Vanadium		1.0	mg/L	1	1	<0.01	100		75 - 125	20
Total Zinc		0.23	mg/L	0.20	0.20	<0.05	115		75 - 125	20

Sample: LCSD

QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		1.9	mg/L	1	2	<0.05	95	5	75 - 125	20
Total Arsenic		0.94	mg/L	1	1	<0.01	94	0	75 - 125	20
Total Barium		2.0	mg/L	2	2	<0.01	100	0	75 - 125	20
Total Beryllium		0.18	mg/L	0.20	2	<0.01	90	0	75 - 125	20
Total Boron		0.98	mg/L	1	2	<0.10	98	1	75 - 125	20
Total Cadmium		0.19	mg/L	0.20	2	<0.002	95	0	75 - 125	20
Total Chromium		0.40	mg/L	0.40	2	<0.005	100	0	75 - 125	20
Total Cobalt		1.0	mg/L	1	2	<0.02	100	0	75 - 125	20
Total Copper		0.39	mg/L	0.40	2	<0.02	97	0	75 - 125	20
Total Iron		2.0	mg/L	2	2	<0.05	100	5	75 - 125	20
Total Lead		0.98	mg/L	1	2	<0.01	98	0	75 - 125	20
Total Manganese		0.20	mg/L	0.20	2	<0.01	100	5	75 - 125	20
Total Molybdenum		1.0	mg/L	1	2	<0.05	100	0	75 - 125	20
Total Nickel		0.95	mg/L	1	100	<0.02	95	1	75 - 125	20
Total Selenium		0.81	mg/L	1	2	<0.01	81	1	75 - 125	20

Sample: LCS

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1050	mg/L	1	1000	<0.50	105		75 - 125	20
Dissolved Magnesium		1020	mg/L	1	1000	<0.50	102		75 - 125	20
Dissolved Potassium		1020	mg/L	1	1000	<0.50	102		75 - 125	20
Dissolved Sodium		1020	mg/L	1	1000	<0.50	102		75 - 125	20

Released to Imaging: 7/12/2024 10:49:45 AM

Sample: LCSD QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1030	mg/L	1	1000	<0.50	103	2	75 - 125	20
Dissolved Magnesium		1010	mg/L	1	1000	<0.50	101	1	75 - 125	20
Dissolved Potassium		999	mg/L	1	1000	<0.50	99	2	75 - 125	20
Dissolved Sodium		1010	mg/L	1	1000	<0.50	101	1	75 - 125	20

Sample: LCS QC Batch: QC03678

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		16.013	mg/L	1	80	<0.005	20		5 - 57	20
2-Chlorophenol		28.475	mg/L	1	80	<0.005	35		29 - 110	20
1,4-Dichlorobenzene		22.986	mg/L	1	80	<0.005	28		25 - 94	20
n-Nitrosodi-n-propylamine		20.749	mg/L	1	80	<0.005	25		36 - 119	20
1,2,4-Trichlorobenzene		24.908	mg/L	1	80	<0.005	31		28 - 110	20
4-Chloro-3-methylphenol		29.224	mg/L	1	80	<0.005	36		40 - 126	20
Acenaphthene		37.435	mg/L	1	80	<0.005	46		47 - 118	20
4-Nitrophenol		10.298	mg/L	1	80	<0.005	12		0 - 69	20
2,4-Dinitrotoluene		27.080	mg/L	1	80	<0.005	33		46 - 133	20
Pentachlorophenol		27.106	mg/L	1	80	<0.005	33		21 - 131	20
Pyrene		37.798	mg/L	1	80	<0.005	47		44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		84.40	mg/L	1	80	105	8 - 73
Phenol-d5		75.05	mg/L	1	80	93	8 - 62
Nitrobenzene-d5		80.85	mg/L	1	80	101	44 - 109
2-Fluorobiphenyl		80.05	mg/L	1	80	100	45 - 109
2,4,6-Tribromophenol		72.25	mg/L	1	80	90	39 - 132
Terphenyl-d14		72.08	mg/L	1	80	90	46 - 121

Sample: LCSD QC Batch: QC03678

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		14.027	mg/L	1	80	<0.005	17	13	5 - 57	20
2-Chlorophenol		25.110	mg/L	1	80	<0.005	31	12	29 - 110	20
1,4-Dichlorobenzene		19.835	mg/L	1	80	<0.005	24	15	25 - 94	20
n-Nitrosodi-n-propylamine		21.234	mg/L	1	80	<0.005	26	2	36 - 119	20
1,2,4-Trichlorobenzene		21.578	mg/L	1	80	<0.005	26	14	28 - 110	20
4-Chloro-3-methylphenol		26.048	mg/L	1	80	<0.005	32	11	40 - 126	20
Acenaphthene		37.566	mg/L	1	80	<0.005	46	0	47 - 118	20

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
4-Nitrophenol		8.783	mg/L	1	80	<0.005	10	16	0 - 69	20
2,4-Dinitrotoluene		22.423	mg/L	1	80	<0.005	28	19	46 - 133	20
Pentachlorophenol		24.661	mg/L	1	80	<0.005	30	9	21 - 131	20
Pyrene		41.124	mg/L	1	80	<0.005	51	8	44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		59.15	mg/L	1	80	73	8 - 73
Phenol-d5		50.50	mg/L	1	80	63	8 - 62
Nitrobenzene-d5		72.39	mg/L	1	80	90	44 - 109
2-Fluorobiphenyl		72.77	mg/L	1	80	90	45 - 109
2,4,6-Tribromophenol		68.99	mg/L	1	80	86	39 - 132
Terphenyl-d14		78.25	mg/L	1	80	97	46 - 121

Released to Imaging: 7/12/2024 10:49:45 AM

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Quality Control Report
Matrix Spikes and Duplicate Spikes

Sample: MS QC Batch: QC03642

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		94.54	mg/L	1	62.50	38	90		80 - 120	20
Sulfate		86.33	mg/L	1	62.50	25	98		80 - 120	20

Sample: MSD QC Batch: QC03642

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		94.60	mg/L	1	62.50	38	90	0	80 - 120	20
Sulfate		85.71	mg/L	1	62.50	25	97	1	80 - 120	20

Sample: MS QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		4.5	mg/L	4	2	2.7	90		75 - 125	20
Total Arsenic		1.1	mg/L	1	1	0.21	89		75 - 125	20
Total Barium		1.8	mg/L	1	2	<0.01	90		75 - 125	20
Total Beryllium		0.17	mg/L	0.20	0.20	<0.01	85		75 - 125	20
Total Boron		1.4	mg/L	1	1	0.54	86		75 - 125	20
Total Cadmium		0.17	mg/L	0.20	0.20	<0.002	85		75 - 125	20
Total Chromium		0.37	mg/L	0.40	0.40	<0.005	92		75 - 125	20
Total Cobalt		0.89	mg/L	1	1	<0.02	89		75 - 125	20
Total Copper		0.38	mg/L	0.40	0.40	<0.02	95		75 - 125	20
Total Iron		3.4	mg/L	2	2	1.5	95		75 - 125	20
Total Lead		0.88	mg/L	1	1	<0.01	88		75 - 125	20
Total Manganese		0.29	mg/L	0.20	0.20	0.11	90		75 - 125	20
Total Molybdenum		0.92	mg/L	1	1	<0.05	92		75 - 125	20
Total Nickel		0.90	mg/L	1	1	<0.02	90		75 - 125	20
Total Selenium		1.2	mg/L	1	1	0.39	81		75 - 125	20
Total Silver		0.18	mg/L	0.20	0.20	<0.005	90		75 - 125	20
Total Vanadium		0.92	mg/L	1	1	<0.01	92		75 - 125	20
Total Zinc		0.19	mg/L	0.20	0.20	0.05	70		75 - 125	20

Sample: MSD QC Batch: QC03651

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		4.6	mg/L	4	2	2.7	95	5	75 - 125	20
Total Arsenic		1.1	mg/L	1	0.20	0.21	89	0	75 - 125	20
Total Barium		1.8	mg/L	1	2	<0.01	90	0	75 - 125	20
Total Beryllium		0.17	mg/L	0.20	0.20	<0.01	85	0	75 - 125	20
Total Boron		1.4	mg/L	1	1	0.54	86	0	75 - 125	20
Total Cadmium		0.17	mg/L	0.20	20.20	<0.002	85	0	75 - 125	20
Total Chromium		0.36	mg/L	0.40	0.40	<0.005	90	3	75 - 125	20
Total Cobalt		0.88	mg/L	1	1	<0.02	88	1	75 - 125	20
Total Copper		0.38	mg/L	0.40	0.40	<0.02	95	0	75 - 125	20
Total Iron		3.3	mg/L	2	2	1.5	90	5	75 - 125	20
Total Lead		0.87	mg/L	1	1	<0.01	87	1	75 - 125	20
Total Manganese		0.29	mg/L	0.20	0.20	0.11	90	0	75 - 125	20
Total Molybdenum		0.91	mg/L	1	1	<0.05	91	1	75 - 125	20
Total Nickel		0.88	mg/L	1	1	<0.02	88	2	75 - 125	20
Total Selenium		1.1	mg/L	1	1	0.39	71	13	75 - 125	20
Total Silver		0.18	mg/L	0.20	0.20	<0.005	90	0	75 - 125	20
Total Vanadium		0.92	mg/L	1	1	<0.01	92	0	75 - 125	20
Total Zinc		0.21	mg/L	0.20	1	0.05	80	13	75 - 125	20

Sample: MS

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1170	mg/L	1	1000	160	101		75 - 125	20
Dissolved Magnesium		1180	mg/L	1	1000	195	98		75 - 125	20
Dissolved Potassium		1040	mg/L	1	1000	26	101		75 - 125	20
Dissolved Sodium		1200	mg/L	1	1000	170	103		75 - 125	20

Sample: MSD

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1200	mg/L	1	1000	160	104	3	75 - 125	20
Dissolved Magnesium		1230	mg/L	1	1000	195	103	5	75 - 125	20
Dissolved Potassium		1080	mg/L	1	1000	26	105	4	75 - 125	20
Dissolved Sodium		1250	mg/L	1	1000	170	108	5	75 - 125	20

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Quality Control Report
Duplicate Samples

Sample: Duplicate

QC Batch: QC03616

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	20

Sample: Duplicate

QC Batch: QC03621

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		2746	2700	uMHOS/cm	1	2	20

Sample: Duplicate

QC Batch: QC03622

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity		220	213	mg/L as CaCo3	1	3	20
Total Alkalinity		220	213	mg/L as CaCo3	1	3	20

Sample: Duplicate

QC Batch: QC03649

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1852	1800	mg/L	1	3	20

Sample: Duplicate

QC Batch: QC03708

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		Non-reactive	Non-reactive		1	0	20

Sample: Duplicate

QC Batch: QC03709

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Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		Non 0.91	Non 0.91	mm/yr	1	0	20
pH		8.24	8.24	s.u.	1	0	20

Sample: Duplicate

QC Batch: QC03710

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Ignitability		non-ignitable	non-ignitable		1	0	20

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Quality Control Report
Continuing Calibration Verification Standards

Sample: CCV (1) QC Batch: QC03616

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	7/6/00

Sample: ICV (1) QC Batch: QC03616

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	7/6/00

Sample: CCV (1) QC Batch: QC03621

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1417	100	80 - 120	7/6/00

Sample: ICV (1) QC Batch: QC03621

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1417	100	80 - 120	7/6/00

Sample: CCV (1) QC Batch: QC03622

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	7/7/00
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	80 - 120	7/7/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	7	0	80 - 120	7/7/00
Total Alkalinity		mg/L as CaCo3	250	239	95	80 - 120	7/7/00

Sample: ICV (1) QC Batch: QC03622

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	7/7/00
Carbonate Alkalinity		mg/L as CaCo3	0	242	0	80 - 120	7/7/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	0	0	80 - 120	7/7/00
Total Alkalinity		mg/L as CaCo3	250	243	97	80 - 120	7/7/00

Sample: CCV (1) QC Batch: QC03642

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	11.36	90	80 - 120	7/7/00
Sulfate		mg/L	12.50	12.36	98	80 - 120	7/7/00

Sample: ICV (1) QC Batch: QC03642

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	11.35	90	80 - 120	7/7/00
Sulfate		mg/L	12.50	11.79	94	80 - 120	7/7/00

Sample: CCV (1) QC Batch: QC03649

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	977	97	80 - 120	7/10/00

Sample: ICV (1) QC Batch: QC03649

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	966	96	80 - 120	7/10/00

Sample: CCV (1) QC Batch: QC03650

Continued ...

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	113	113	80 - 120	7/7/00
1,1-Dichloroethene		µg/L	100	109	109	73 - 154	7/7/00
Chloroform		µg/L	100	111	111	80 - 120	7/7/00
1,2-Dichloropropane		µg/L	100	102	102	80 - 120	7/7/00
Toluene		µg/L	100	99	99	81 - 122	7/7/00
Chlorobenzene		µg/L	100	94	94	86 - 121	7/7/00
Ethylbenzene		µg/L	100	98	98	80 - 120	7/7/00
Dibromofluoromethane		µg/L	50	57.48	114	80 - 120	7/7/00
Toluene-d8		µg/L	50	48.77	97	80 - 120	7/7/00
4-Bromofluorobenzene		µg/L	50	51.72	103	80 - 120	7/7/00

Sample: CCV (1)

QC Batch: QC03651

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	5.1	102	75 - 125	7/7/00
Total Arsenic		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Barium		mg/L	5	5.1	102	75 - 125	7/7/00
Total Beryllium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Boron		mg/L	2.50	2.6	104	75 - 125	7/7/00
Total Cadmium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Chromium		mg/L	1	1.0	100	75 - 125	7/7/00
Total Cobalt		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Copper		mg/L	1	1.0	100	75 - 125	7/7/00
Total Iron		mg/L	5	5.1	102	75 - 125	7/7/00
Total Lead		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Manganese		mg/L	0.50	0.51	102	75 - 125	7/7/00
Total Molybdenum		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Nickel		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Selenium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Vanadium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Zinc		mg/L	0.50	0.53	106	75 - 125	7/7/00

Sample: ICV (1)

QC Batch: QC03651

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.9	98	75 - 125	7/7/00

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Arsenic		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Barium		mg/L	5	5.1	102	75 - 125	7/7/00
Total Beryllium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Boron		mg/L	2.50	2.6	104	75 - 125	7/7/00
Total Cadmium		mg/L	0.50	0.51	102	75 - 125	7/7/00
Total Chromium		mg/L	1	1.0	100	75 - 125	7/7/00
Total Cobalt		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Copper		mg/L	1	1.0	100	75 - 125	7/7/00
Total Iron		mg/L	5	5.0	100	75 - 125	7/7/00
Total Lead		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Manganese		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Molybdenum		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Nickel		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Selenium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Vanadium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Zinc		mg/L	0.50	0.54	108	75 - 125	7/7/00

Sample: CCV (1) QC Batch: QC03653

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	20	20.6	103	75 - 125	7/10/00
Dissolved Magnesium		mg/L	20	20.0	100	75 - 125	7/10/00
Dissolved Potassium		mg/L	20	18.7	93	75 - 125	7/10/00
Dissolved Sodium		mg/L	20	20.2	101	75 - 125	7/10/00

Sample: ICV (1) QC Batch: QC03653

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	20	20.6	103	75 - 125	7/10/00
Dissolved Magnesium		mg/L	20	20.2	101	75 - 125	7/10/00
Dissolved Potassium		mg/L	20	18.6	93	75 - 125	7/10/00
Dissolved Sodium		mg/L	20	20.0	100	75 - 125	7/10/00

Sample: CCV (1) QC Batch: QC03678

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	55.36	92	5 - 57	7/11/00
1,4-Dichlorobenzene		mg/L	60	58.97	98	25 - 94	7/11/00
2-Nitrophenol		mg/L	60	59.23	98	80 - 120	7/11/00
2,4-Dichlorophenol		mg/L	60	60.33	100	80 - 120	7/11/00
Hexachlorobutadiene		mg/L	60	58.79	97	80 - 120	7/11/00
4-Chloro-3-methylphenol		mg/L	60	57.70	96	40 - 126	7/11/00
2,4,6-Trichlorophenol		mg/L	60	58.60	97	80 - 120	7/11/00
Acenaphthene		mg/L	60	58.33	97	47 - 118	7/11/00
Diphenylamine		mg/L	60	58.11	96	80 - 120	7/11/00
Pentachlorophenol		mg/L	60	57.33	95	21 - 131	7/11/00
Fluoranthene		mg/L	60	56.95	94	80 - 120	7/11/00
Di-n-octylphthalate		mg/L	60	56.99	94	80 - 120	7/11/00
Benzo(a)pyrene		mg/L	60	59.82	99	80 - 120	7/11/00
2-Fluorophenol		mg/L	60	57.35	95	8 - 73	7/11/00
Phenol-d5		mg/L	60	55.81	93	8 - 62	7/11/00
Nitrobenzene-d5		mg/L	60	58.76	97	44 - 109	7/11/00
2-Fluorobiphenyl		mg/L	60	57.63	96	45 - 109	7/11/00
2,4,6-Tribromophenol		mg/L	60	55.41	92	39 - 132	7/11/00
Terphenyl-d14		mg/L	60	54.30	90	46 - 121	7/11/00

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149250

Page_____of_____

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Lubbock, Texas 79424
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TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A0007061 3

Company Name: NAVAJO Phone #:

Address: (Street, City, Zip) Fax #:

Contact Person: Charlie Plymale or Darrell Moore

Invoice to: (if different from above)

Project #: Project Name: Injection Wells

Project Location: Artesia Sampler Signature: Charlie Plymale

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	NaHSO4	H2SO4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
149250	Inj. wells	2	1L	X									X	X	7/5/00	10:30
	" "	2	40ml	X						X			X		7/5/00	10:30
	" "	1	500ml	X					X					X	7/5/00	10:30

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

Select

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Plymale	7/5/00	16:15			
			Received at Laboratory by: Vicki Ansley	7-6-00	10:00am

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact (Y) / N

Headspace Y / (N)

Temp 13° C

Log-in Review VA

REMARKS: 7/14/00

Carrier # Fed Ex 799 [illegible]

Page 3659 of 5828

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TELEPHONE
(505) 748-3311

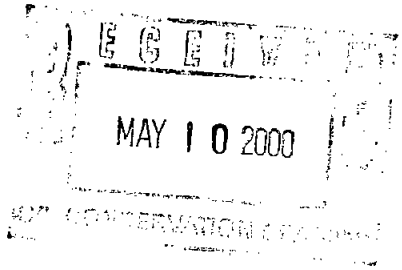
EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

May 8, 2000



Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: First Quarter 2000 Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2000 to March 31, 2000. We have disposed a total of 2,169,912 bbls. of fluid down the two wells. This is broken down as follows: 1,932,802 bbls. down WDW-1 and 237,110 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Page 3661 of 5828

WDW-1

Month	Wellhead Pressure			Injection Flow Rate			Flow Rate		Annulus Pressure			Annulus Level		
	Avg	**Min**	**Max**	**Avg**	**Min**	**Max**	**Average**	**Total**	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**
	psig	psig	psig	gpm	gpm	gpm	**BPD**	**Bbl**	psig	psig	psig	%	%	%
Oct-99	87	-12.7	328	330	499	10.8	11,314	350,743						
Nov-99	161	-12.4	410	249	344	0	8,534	256,011						
Dec-99	156	-12.3	322	272	377	13.5	9,309	288,566						
Jan-00	297	-12	400	369	350	0	12,651	392,195	NA	NA	NA	NA	NA	NA
Feb-00	319	-12	400	319	350	0	10,937	317,173	243	145	318	91	90	92
Mar-00	309	-12	400	309	350	0	10,584	328,114	252	155	325	91	90	92

WDW-2

Month	Wellhead Pressure			Injection Flow Rate			Avg Flow	Total Flow	Annulus Pressure			Annulus Level		
	Avg	**Min**	**Max**	**Avg**	**Min**	**Max**	BPD	Bbl	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**
	psig	psig	psig	gpm	gpm	gpm			psig	psig	psig	%	%	%
Oct-99	NA	NA	NA	NA	NA	NA	NA	NA						
Nov-99	140.3	-15.4	337	159	437	0	5,434	163,029						
Dec-99	140.3	-15.4	338	70	341	0	2,390	74,081						
Jan-00	-13	-13	-13	0	0	0	0	0	NA	NA	NA	NA	NA	NA
Feb-00	-13	-13	-13	0	0	0	0	0	252	232	295	88	86	89
Mar-00	-13	-13	-13	0	0	0	0	0	201	181	243	89	87	90

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TRACEANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 4/14/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00033024

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
143547	Injection Wells	Water	3/29/00	8:30	3/30/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 20 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Results Report

Sample Number: 143547
Description: Injection Wells

Param	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
624 (µg/L)									
Bromochloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dichlorodifluoromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chloromethane (methyl chloride)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Vinyl Chloride	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromomethane (methyl bromide)	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
Chloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Trichlorofluoromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Acetone	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
Iodomethane (methyl iodide)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Carbon Disulfide	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Acrylonitrile	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Butanone (MEK)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
4-methyl-2-pentanone (MIBK)	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
2-hexanone	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans 1,4-Dichloro-2-butene	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
1,1-Dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Methylene chloride	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
MTBE	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans-1,2-Dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1-Dichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
cis-1,2-dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2,2-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichloroethane (EDC)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chloroform	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,1-Trichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Benzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Carbon Tetrachloride	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Trichloroethene (TCE)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dibromomethane (methylene bromide)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromodichloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Chloroethyl vinyl ether	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
cis-1,3-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans-1,3-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Toluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,2-Trichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dibromochloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dibromoethane (EDB)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Tetrachloroethene (PCE)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chlorobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,1,2-Tetrachloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Ethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
m,p-Xylene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromoform	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Styrene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
o-Xylene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 3 of 20

N/A Injection Wells N/A

1,1,2,2-Tetrachloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Chlorotoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2,3-Trichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Isopropylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
n-Propylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3,5-Trimethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
tert-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2,4-Trimethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,4-Dichlorobenzene (para)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
sec-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3-Dichlorobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
p-Isopropyltoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
4-Chlorotoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichlorobenzene (ortho)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
n-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dibromo-3-chloropropane	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
1,2,3-Trichlorobenzene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
1,2,4-Trichlorobenzene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
Naphthalene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Hexachlorobutadiene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #
Dibromofluoromethane	51.31	1	50	103	72 - 128	JG	PB01722	QC02061
Toluene-d8	49.28	1	50	99	91 - 107	JG	PB01722	QC02061
4-Bromofluorobenzene	48.81	1	50	98	74 - 106	JG	PB01722	QC02061

625 (mg/L)

Pyridine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosodimethylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Picoline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Methyl methanesulfonate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Ethyl methanesulfonate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Aniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroethyl) ether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Chlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,3-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,4-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzyl alcohol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroisopropyl) ether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Methylphenol/3-Methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acetophenone	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosodi-n-propylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachloroethane	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Nitrobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosopiperidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Isophorone	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Nitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dimethylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroethoxy) methane	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzoic acid	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2,4-Trichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 4 of 20

N/A Injection Wells N/A

a,a-Dimethylphenethylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Naphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chloroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,6-Dichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorobutadiene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitroso-di-n-butylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chloro-3-methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Methylnaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Methylnaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2,4,5-Tetrachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorocyclopentadiene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4,6-Trichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4,5-Trichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Chloronaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Chloronaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dimethylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acenaphthylene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,6-Dinitrotoluene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acenaphthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dinitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzofuran	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Nitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Napthylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dinitrotoluene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Napthylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,3,4,6-Tetrachlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Fluorene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diethylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chlorophenyl-phenylether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4,6-Dinitro-2-methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diphenylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diphenylhydrazine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Bromophenyl-phenylether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenacetin	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Aminobiphenyl	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachloronitrobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pronamide	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenanthrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Di-n-butylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
p-Dimethylaminoazobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Butylbenzylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(a)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3,3-Dichlorobenzidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Chrysene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Bis (2-ethylhexyl) phthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Di-n-octylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Benzo(b)fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
7,12-Dimethylbenz(a)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(k)fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(a)pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3-Methylcholanthrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzo(a,j)acridine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Indeno(1,2,3-cd)pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzo(a,h)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(g,h,i)perylene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Surrogate (mg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
2-Fluorophenol	13.42	1	80	17	8 - 73	MA	PB01723	QC02062	
Phenol-d5	10.12	1	80	13	8 - 62	MA	PB01723	QC02062	
Nitrobenzene-d5	39.11	1	80	49	44 - 109	MA	PB01723	QC02062	
2-Fluorobiphenyl	46.86	1	80	59	45 - 109	MA	PB01723	QC02062	
2,4,6-Tribromophenol	27.61	1	80	35	39 - 132	MA	PB01723	QC02062	
Terphenyl-d14	32.93	1	80	41	46 - 121	MA	PB01723	QC02062	
Alkalinity (mg/L as CaCo3)									
Hydroxide Alkalinity	<1.0	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Carbonate Alkalinity	<1.0	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Bicarbonate Alkalinity	325	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Total Alkalinity	325	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Conductivity (uMHOS/cm)									
Specific Conductance	7000	1	SM 2510B	4/5/00	4/5/00	JS	PB01580	QC01888	
Corrosivity (mm/yr)									
Corrosivity	Non 0.18	1	S 1110	4/3/00	4/3/00	JM	PB01743	QC02088	
pH	8.67	1	S 1110	4/3/00	4/3/00	JM	PB01743	QC02088	
Dissolved Metals (mg/L)									
Dissolved Calcium	131	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Magnesium	24	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Potassium	26	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Sodium	832	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Hg, Total (mg/L)									
Total Mercury	<0.0002	1	S 7470A	4/4/00	4/6/00	JM	PB01644	QC01968	0.0002
Ignitability									
Ignitability	>150	1	W-846 Ch. 7	4/3/00	4/3/00	JM	PB01744	QC02089	
Ion Chromatography (IC) (mg/L)									
CL	1600	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.5
Fluoride	29	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.2
Nitrate-N	2.6	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.2
Sulfate	870	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.5
pH (s.u.)									
pH	* 8.4	1	E 150.1	3/30/00	3/30/00	RS	PB01527	QC01825	1
* pH - Out of holding time.									
Reactivity									
Reactivity	Non-reactive	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	
Hydrogen Sulfide	<10	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	
Hydrogen Cyanide	<2.5	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 6 of 20

N/A Injection Wells N/A

TDS (mg/L)									
Total Dissolved Solids	* 3200	1	E 160.1	4/7/00	4/8/00	JS	PB01628	QC01956	10
* Total Dissolved Solids - Sample re-ran out of holding time									
Total Metals (mg/L)									
Total Aluminum	0.24	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Arsenic	0.21	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Barium	0.03	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Beryllium	<0.004	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.004
Total Boron	0.24	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Cadmium	<0.002	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.002
Total Chromium	<0.005	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.005
Total Cobalt	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Copper	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Iron	0.27	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Lead	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Manganese	0.05	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Molybdenum	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Nickel	0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Selenium	0.44	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Silver	<0.005	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.005
Total Uranium	<0.50	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.5
Total Vanadium	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Zinc	0.02	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Bromochloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dichlorodifluoromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chloromethane (methyl chloride) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Vinyl Chloride (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Bromomethane (methyl bromide) (µg/L)		<5.00	5	4/3/00	PB01722	QC02061
Chloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Trichlorofluoromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Acetone (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
Iodomethane (methyl iodide) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Carbon Disulfide (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Acrylonitrile (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2-Butanone (MEK) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
4-methyl-2-pentanone (MIBK) (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
2-hexanone (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans 1,4-Dichloro-2-butene (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
1,1-Dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Methylene chloride (µg/L)		<5.00	5	4/3/00	PB01722	QC02061
MTBE (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans-1,2-Dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1-Dichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
cis-1,2-dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2,2-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chloroform (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,1-Trichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Benzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Carbon Tetrachloride (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Trichloroethene (TCE) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dibromomethane (methylene bromide) (µg		<2.00	2	4/3/00	PB01722	QC02061
Bromodichloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2-Chloroethyl vinyl ether (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
cis-1,3-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans-1,3-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Toluene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,2-Trichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,3-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dibromochloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Tetrachloroethene (PCE) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chlorobenzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Ethylbenzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
m,p-Xylene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061

Bromoform (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Styrene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
o-Xylene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,1,2,2-Tetrachloroethane (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
2-Chlorotoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2,3-Trichloropropane (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Isopropylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Bromobenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
n-Propylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,3,5-Trimethylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
tert-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2,4-Trimethylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,4-Dichlorobenzene (para) (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
sec-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,3-Dichlorobenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
p-Isopropyltoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
4-Chlorotoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichlorobenzene (ortho) (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
n-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
1,2,3-Trichlorobenzene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
1,2,4-Trichlorobenzene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
Naphthalene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Hexachlorobutadiene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	51.31	50	103	72 - 128	QC02061
Toluene-d8 (µg/L)	49.28	50	99	91 - 107	QC02061
4-Bromofluorobenzene (µg/L)	48.81	50	98	74 - 106	QC02061

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Pyridine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosodimethylamine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Picoline (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Methyl methanesulfonate (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Ethyl methanesulfonate (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Phenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Aniline (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroethyl) ether (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Chlorophenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,3-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,4-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Benzyl alcohol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,2-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Methylphenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroisopropyl) ether (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
4-Methylphenol/3-Methylphenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Acetophenone (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosodi-n-propylamine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Hexachloroethane (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062

Report Date: 4/14/00	Order ID Number: A00033024				Page Number: 9 of 20
N/A	Injection Wells				N/A
Nitrobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosopiperidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Isophorone (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Nitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dimethylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroethoxy) methane (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzoic acid (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1,2,4-Trichlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
a,a-Dimethylphenethylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Naphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chloroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,6-Dichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorobutadiene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitroso-di-n-butylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chloro-3-methylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Methylnaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Methylnaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1,2,4,5-Tetrachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorocyclopentadiene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4,6-Trichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4,5-Trichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Chloronaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Chloronaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dimethylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Acenaphthylene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,6-Dinitrotoluene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Acenaphthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dinitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzofuran (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Nitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Napthylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dinitrotoluene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Napthylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,3,4,6-Tetrachlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Fluorene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diethylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chlorophenyl-phenylether (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4,6-Dinitro-2-methylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diphenylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diphenylhydrazine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Bromophenyl-phenylether (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Phenacetin (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Aminobiphenyl (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachloronitrobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 10 of 20

N/A Injection Wells N/A

Pronamide (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Phenanthrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Di-n-butylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
p-Dimethylaminoazobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Butylbenzylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(a)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3,3-Dichlorobenzidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Chrysene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Bis (2-ethylhexyl) phthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Di-n-octylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(b)fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
7,12-Dimethylbenz(a)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(k)fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(a)pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3-Methylcholanthrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzo(a,j)acridine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Indeno(1,2,3-cd)pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzo(a,h)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(g,h,i)perylene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
2-Fluorophenol (mg/L)	21.51	80	27	8 - 73	QC02062
Phenol-d5 (mg/L)	14.16	80	18	8 - 62	QC02062
Nitrobenzene-d5 (mg/L)	52.84	80	66	44 - 109	QC02062
2-Fluorobiphenyl (mg/L)	55.45	80	69	45 - 109	QC02062
2,4,6-Tribromophenol (mg/L)	47.37	80	59	39 - 132	QC02062
Terphenyl-d14 (mg/L)	53.65	80	67	46 - 121	QC02062

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Hydroxide Alkalinity (mg/L as CaCo3)		<1.0	1	4/5/00	PB01579	QC01887
Carbonate Alkalinity (mg/L as CaCo3)		<1.0	1	4/5/00	PB01579	QC01887
Bicarbonate Alkalinity (mg/L as CaCo3)		<4.0	1	4/5/00	PB01579	QC01887
Total Alkalinity (mg/L as CaCo3)		<4.0	1	4/5/00	PB01579	QC01887

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Specific Conductance (uMHOS/cm)		3.1		4/5/00	PB01580	QC01888

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dissolved Calcium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Magnesium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Potassium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Sodium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 11 of 20

N/A Injection Wells N/A

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Mercury (mg/L)		<0.0002	0.0002	4/6/00	PB01644	QC01968

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL (mg/L)		<0.5	0.5	3/30/00	PB01514	QC01806
Fluoride (mg/L)		<0.2	0.2	3/30/00	PB01514	QC01806
Nitrate-N (mg/L)		<0.2	0.2	3/30/00	PB01514	QC01806
Sulfate (mg/L)		<0.5	0.5	3/30/00	PB01514	QC01806

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Dissolved Solids (mg/L)		<10	10	4/8/00	PB01628	QC01956

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Aluminum (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Arsenic (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Barium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Beryllium (mg/L)		<0.004	0.004	4/6/00	PB01721	QC02060
Total Boron (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Cadmium (mg/L)		<0.002	0.002	4/6/00	PB01721	QC02060
Total Chromium (mg/L)		<0.005	0.005	4/6/00	PB01721	QC02060
Total Cobalt (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Copper (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Iron (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Lead (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Manganese (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Molybdenum (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Nickel (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Selenium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Silver (mg/L)		<0.005	0.005	4/6/00	PB01721	QC02060
Total Uranium (mg/L)		<0.50	0.5	4/6/00	PB01721	QC02060
Total Vanadium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Zinc (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	86	1	125	200.21	91		80 - 120	-	QC01806
MS	Fluoride (mg/L)	4.5	1	25	28.98	98		80 - 120	-	QC01806
MS	Nitrate-N (mg/L)	5.7	1	50	50.58	90		80 - 120	-	QC01806
MS	Sulfate (mg/L)	160	1	125	280.50	96		80 - 120	-	QC01806
MSD	CL (mg/L)	86	1	125	199.06	90	1	-	0 - 20	QC01806
MSD	Fluoride (mg/L)	4.5	1	25	27.82	93	5	-	0 - 20	QC01806
MSD	Nitrate-N (mg/L)	5.7	1	50	49.86	88	2	-	0 - 20	QC01806
MSD	Sulfate (mg/L)	160	1	125	279.52	96	1	-	0 - 20	QC01806

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Dissolved Calcium (mg/L)	108	1	1000	1094	99		75 - 125	-	QC01950
MS	Dissolved Magnesium (mg/L)	24	1	1000	1014	99		75 - 125	-	QC01950
MS	Dissolved Potassium (mg/L)	14	1	1000	970	96		75 - 125	-	QC01950
MS	Dissolved Sodium (mg/L)	62	1	1000	947	89		75 - 125	-	QC01950
MSD	Dissolved Calcium (mg/L)	108	1	1000	1094	99	0	-	0 - 20	QC01950
MSD	Dissolved Magnesium (mg/L)	24	1	1000	1014	99	0	-	0 - 20	QC01950
MSD	Dissolved Potassium (mg/L)	14	1	1000	1023	101	5	-	0 - 20	QC01950
MSD	Dissolved Sodium (mg/L)	62	1	1000	1075	101	13	-	0 - 20	QC01950

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Total Mercury (mg/L)	<0.0002	1	0.001	0.00103	103		80 - 120	-	QC01968
MSD	Total Mercury (mg/L)	<0.0002	1	0.001	0.00112	112	8	-	0 - 20	QC01968

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Total Aluminum (mg/L)	0.24	1	2	2.11	94		75 - 125	-	QC02060
MS	Total Arsenic (mg/L)	0.21	1	2	1.95	87		75 - 125	-	QC02060
MS	Total Barium (mg/L)	0.03	1	2	1.85	91		75 - 125	-	QC02060
MS	Total Beryllium (mg/L)	<0.004	1	2	1.68	84		75 - 125	-	QC02060
MS	Total Boron (mg/L)	0.24	1	2	1.97	87		75 - 125	-	QC02060
MS	Total Cadmium (mg/L)	<0.002	1	2	1.61	81		75 - 125	-	QC02060
MS	Total Chromium (mg/L)	<0.005	1	2	1.69	85		75 - 125	-	QC02060
MS	Total Cobalt (mg/L)	<0.01	1	2	1.72	86		75 - 125	-	QC02060
MS	Total Copper (mg/L)	<0.01	1	2	1.96	98		75 - 125	-	QC02060

MS	Total Iron (mg/L)	0.27	1	2	1.97	85	75 - 125	-	QC02060
MS	Total Lead (mg/L)	<0.01	1	2	1.67	84	75 - 125	-	QC02060
MS	Total Manganese (mg/L)	0.05	1	2	1.75	85	75 - 125	-	QC02060
MS	Total Molybdenum (mg/L)	<0.01	1	2	1.67	84	75 - 125	-	QC02060
MS	Total Nickel (mg/L)	0.01	1	2	1.81	90	75 - 125	-	QC02060
MS	Total Selenium (mg/L)	0.44	1	2	2.16	86	75 - 125	-	QC02060
MS	Total Silver (mg/L)	<0.005	1	0.25	0.26	104	75 - 125	-	QC02060
MS	Total Uranium (mg/L)	<0.50	1	2	2.12	106	75 - 125	-	QC02060
MS	Total Vanadium (mg/L)	<0.01	1	2	1.69	85	75 - 125	-	QC02060
MS	Total Zinc (mg/L)	0.02	1	2	1.73	86	75 - 125	-	QC02060
MSD	Total Aluminum (mg/L)	0.24	1	2	2.11	94	0	-	0 - 20	QC02060
MSD	Total Arsenic (mg/L)	0.21	1	2	1.95	87	0	-	0 - 20	QC02060
MSD	Total Barium (mg/L)	0.03	1	2	1.85	91	0	-	0 - 20	QC02060
MSD	Total Beryllium (mg/L)	<0.004	1	2	1.68	84	0	-	0 - 20	QC02060
MSD	Total Boron (mg/L)	0.24	1	2	1.98	87	1	-	0 - 20	QC02060
MSD	Total Cadmium (mg/L)	<0.002	1	2	1.61	81	0	-	0 - 20	QC02060
MSD	Total Chromium (mg/L)	<0.005	1	2	1.70	85	1	-	0 - 20	QC02060
MSD	Total Cobalt (mg/L)	<0.01	1	2	1.72	86	0	-	0 - 20	QC02060
MSD	Total Copper (mg/L)	<0.01	1	2	1.97	99	1	-	0 - 20	QC02060
MSD	Total Iron (mg/L)	0.27	1	2	1.98	86	1	-	0 - 20	QC02060
MSD	Total Lead (mg/L)	<0.01	1	2	1.67	84	0	-	0 - 20	QC02060
MSD	Total Manganese (mg/L)	0.05	1	2	1.76	86	1	-	0 - 20	QC02060
MSD	Total Molybdenum (mg/L)	<0.01	1	2	1.67	84	0	-	0 - 20	QC02060
MSD	Total Nickel (mg/L)	0.01	1	2	1.81	90	0	-	0 - 20	QC02060
MSD	Total Selenium (mg/L)	0.44	1	2	2.17	87	1	-	0 - 20	QC02060
MSD	Total Silver (mg/L)	<0.005	1	0.25	0.22	88	17	-	0 - 20	QC02060
MSD	Total Uranium (mg/L)	<0.50	1	2	2.14	107	1	-	0 - 20	QC02060
MSD	Total Vanadium (mg/L)	<0.01	1	2	1.69	85	0	-	0 - 20	QC02060
MSD	Total Zinc (mg/L)	0.02	1	2	1.75	87	1	-	0 - 20	QC02060

Quality Control Report
Duplicates

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydroxide Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC01887
Duplicate	Carbonate Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC01887
Duplicate	Bicarbonate Alkalinity (mg/L as CaC		247	248	1	0	0 - 20	QC01887
Duplicate	Total Alkalinity (mg/L as CaCo3)		247	248	1	0	0 - 20	QC01887

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Specific Conductance (uMHOS/cm)		6973	7000	1	0	0 - 20	QC01888

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 14 of 20
N/A Injection Wells N/A

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Corrosivity (mm/yr)		Non 0.11	Non 0.18	1	0	0 - 20	QC02088
Duplicate	pH (s.u.)		8.52	8.67	1	2	0 - 20	QC02088

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Ignitability		>150	>150	1	0	0 - 20	QC02089

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	pH (s.u.)		8.6	8.6	1	0	0 - 20	QC01825

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydrogen Cyanide		<2.5	<2.5	1	0	0 - 20	QC02090
Duplicate	Hydrogen Sulfide		<10	<10	1	0	0 - 20	QC02090
Duplicate	Reactivity		Non	Non-reactive	1	0	0 - 20	QC02090

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Total Dissolved Solids (mg/L)		3275	3200	1	2	0 - 20	QC01956

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Phenol (mg/L)	<0.005	1	80	19.456	24		5 - 57	-	QC02062
LCS	2-Chlorophenol (mg/L)	<0.005	1	80	45.702	57		29 - 110	-	QC02062
LCS	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	44.401	56		25 - 94	-	QC02062
LCS	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	59.842	74		36 - 119	-	QC02062
LCS	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	54.118	68		28 - 110	-	QC02062
LCS	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	47.100	59		40 - 126	-	QC02062
LCS	Acenaphthene (mg/L)	<0.005	1	80	60.703	76		47 - 118	-	QC02062
LCS	4-Nitrophenol (mg/L)	<0.005	1	80	12.383	15		0 - 69	-	QC02062
LCS	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	47.651	60		46 - 133	-	QC02062
LCS	Pentachlorophenol (mg/L)	<0.005	1	80	44.187	55		21 - 131	-	QC02062
LCS	Pyrene (mg/L)	<0.005	1	80	55.480	69		44 - 125	-	QC02062

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	2-Fluorophenol (mg/L)	1	80	20.66	26	8 - 73	QC02062
LCS	Phenol-d5 (mg/L)	1	80	13.92	17	8 - 62	QC02062
LCS	Nitrobenzene-d5 (mg/L)	1	80	53.11	66	44 - 109	QC02062
LCS	2-Fluorobiphenyl (mg/L)	1	80	57.58	72	45 - 109	QC02062
LCS	2,4,6-Tribromophenol (mg/L)	1	80	45.44	57	39 - 132	QC02062
LCS	Terphenyl-d14 (mg/L)	1	80	52.87	66	46 - 121	QC02062

LCSD	Phenol (mg/L)	<0.005	1	80	18.927	24	3	-	0 - 20	QC02062
LCSD	2-Chlorophenol (mg/L)	<0.005	1	80	50.853	64	11	-	0 - 20	QC02062
LCSD	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	49.094	61	10	-	0 - 20	QC02062
LCSD	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	64.251	80	9	-	0 - 20	QC02062
LCSD	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	61.803	77	13	-	0 - 20	QC02062
LCSD	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	50.593	63	7	-	0 - 20	QC02062
LCSD	Acenaphthene (mg/L)	<0.005	1	80	65.886	82	8	-	0 - 20	QC02062
LCSD	4-Nitrophenol (mg/L)	<0.005	1	80	13.429	17	8	-	0 - 20	QC02062
LCSD	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	49.290	62	3	-	0 - 20	QC02062
LCSD	Pentachlorophenol (mg/L)	<0.005	1	80	50.568	63	13	-	0 - 20	QC02062
LCSD	Pyrene (mg/L)	<0.005	1	80	58.976	74	6	-	0 - 20	QC02062

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	2-Fluorophenol (mg/L)	1	80	27.06	34	8 - 73	QC02062
LCSD	Phenol-d5 (mg/L)	1	80	18.60	23	8 - 62	QC02062
LCSD	Nitrobenzene-d5 (mg/L)	1	80	59.76	75	44 - 109	QC02062
LCSD	2-Fluorobiphenyl (mg/L)	1	80	64.04	80	45 - 109	QC02062
LCSD	2,4,6-Tribromophenol (mg/L)	1	80	48.41	61	39 - 132	QC02062
LCSD	Terphenyl-d14 (mg/L)	1	80	55.12	69	46 - 121	QC02062

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Dissolved Calcium (mg/L)	<0.50	1	1000	968	97		75 - 125	-	QC01950

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 16 of 20

N/A Injection Wells N/A

LCS	Dissolved Magnesium (mg/L)	<0.50	1	1000	966	97	75 - 125	-	QC01950
LCS	Dissolved Potassium (mg/L)	<0.50	1	1000	1022	102	75 - 125	-	QC01950
LCS	Dissolved Sodium (mg/L)	<0.50	1	1000	983	98	75 - 125	-	QC01950
LCSD	Dissolved Calcium (mg/L)	<0.50	1	1000	978	98	1	-	0 - 20	QC01950
LCSD	Dissolved Magnesium (mg/L)	<0.50	1	1000	972	97	1	-	0 - 20	QC01950
LCSD	Dissolved Potassium (mg/L)	<0.50	1	1000	999	100	2	-	0 - 20	QC01950
LCSD	Dissolved Sodium (mg/L)	<0.50	1	1000	987	99	0	-	0 - 20	QC01950

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Total Mercury (mg/L)	<0.0002	1	0.001	0.00090	90		80 - 120	-	QC01968
LCSD	Total Mercury (mg/L)	<0.0002	1	0.001	0.00106	106	16	-	0 - 20	QC01968

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Total Aluminum (mg/L)	<0.01	1	2	1.98	99		75 - 125	-	QC02060
LCS	Total Arsenic (mg/L)	<0.01	1	2	1.87	94		75 - 125	-	QC02060
LCS	Total Barium (mg/L)	<0.01	1	2	2.18	109		75 - 125	-	QC02060
LCS	Total Beryllium (mg/L)	<0.004	1	2	1.95	98		75 - 125	-	QC02060
LCS	Total Boron (mg/L)	<0.01	1	2	1.92	96		75 - 125	-	QC02060
LCS	Total Cadmium (mg/L)	<0.002	1	2	1.97	99		75 - 125	-	QC02060
LCS	Total Chromium (mg/L)	<0.005	1	2	2.01	100		75 - 125	-	QC02060
LCS	Total Cobalt (mg/L)	<0.01	1	2	2.05	102		75 - 125	-	QC02060
LCS	Total Copper (mg/L)	<0.01	1	2	2.08	104		75 - 125	-	QC02060
LCS	Total Iron (mg/L)	<0.01	1	2	2.06	103		75 - 125	-	QC02060
LCS	Total Lead (mg/L)	<0.01	1	2	2.04	102		75 - 125	-	QC02060
LCS	Total Manganese (mg/L)	<0.01	1	2	2.02	101		75 - 125	-	QC02060
LCS	Total Molybdenum (mg/L)	<0.01	1	2	2.03	101		75 - 125	-	QC02060
LCS	Total Nickel (mg/L)	<0.01	1	2	1.99	100		75 - 125	-	QC02060
LCS	Total Selenium (mg/L)	<0.01	1	2	1.87	94		75 - 125	-	QC02060
LCS	Total Silver (mg/L)	<0.005	1	0.4	0.415	104		75 - 125	-	QC02060
LCS	Total Uranium (mg/L)	<0.50	1	2	1.99	100		75 - 125	-	QC02060
LCS	Total Vanadium (mg/L)	<0.01	1	2	1.98	99		75 - 125	-	QC02060
LCS	Total Zinc (mg/L)	<0.01	1	2	2.02	101		75 - 125	-	QC02060
LCSD	Total Aluminum (mg/L)	<0.01	1	2	2.00	100	1	-	0 - 20	QC02060
LCSD	Total Arsenic (mg/L)	<0.01	1	2	1.89	95	1	-	0 - 20	QC02060
LCSD	Total Barium (mg/L)	<0.01	1	2	2.19	110	0	-	0 - 20	QC02060
LCSD	Total Beryllium (mg/L)	<0.004	1	2	1.96	98	1	-	0 - 20	QC02060
LCSD	Total Boron (mg/L)	<0.01	1	2	1.94	97	1	-	0 - 20	QC02060
LCSD	Total Cadmium (mg/L)	<0.002	1	2	1.98	99	1	-	0 - 20	QC02060
LCSD	Total Chromium (mg/L)	<0.005	1	2	2.02	101	0	-	0 - 20	QC02060
LCSD	Total Cobalt (mg/L)	<0.01	1	2	2.06	103	0	-	0 - 20	QC02060
LCSD	Total Copper (mg/L)	<0.01	1	2	2.09	105	0	-	0 - 20	QC02060

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 17 of 20

N/A Injection Wells N/A

LCSD	Total Iron (mg/L)	<0.01	1	2	2.07	103	0	-	0 - 20	QC02060
LCSD	Total Lead (mg/L)	<0.01	1	2	2.05	102	0	-	0 - 20	QC02060
LCSD	Total Manganese (mg/L)	<0.01	1	2	2.03	101	0	-	0 - 20	QC02060
LCSD	Total Molybdenum (mg/L)	<0.01	1	2	2.05	102	1	-	0 - 20	QC02060
LCSD	Total Nickel (mg/L)	<0.01	1	2	2.00	100	1	-	0 - 20	QC02060
LCSD	Total Selenium (mg/L)	<0.01	1	2	1.89	95	1	-	0 - 20	QC02060
LCSD	Total Silver (mg/L)	<0.005	1	0.4	0.418	105	1	-	0 - 20	QC02060
LCSD	Total Uranium (mg/L)	<0.50	1	2	1.97	99	1	-	0 - 20	QC02060
LCSD	Total Vanadium (mg/L)	<0.01	1	2	1.99	100	1	-	0 - 20	QC02060
LCSD	Total Zinc (mg/L)	<0.01	1	2	2.04	102	1	-	0 - 20	QC02060

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	Phenol (mg/L)		60	58.22	97	5 - 57	4/3/00	QC02062
CCV 1	1,4-Dichlorobenzene (mg/L)		60	58.66	98	25 - 94	4/3/00	QC02062
CCV 1	2-Nitrophenol (mg/L)		60	58.06	97	80 - 120	4/3/00	QC02062
CCV 1	Hexachlorobutadiene (mg/L)		60	61.40	102	80 - 120	4/3/00	QC02062
CCV 1	4-Chloro-3-methylphenol (mg/L)		60	55.07	92	40 - 126	4/3/00	QC02062
CCV 1	2,4,6-Trichlorophenol (mg/L)		60	58.83	98	80 - 120	4/3/00	QC02062
CCV 1	Acenaphthylene (mg/L)		60	58.23	97	80 - 120	4/3/00	QC02062
CCV 1	Diphenylamine (mg/L)		60	51.43	86	80 - 120	4/3/00	QC02062
CCV 1	Pentachlorophenol (mg/L)		60	52.25	87	21 - 131	4/3/00	QC02062
CCV 1	Fluoranthene (mg/L)		60	52.07	87	80 - 120	4/3/00	QC02062
CCV 1	Di-n-octylphthalate (mg/L)		60	56.37	94	80 - 120	4/3/00	QC02062
CCV 1	Benzo(a)pyrene (mg/L)		60	61.74	103	80 - 120	4/3/00	QC02062

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Hydroxide Alkalinity (mg/L as CaCo3)		0	5.0	0	80 - 120	4/5/00	QC01887
ICV	Carbonate Alkalinity (mg/L as CaCo3)		0	212	0	80 - 120	4/5/00	QC01887
ICV	Bicarbonate Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	4/5/00	QC01887
ICV	Total Alkalinity (mg/L as CaCo3)		236	217	92	80 - 120	4/5/00	QC01887
CCV 1	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	4/5/00	QC01887
CCV 1	Carbonate Alkalinity (mg/L as CaCo3)		0	212	0	80 - 120	4/5/00	QC01887
CCV 1	Bicarbonate Alkalinity (mg/L as CaCo3)		0	11	0	80 - 120	4/5/00	QC01887
CCV 1	Total Alkalinity (mg/L as CaCo3)		236	223	94	80 - 120	4/5/00	QC01887

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Specific Conductance (uMHOS/cm)		1413	1279	91	80 - 120	4/5/00	QC01888
CCV 1	Specific Conductance (uMHOS/cm)		1413	1288	91	80 - 120	4/5/00	QC01888

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Dissolved Calcium (mg/L)		20	20.9	105	75 - 125	4/6/00	QC01950
ICV	Dissolved Magnesium (mg/L)		20	21.9	110	75 - 125	4/6/00	QC01950
ICV	Dissolved Potassium (mg/L)		20	20.7	103	75 - 125	4/6/00	QC01950
ICV	Dissolved Sodium (mg/L)		20	21.5	108	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Calcium (mg/L)		20	20.9	105	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Magnesium (mg/L)		20	21.9	110	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Potassium (mg/L)		20	20.7	103	75 - 125	4/6/00	QC01950

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	Dissolved Sodium (mg/L)		20	21.5	108	75 - 125	4/6/00	QC01950

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Mercury (mg/L)		0.005	0.00091	18	80 - 120	4/6/00	QC01968
CCV 1	Total Mercury (mg/L)		0.005	0.00101	20	80 - 120	4/6/00	QC01968

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.39	91	80 - 120	3/30/00	QC01806
ICV	Fluoride (mg/L)		2.5	2.48	99	80 - 120	3/30/00	QC01806
ICV	Nitrate-N (mg/L)		5	4.65	93	80 - 120	3/30/00	QC01806
ICV	Sulfate (mg/L)		12.5	11.52	92	80 - 120	3/30/00	QC01806
CCV 1	CL (mg/L)		12.5	11.32	91	80 - 120	3/30/00	QC01806
CCV 1	Fluoride (mg/L)		2.5	2.47	99	80 - 120	3/30/00	QC01806
CCV 1	Nitrate-N (mg/L)		5	4.64	93	80 - 120	3/30/00	QC01806
CCV 1	Sulfate (mg/L)		12.5	11.46	92	80 - 120	3/30/00	QC01806

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	pH (s.u.)		7	7.0	100	80 - 120	3/30/00	QC01825
CCV 1	pH (s.u.)		7	7.0	100	80 - 120	3/30/00	QC01825

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Dissolved Solids (mg/L)		1000	1006	101	80 - 120	4/8/00	QC01956
CCV 1	Total Dissolved Solids (mg/L)		1000	984	98	80 - 120	4/8/00	QC01956

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Aluminum (mg/L)		20	19.6	98	75 - 125	4/6/00	QC02060
ICV	Total Arsenic (mg/L)		1	1.00	100	75 - 125	4/6/00	QC02060
ICV	Total Barium (mg/L)		20	21.0	105	75 - 125	4/6/00	QC02060
ICV	Total Beryllium (mg/L)		0.5	0.502	100	75 - 125	4/6/00	QC02060
ICV	Total Boron (mg/L)		2.5	2.53	101	75 - 125	4/6/00	QC02060
ICV	Total Cadmium (mg/L)		0.5	0.509	102	75 - 125	4/6/00	QC02060
ICV	Total Chromium (mg/L)		1	1.01	101	75 - 125	4/6/00	QC02060

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 20 of 20
N/A Injection Wells N/A

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Cobalt (mg/L)		5	5.09	102	75 - 125	4/6/00	QC02060
ICV	Total Copper (mg/L)		2.5	2.49	100	75 - 125	4/6/00	QC02060
ICV	Total Iron (mg/L)		10	10.1	101	75 - 125	4/6/00	QC02060
ICV	Total Lead (mg/L)		0.5	0.510	102	75 - 125	4/6/00	QC02060
ICV	Total Manganese (mg/L)		1.5	1.52	101	75 - 125	4/6/00	QC02060
ICV	Total Molybdenum (mg/L)		2.5	2.53	101	75 - 125	4/6/00	QC02060
ICV	Total Nickel (mg/L)		4	4.01	100	75 - 125	4/6/00	QC02060
ICV	Total Selenium (mg/L)		0.5	0.503	101	75 - 125	4/6/00	QC02060
ICV	Total Silver (mg/L)		1	0.99	99	75 - 125	4/6/00	QC02060
ICV	Total Uranium (mg/L)		1	1.05	105	75 - 125	4/6/00	QC02060
ICV	Total Vanadium (mg/L)		5	5.03	101	75 - 125	4/6/00	QC02060
ICV	Total Zinc (mg/L)		2	2.04	102	75 - 125	4/6/00	QC02060
CCV 1	Total Aluminum (mg/L)		20	19.4	97	75 - 125	4/6/00	QC02060
CCV 1	Total Arsenic (mg/L)		1	0.98	98	75 - 125	4/6/00	QC02060
CCV 1	Total Barium (mg/L)		20	20.5	102	75 - 125	4/6/00	QC02060
CCV 1	Total Beryllium (mg/L)		0.5	0.493	99	75 - 125	4/6/00	QC02060
CCV 1	Total Boron (mg/L)		2.5	2.47	99	75 - 125	4/6/00	QC02060
CCV 1	Total Cadmium (mg/L)		0.5	0.494	99	75 - 125	4/6/00	QC02060
CCV 1	Total Chromium (mg/L)		1	0.99	99	75 - 125	4/6/00	QC02060
CCV 1	Total Cobalt (mg/L)		5	4.99	100	75 - 125	4/6/00	QC02060
CCV 1	Total Copper (mg/L)		2.5	2.48	99	75 - 125	4/6/00	QC02060
CCV 1	Total Iron (mg/L)		10	9.9	99	75 - 125	4/6/00	QC02060
CCV 1	Total Lead (mg/L)		0.5	0.502	100	75 - 125	4/6/00	QC02060
CCV 1	Total Manganese (mg/L)		1.5	1.49	99	75 - 125	4/6/00	QC02060
CCV 1	Total Molybdenum (mg/L)		2.5	2.48	99	75 - 125	4/6/00	QC02060
CCV 1	Total Nickel (mg/L)		4	3.98	100	75 - 125	4/6/00	QC02060
CCV 1	Total Selenium (mg/L)		0.5	0.499	100	75 - 125	4/6/00	QC02060
CCV 1	Total Silver (mg/L)		1	0.98	98	75 - 125	4/6/00	QC02060
CCV 1	Total Uranium (mg/L)		1	1.06	106	75 - 125	4/6/00	QC02060
CCV 1	Total Vanadium (mg/L)		5	4.95	99	75 - 125	4/6/00	QC02060
CCV 1	Total Zinc (mg/L)		2	1.97	99	75 - 125	4/6/00	QC02060

143547

Page ____ of ____

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TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A0003302 4

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E. Main
Fax #: 505 748 9077
Contact Person: Darrell Moore or Charlie Phymale
Invoice to: (if different from above)
Project #:
Project Name: Injection Wells
Project Location: Artesia
Sampler Signature: Charlie Phymale

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	NaHSO4	SAMPLING: DATE	TIME
143547	Injection Wells	2	1L	X						X	X		3/29/00	8:30
	" "	2	40ml	X							X	X	3/29/00	8:30
	" "	1	500ml	X					X	X			3/29/00	8:30

MTBE 8021B/602
BTEX 8021B/602
TPH 418.1/TX1005
PAH 8270C
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7
TCLP Metals Ag As Ba Cd Cr Pb Se Hg
TCLP Volatiles
TCLP Semi Volatiles
TCLP Pesticides
RCI
GC-MS Vol. 8260B/624
GC/MS Semi. Vol. 8270C/625
PCB's 8082/608
Pesticides 8081A/608
BOD, TSS, pH
Turn Around Time if different from standard
Hold

See list

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Phymale	3/29/00	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Henely	3:30 00	10:00

LAB USE ONLY

Intact (Y) / N
Headspace Y / (N)
Temp 12° C
Log-in Review MS

REMARKS:

4/17

Carrier # Fed Ex 279-3832-431

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID #_____

Company Name: NAVA 50 Phone #: 5057483311

Address: (Street, City, Zip) 501 E. Main Fax #: 505 7489077

Contact Person: Darrell Moore or Charlie Plymale

Invoice to: (If different from above)

Project #: Project Name: Inj. wells

Project Location: Artesia Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME
	Inj wells	1	1L	X						X	X	3/30/00	13:50

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7: See 1-5A | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

Relinquished by: Charlie Plymale	Date: 3/30/00	Time: 16:15	Received by:
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Hensley 3-31-00 9:00

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp -2° °
Log-in Review

REMARKS:
RL Sample

Carrier # FedEx 279-4050 942

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

TELEPHONE
(505) 748-3311

EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

February 1, 2000

RECEIVED
FEB 0 3 2000
Environmental Bureau
Oil Conservation Division

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 1999 to December 31, 1999. We have disposed a total of 1,136,090 bbls. of fluid down the two wells. This is broken down as follows: 893,539 bbls. down WDW-1 and 242,551 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Page 3685 of 5828

Qrtly Injection Pressures, Rates

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	M Ma V
October 1999	87	328	-12.7	330	499	10.8	11314.29	17
November 1999	161	410.4	-12.4	248.9	343.8	0	8533.71	11
December 1999	155.5	322.4	-12.3	271.5	376.7	13.5	9308.57	12

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	M Ma V
October 1999	NA	NA	NA	NA	NA	NA	NA	
November 1999	140.3	337	-15.4	158.5	436.6	0	5434.286	14
December 1999	140.3	337.8	-15.4	69.7	341	0	2389.714	1'

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E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING CO.
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

January 17, 2000
Receiving Date: 01/06/00
Sample Type: Water
Project #: N/A
Project Location: N/A

Prep Date: 01/10/00
Analysis Date: 01/10/00
Sampling Date: 01/05/00
Sample Condition: I & C
Sample Received by: VW
Project Name: Injection Wells

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T138278	Injection Wells	20	34	164	628
ICV		20.2	20.3	20.5	20.2
CCV		19.9	20.2	20.2	20.2
Reporting Limit		5.0	5.0	5.0	5.0
RPD		1	1	2	0
% Extraction Accuracy		109	101	99	108
% Instrument Accuracy		100	101	102	101

METHODS: EPA SW 846-6010B, 3005A
CHEMIST: RR
TOTAL SPIKE: 1,000 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.
TOTAL CV: 20 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich

01/17/00
Date

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E-Mail: lab@traceanalysis.com

January 17, 2000
Receiving Date: 01/06/00
Sample Type: Water
Project #: N/A
Project Location: N/A

ANALYTICAL RESULTS FOR
NAVAJO REFINING CO.
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

Analysis Date: 01/14/00
Sampling Date: 01/05/00
Sample Condition: I & C
Sample Received by: VW
Project Name: Injection Wells

TA#	Field Code	REACTIVITY	SULFIDES (ppm)	CYANIDES (ppm)	CORROSIVITY (mm/yr)	pH (s.u.)	FLASHPOINT (F)
	EPA LIMIT =	---	500	250	>6.5 mm/yr	<2 >12.5	>140 F
T138278	Injection Wells	Non-reactive	<10	<2.5	Non 0.40 mm/yr	8.16	>150 Non-Ignitable
RPD		0	0	0	0	0	0
% Extraction Accuracy		100	100	100	100	100	100
% Instrument Accuracy		---	---	---	---	---	---

METHODS: EPA SW 846-Chapter 7 7.3, Chapter 7 7.2, Chapter 7 7.1.
CHEMIST: JM

Director, Dr. Blair Leftwich

01/17/00
Date

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E-Mail: lab@traceanalysis.com

January 14, 2000
Receiving Date: 01/06/2000
Sample Type: Water
Project No: NA
Project Location: NA

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

Sampling Date: 01/05/2000
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Injection Wells

TOTAL METALS (mg/L)

TA#	Field Code	Ag	As	Ba	Cd	Cr	Pb	Se	Hg
T138278	Injection Wells	<0.05	0.19	<0.10	<0.02	<0.05	<0.10	0.27	<0.0002
ICV		0.21	0.98	0.94	0.94	0.94	0.94	0.98	0.00104
CCV		0.19	0.94	0.94	0.94	0.92	0.94	0.94	0.00107
Reporting Limit		0.05	0.10	0.10	0.02	0.05	0.10	0.10	0.0002
RPD		4	3	3	1	1	2	3	7
% Extraction Accuracy		73	89	86	83	86	83	88	85
% Instrument Accuracy		100	96	94	94	93	94	96	106
PREP DATE		01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/13/2000
ANALYSIS DATE		01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/13/2000

CHEMIST: As, Se, Cd, Cr, Pb, Ag, Ba: RR Hg: BP
METHODS: EPA SW 846-3010A, 6010B, 7470A.
TOTAL METALS SPIKE: 0.40 mg/L Ag; 2.0 mg/L As, Ba, Cd, Cr, Pb, Se; 0.0010 mg/L Hg.
TOTAL METALS CV: 0.20 mg/L Ag; 1.0 mg/L As, Ba, Cd, Cr, Pb, Se; 0.0010 mg/L Hg.

Director, Dr. Blair Leftwich

01/17/00
Date

TRACEANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 1/19/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00010608

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
138278	Injection Wells	Water	1/5/00	9:45	1/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 2 of 15
N/A Injection Wells N/A

Analytical Results Report

Sample Number: 138278
Description: Injection Wells

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
8260 (µg/L)										
Dichlorodifluoromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromomethane		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Chloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Trichlorofluoromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Methylene chloride		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
MTBE		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,2-Dichloroethene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,2-dichloroethene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2,2-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloroethane (EDC)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1-Trichloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Carbon Tetrachloride		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromomethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromodichloromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,3-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,3-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,2-Trichloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromochloromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dibromoethane (EDB)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Tetrachloroethene (PCE)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1,2-Tetrachloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
m,p-Xylene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromoform		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Styrene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
o-Xylene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Isopropylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2-Chlorotoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Propylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
4-Chlorotoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3,5-Trimethylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
tert-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trimethylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,4-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
sec-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
p-Isopropyltoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichlorobenzene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Naphthalene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trichlorobenzene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
1,2-Dibromo-3-chloropropane		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Hexachlorobutadiene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 3 of 15

N/A Injection Wells N/A

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
Dibromofluoromethane	50.71	1	50	101	83 - 121	JG	PB00190	QC00251	
Toluene-d8	51.32	1	50	103	91 - 108	JG	PB00190	QC00251	
4-Bromofluorobenzene	47.70	1	50	95	80 - 120	JG	PB00190	QC00251	
8270 (mg/L)									
Pyridine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosodimethylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Picoline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Methyl methanesulfonate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Ethyl methanesulfonate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Aniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroethyl) ether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Chlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,3-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,4-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzyl alcohol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroisopropyl) ether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Methylphenol/3-Methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acetophenone	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosodi-n-propylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachloroethane	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Nitrobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosopiperidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Isophorone	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Nitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dimethylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroethoxy) methane	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzoic acid	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2,4-Trichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
a,a-Dimethylphenethylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Naphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chloroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,6-Dichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorobutadiene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitroso-di-n-butylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chloro-3-methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Methylnaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Methylnaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2,4,5-Tetrachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorocyclopentadiene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4,6-Trichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4,5-Trichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Chloronaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Chloronaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dimethylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acenaphthylene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,6-Dinitrotoluene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acenaphthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 4 of 15

N/A Injection Wells N/A

2,4-Dinitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzofuran	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Nitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Napthylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dinitrotoluene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Napthylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,3,4,6-Tetrachlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Fluorene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diethylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chlorophenyl-phenylether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4,6-Dinitro-2-methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diphenylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diphenylhydrazine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Bromophenyl-phenylether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenacetin	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Aminobiphenyl	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachloronitrobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pronamide	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenanthrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Di-n-butylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
p-Dimethylaminoazobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Butylbenzylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(a)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3,3-Dichlorobenzidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Chrysene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Bis (2-ethylhexyl) phthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Di-n-octylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(b)fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
7,12-Dimethylbenz(a)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(k)fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(a)pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3-Methylcholanthrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzo(a,j)acridine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Indeno(1,2,3-cd)pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzo(a,h)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(g,h,i)perylene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005

Surrogate (mg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
2-Fluorophenol	34.11	1	80	43	9 - 71	MA	PB00185	QC00333	
Phenol-d5	30.32	1	80	38	4 - 64	MA	PB00185	QC00333	
Nitrobenzene-d5	54.02	1	80	68	44 - 109	MA	PB00185	QC00333	
2-Fluorobiphenyl	51.81	1	80	65	47 - 108	MA	PB00185	QC00333	
2,4,6-Tribromophenol	44.98	1	80	56	51 - 128	MA	PB00185	QC00333	
Terphenyl-d14	66.88	1	80	84	58 - 115	MA	PB00185	QC00333	
Alkalinity (mg/L as CaCo3)									
Hydroxide Alkalinity	<1.0	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Carbonate Alkalinity	<1.0	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 5 of 15

N/A Injection Wells N/A

Bicarbonate Alkalinity		320	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Total Alkalinity		320	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Conductivity (uMHOS/cm)										
Specific Conductance		4982	1	SM 2510B	1/11/00	1/11/00	MF	PB00232	QC00304	
Ion Chromatography (IC) (mg/L)										
CL		920	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.5
Fluoride		27	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.1
Nitrate-N		2.6	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.2
Sulfate		700	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.5
pH (s.u.)										
pH	*	8.2	1	E 150.1	1/6/00	1/6/00	RS	PB00253	QC00327	1
TDS (mg/L)										
Total Dissolved Solids		2300	1	E 160.1	1/11/00	1/12/00	JS	PB00238	QC00311	10

* pH - Out of holding time.

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dichlorodifluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromomethane (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Chloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Trichlorofluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Methylene chloride (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
MTBE (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,2-Dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,2-dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Carbon Tetrachloride (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromomethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromodichloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,2-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromochloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Tetrachloroethene (PCE) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
m,p-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromoform (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Styrene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
o-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Isopropylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Propylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
4-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3,5-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
tert-Butylbenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2,4-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,4-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
sec-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,3-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
p-Isopropyltoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichlorobenzene (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Naphthalene (µg/L)		<2	2	1/6/00	PB00190	QC00251

1,2,4-Trichlorobenzene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
Hexachlorobutadiene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	50.11	50	100	83 - 121	QC00251
Toluene-d8 (µg/L)	52.65	50	105	91 - 108	QC00251
4-Bromofluorobenzene (µg/L)	46.07	50	92	80 - 120	QC00251

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Pyridine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosodimethylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Picoline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Methyl methanesulfonate (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Ethyl methanesulfonate (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Phenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Aniline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroethyl) ether (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Chlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,3-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,4-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Benzyl alcohol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroisopropyl) ether (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Methylphenol/3-Methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Acetophenone (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosodi-n-propylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachloroethane (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Nitrobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosopiperidine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Isophorone (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Nitrophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dimethylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroethoxy) methane (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Benzoic acid (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2,4-Trichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
a,a-Dimethylphenethylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Naphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Chloroaniline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,6-Dichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorobutadiene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitroso-di-n-butylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Chloro-3-methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1-Methylnaphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Methylnaphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2,4,5-Tetrachlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorocyclopentadiene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4,6-Trichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333

Report Date: 1/19/00	Order ID Number: A00010608				Page Number: 8 of 15
N/A	Injection Wells				N/A
2,4,5-Trichlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Chloronaphthalene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
1-Chloronaphthalene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dimethylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Acenaphthylene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,6-Dinitrotoluene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Acenaphthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dinitrophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dibenzofuran (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachlorobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Nitrophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
1-Napthylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dinitrotoluene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Napthylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,3,4,6-Tetrachlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Fluorene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diethylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Chlorophenyl-phenylether (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4,6-Dinitro-2-methylphenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diphenylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diphenylhydrazine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Bromophenyl-phenylether (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Phenacetin (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Aminobiphenyl (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachloronitrobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pronamide (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Phenanthrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Di-n-butylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzidine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
p-Dimethylaminoazobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Butylbenzylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(a)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3,3-Dichlorobenzidine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Chrysene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Bis (2-ethylhexyl) phthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Di-n-octylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(b)fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
7,12-Dimethylbenz(a)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(k)fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(a)pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3-Methylcholanthrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dibenzo(a,j)acridine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Indeno(1,2,3-cd)pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333

Dibenzo(a,h)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(g,h,i)perylene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
2-Fluorophenol (mg/L)	35.26	80	44	9 - 71	QC00333
Phenol-d5 (mg/L)	22.41	80	28	4 - 64	QC00333
Nitrobenzene-d5 (mg/L)	59.32	80	74	44 - 109	QC00333
2-Fluorobiphenyl (mg/L)	63.26	80	79	47 - 108	QC00333
2,4,6-Tribromophenol (mg/L)	58.13	80	73	51 - 128	QC00333
Terphenyl-d14 (mg/L)	67.36	80	84	58 - 115	QC00333

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Hydroxide Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Carbonate Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Bicarbonate Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Total Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Specific Conductance (uMHOS/cm)		6.7		1/11/00	PB00232	QC00304

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL (mg/L)		<0.5	0.5	1/6/00	PB00196	QC00257
Fluoride (mg/L)		<0.1	0.1	1/6/00	PB00196	QC00257
Nitrate-N (mg/L)		<0.2	0.2	1/6/00	PB00196	QC00257
Sulfate (mg/L)		<0.5	0.5	1/6/00	PB00196	QC00257

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Dissolved Solids (mg/L)		<10	10	1/12/00	PB00238	QC00311

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param		Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	*	920	1	1250	2060.31	91		80 - 120	0 - 20	QC00257
MS	Fluoride (mg/L)	*	27	1	250	253.06	90		80 - 120	0 - 20	QC00257
MS	Nitrate-N (mg/L)	*	2.6	1	500	477.41	95		80 - 120	0 - 20	QC00257
MS	Sulfate (mg/L)	*	700	1	1250	1935.14	99		80 - 120	0 - 20	QC00257

* CL - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 92.
* Fluoride - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 89.
* Nitrate-N - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 95.
* Sulfate - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 98.

Standard	Param		Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MSD	CL (mg/L)	*	920	1	1250	2061.14	91	0	80 - 120	0 - 20	QC00257
MSD	Fluoride (mg/L)	*	27	1	250	255.32	91	1	80 - 120	0 - 20	QC00257
MSD	Nitrate-N (mg/L)	*	2.6	1	500	482.88	96	1	80 - 120	0 - 20	QC00257
MSD	Sulfate (mg/L)	*	700	1	1250	1969.34	102	3	80 - 120	0 - 20	QC00257

* CL - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 92.
* Fluoride - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 89.
* Nitrate-N - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 95.
* Sulfate - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 98.

Quality Control Report
Duplicates

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydroxide Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC00275
Duplicate	Carbonate Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC00275
Duplicate	Bicarbonate Alkalinity (mg/L as CaC		330	320	1	3	0 - 20	QC00275
Duplicate	Total Alkalinity (mg/L as CaCo3)		330	320	1	3	0 - 20	QC00275

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Specific Conductance (uMHOS/cm)		966	978	1	1	0 - 20	QC00304

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	pH (s.u.)		7.4	7.4	1	0	0 - 20	QC00327

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 11 of 15

N/A Injection Wells N/A

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Total Dissolved Solids (mg/L)		1870	1800	1	4	0 - 20	QC00311

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	1,1-Dichloroethene (ug/L)		1	100	88	88		77 - 136	0 - 20	QC00251
LCS	Benzene (ug/L)		1	100	95	95		71 - 120	0 - 20	QC00251
LCS	Trichloroethene (TCE) (ug/L)		1	100	90	90		84 - 109	0 - 20	QC00251
LCS	Toluene (ug/L)		1	100	94	94		74 - 113	0 - 20	QC00251
LCS	Chlorobenzene (ug/L)		1	100	95	95		79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	Dibromofluoromethane (µg/L)	1	50	50.97	102	83 - 121	QC00251
LCS	Toluene-d8 (µg/L)	1	50	51.40	103	91 - 108	QC00251
LCS	4-Bromofluorobenzene (µg/L)	1	50	45.29	91	80 - 120	QC00251

LCSD	1,1-Dichloroethene (ug/L)		1	100	86	86	2	77 - 136	0 - 20	QC00251
LCSD	Benzene (ug/L)		1	100	95	95	0	71 - 120	0 - 20	QC00251
LCSD	Trichloroethene (TCE) (ug/L)		1	100	89	89	1	84 - 109	0 - 20	QC00251
LCSD	Toluene (ug/L)		1	100	94	94	0	74 - 113	0 - 20	QC00251
LCSD	Chlorobenzene (ug/L)		1	100	94	94	1	79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	Dibromofluoromethane (µg/L)	1	50	49.67	99	83 - 121	QC00251
LCSD	Toluene-d8 (µg/L)	1	50	51.67	103	91 - 108	QC00251
LCSD	4-Bromofluorobenzene (µg/L)	1	50	44.87	90	80 - 120	QC00251

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Phenol (mg/L)	<0.005	1	80	22.818	29		5 - 112	0 - 20	QC00333
LCS	2-Chlorophenol (mg/L)	<0.005	1	80	55.548	69		28 - 110	0 - 20	QC00333
LCS	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	50.523	63		27 - 94	0 - 20	QC00333
LCS	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	66.130	83		Det - 230	0 - 20	QC00333
LCS	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	53.798	67		31 - 109	0 - 20	QC00333
LCS	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	52.521	66		41 - 126	0 - 20	QC00333
LCS	Acenaphthene (mg/L)	<0.005	1	80	63.740	80		46 - 118	0 - 20	QC00333
LCS	4-Nitrophenol (mg/L)	<0.005	1	80	17.704	22		0 - 70	0 - 20	QC00333
LCS	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	62.222	78		50 - 132	0 - 20	QC00333
LCS	Pentachlorophenol (mg/L)	<0.005	1	80	42.948	54		1 - 150	0 - 20	QC00333
LCS	Pyrene (mg/L)	<0.005	1	80	66.491	83		49 - 122	0 - 20	QC00333

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	2-Fluorophenol (mg/L)	1	80	36.50	46	9 - 71	QC00333
LCS	Phenol-d5 (mg/L)	1	80	24.31	30	4 - 64	QC00333
LCS	Nitrobenzene-d5 (mg/L)	1	80	63.52	79	44 - 109	QC00333
LCS	2-Fluorobiphenyl (mg/L)	1	80	63.34	79	47 - 108	QC00333
LCS	2,4,6-Tribromophenol (mg/L)	1	80	63.27	79	51 - 128	QC00333
LCS	Terphenyl-d14 (mg/L)	1	80	63.55	79	58 - 115	QC00333

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 13 of 15

N/A Injection Wells N/A

LCSD	Phenol (mg/L)	<0.005	1	80	22.026	28	4	2 - 55	0 - 20	QC00333
LCSD	2-Chlorophenol (mg/L)	<0.005	1	80	52.863	66	5	28 - 110	0 - 20	QC00333
LCSD	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	48.069	60	5	27 - 94	0 - 20	QC00333
LCSD	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	64.392	80	3	Det - 230	0 - 20	QC00333
LCSD	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	52.282	65	3	31 - 109	0 - 20	QC00333
LCSD	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	54.382	68	3	41 - 126	0 - 20	QC00333
LCSD	Acenaphthene (mg/L)	<0.005	1	80	62.427	78	2	46 - 118	0 - 20	QC00333
LCSD	4-Nitrophenol (mg/L)	<0.005	1	80	18.749	23	6	0 - 70	0 - 20	QC00333
LCSD	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	64.415	81	3	50 - 132	0 - 20	QC00333
LCSD	Pentachlorophenol (mg/L)	<0.005	1	80	43.506	54	1	1 - 150	0 - 20	QC00333
LCSD	Pyrene (mg/L)	<0.005	1	80	69.022	86	4	49 - 122	0 - 20	QC00333

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	2-Fluorophenol (mg/L)	1	80	34.57	43	9 - 71	QC00333
LCSD	Phenol-d5 (mg/L)	1	80	23.20	29	4 - 64	QC00333
LCSD	Nitrobenzene-d5 (mg/L)	1	80	60.47	76	44 - 109	QC00333
LCSD	2-Fluorobiphenyl (mg/L)	1	80	62.00	78	47 - 108	QC00333
LCSD	2,4,6-Tribromophenol (mg/L)	1	80	66.43	83	51 - 128	QC00333
LCSD	Terphenyl-d14 (mg/L)	1	80	66.95	84	58 - 115	QC00333

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV (1	1,2-Dichloropropane (µg/L)		100	106	106	80 - 120	1/6/00	QC00251
CCV (1	Dibromofluoromethane (µg/L)		50	50.35	101	83 - 121	1/6/00	QC00251
CCV (1	Toluene-d8 (µg/L)		50	49.3	99	91 - 108	1/6/00	QC00251
CCV (1	4-Bromofluorobenzene (µg/L)		50	51.76	104	80 - 120	1/6/00	QC00251

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV (1	Phenol (mg/L)		60	60.31	101	80 - 120	1/11/00	QC00333
CCV (1	1,4-Dichlorobenzene (mg/L)		60	61.32	102	27 - 94	1/11/00	QC00333
CCV (1	2-Nitrophenol (mg/L)		60	58.50	98	80 - 120	1/11/00	QC00333
CCV (1	2,4-Dichlorophenol (mg/L)		60	57.94	97	80 - 120	1/11/00	QC00333
CCV (1	Hexachlorobutadiene (mg/L)		60	61.10	102	80 - 120	1/11/00	QC00333
CCV (1	4-Chloro-3-methylphenol (mg/L)		60	55.24	92	41 - 126	1/11/00	QC00333
CCV (1	2,4,6-Trichlorophenol (mg/L)		60	57.30	96	80 - 120	1/11/00	QC00333
CCV (1	Acenaphthene (mg/L)		60	59.46	99	46 - 118	1/11/00	QC00333
CCV (1	Diphenylamine (mg/L)		60	56.48	94	80 - 120	1/11/00	QC00333
CCV (1	Pentachlorophenol (mg/L)		60	54.86	91	1 - 150	1/11/00	QC00333
CCV (1	Fluoranthene (mg/L)		60	59.83	100	80 - 120	1/11/00	QC00333
CCV (1	Di-n-octylphthalate (mg/L)		60	56.06	93	80 - 120	1/11/00	QC00333
CCV (1	Benzo(a)pyrene (mg/L)		60	58.81	98	80 - 120	1/11/00	QC00333

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	1/10/00	QC00275
ICV	Carbonate Alkalinity (mg/L as CaCo3)		0	2280	0	80 - 120	1/10/00	QC00275
ICV	Bicarbonate Alkalinity (mg/L as CaCo3)		0	40	0	80 - 120	1/10/00	QC00275
ICV	Total Alkalinity (mg/L as CaCo3)		2400	2320	97	80 - 120	1/10/00	QC00275
CCV (1	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	1/10/00	QC00275
CCV (1	Carbonate Alkalinity (mg/L as CaCo3)		0	2120	0	80 - 120	1/10/00	QC00275
CCV (1	Bicarbonate Alkalinity (mg/L as CaCo3)		0	80	0	80 - 120	1/10/00	QC00275
CCV (1	Total Alkalinity (mg/L as CaCo3)		2400	2200	92	80 - 120	1/10/00	QC00275

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Specific Conductance (uMHOS/cm)		1413	1351	96	80 - 120	1/11/00	QC00304
CCV (1	Specific Conductance (uMHOS/cm)		1413	1347	95	80 - 120	1/11/00	QC00304

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.37	91	80 - 120	1/6/00	QC00257
ICV	Fluoride (mg/L)		2.5	2.28	91	80 - 120	1/6/00	QC00257
ICV	Nitrate-N (mg/L)		5	4.59	92	80 - 120	1/6/00	QC00257
ICV	Sulfate (mg/L)		12.5	12.51	100	80 - 120	1/6/00	QC00257
CCV (1	CL (mg/L)		12.5	11.37	91	80 - 120	1/6/00	QC00257
CCV (1	Fluoride (mg/L)		2.5	2.26	90	80 - 120	1/6/00	QC00257
CCV (1	Nitrate-N (mg/L)		5	4.51	90	80 - 120	1/6/00	QC00257
CCV (1	Sulfate (mg/L)		12.5	12.64	101	80 - 120	1/6/00	QC00257

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	pH (s.u.)		7	7.0	100	80 - 120	1/6/00	QC00327
CCV (1	pH (s.u.)		7	7.0	100	80 - 120	1/6/00	QC00327

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Dissolved Solids (mg/L)		1000	965	97	80 - 120	1/12/00	QC00311
CCV (1	Total Dissolved Solids (mg/L)		1000	968	97	80 - 120	1/12/00	QC00311

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A000106608

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) PO BOX 159
Fax #: 505 7489077
Contact Person: Charlie Plymale
Invoice to: (If different from above)
Project #:
Project Name: Inj Wells
Project Location:
Sampler Signature: Charlie Plymale

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME
138278	Inj WELLS	2	40ml	X				X		X		1/5/00	9:45
	"	1	1L	X					X	X		1/5/00	9:45
	"	1	1L	X							X	1/5/00	9:45
	"	1	250ml	X							X	1/5/00	9:45

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC-MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH					Turn Around Time if different from standard	Hold
				See Attachment																

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Plymale	1/5/00	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Wonda	Date: 1-6-00	Time: 10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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LAB USE ONLY
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Headspace Y / N
Temp -1 °
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1-20-00

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TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 2/7/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00010608

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
138278	Injection Wells	Water	1/5/00	9:45	1/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 5 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

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TELEPHONE
(505) 748-3311

Navajo REFINING COMPANY
501 EAST MAIN STREET • P. O. DRAWER 159
ARTESIA, NEW MEXICO 88210

EASYLINK
62905278
FAX
(505) 746-6410

FAX NUMBERS:

ACCOUNTING OFFICES:	505/746-6410	MARKETING OFFICES:	505/746-6155
REFINING/ENGINEERING:	505/748-9077	PIPELINE DIVISION:	505/746-4438

PLEASE DELIVER 6 PAGES, INCLUDING THIS COVER SHEET

TO: Wayne Price PHONE: _____

COMPANY/DEPARTMENT: OCD

MESSAGE: Wayne, here is the volatile analysis

FROM: Darrell Moore DATE: 3/16/00

If you do not receive all pages, please call _____ at 505/748-3311, ext. _____.

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Report Date: 2/7/00 | Order ID Number: A00010608 | Page Number: 2 of 5
N/A | Injection Wells | N/A

Analytical Results Report

Sample Number: 138278
Description: Injection Wells

Param	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
8260 (µg/L)									
Dichlorodifluoromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromomethane	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Chloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Trichlorofluoromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Methylene chloride	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
MTBE	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,2-Dichloroethene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,2-dichloroethene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2,2-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloroethane (EDC)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1-Trichloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Carbon Tetrachloride	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Benzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromomethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromodichloromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,3-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,3-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,2-Trichloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromochloromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dibromoethane (EDB)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Tetrachloroethene (PCE)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1,2-Tetrachloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
m,p-Xylene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromoform	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Styrene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
o-Xylene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Isopropylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2-Chlorotoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Propylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
4-Chlorotoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3,5-Trimethylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
tert-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trimethylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,4-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
sec-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
p-Isopropyltoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichlorobenzene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Naphthalene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trichlorobenzene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
1,2-Dibromo-3-chloropropane	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

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Report Date: 2/7/00	Order ID Number: A00010608	Page Number: 3 of 5
N/A	Injection Wells	N/A

Hexachlorobutadiene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #
Dibromofluoromethane	50.71	1	50	101	69 - 121	JG	PB00190	QC00251
Toluene-d8	51.32	1	50	103	91 - 108	JG	PB00190	QC00251
4-Bromofluorobenzene	47.70	1	50	95	80 - 120	JG	PB00190	QC00251

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Report Date: 2/7/00 Order ID Number: A00010608 Page Number: 4 of 5
N/A Injection Wells N/A

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dichlorodifluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromomethane (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Chloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Trichlorofluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Methylene chloride (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
MTBE (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,2-Dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,2-dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Carbon Tetrachloride (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromomethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromodichloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,2-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromochloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Tetrachloroethene (PCE) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
m,p-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromoform (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Styrene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
o-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Isopropylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Propylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
4-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3,5-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
tert-Butylbenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2,4-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,4-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
sec-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,3-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
p-Isopropyltoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichlorobenzene (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Naphthalene (µg/L)		<2	2	1/6/00	PB00190	QC00251

Report Date: 2/7/00	Order ID Number: A00010608				Page Number: 5 of 5
N/A	Injection Wells				N/A
1,2,4-Trichlorobenzene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
Hexachlorobutadiene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	50.11	50	100	69 - 121	QC00251
Toluene-d8 (µg/L)	52.65	50	105	91 - 108	QC00251
4-Bromofluorobenzene (µg/L)	46.07	50	92	80 - 120	QC00251

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	1,1-Dichloroethene (ug/L)		1	100	88	88		77 - 136	0 - 20	QC00251
LCS	Benzene (ug/L)		1	100	95	95		71 - 120	0 - 20	QC00251
LCS	Trichloroethene (TCE) (ug/L)		1	100	90	90		84 - 109	0 - 20	QC00251
LCS	Toluene (ug/L)		1	100	94	94		74 - 113	0 - 20	QC00251
LCS	Chlorobenzene (ug/L)		1	100	95	95		79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	Dibromofluoromethane (µg/L)	1	50	50.97	102	69 - 121	QC00251
LCS	Toluene-d8 (µg/L)	1	50	51.40	103	91 - 108	QC00251
LCS	4-Bromofluorobenzene (µg/L)	1	50	45.29	91	80 - 120	QC00251

LCSD	1,1-Dichloroethene (ug/L)		1	100	86	86	2	77 - 136	0 - 20	QC00251
LCSD	Benzene (ug/L)		1	100	95	95	0	71 - 120	0 - 20	QC00251
LCSD	Trichloroethene (TCE) (ug/L)		1	100	89	89	1	84 - 109	0 - 20	QC00251
LCSD	Toluene (ug/L)		1	100	94	94	0	74 - 113	0 - 20	QC00251
LCSD	Chlorobenzene (ug/L)		1	100	94	94	1	79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	Dibromofluoromethane (µg/L)	1	50	49.67	99	69 - 121	QC00251
LCSD	Toluene-d8 (µg/L)	1	50	51.67	103	91 - 108	QC00251
LCSD	4-Bromofluorobenzene (µg/L)	1	50	44.87	90	80 - 120	QC00251

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	1,2-Dichloropropane (µg/L)		100	106	106	80 - 120	1/6/00	QC00251
CCV 1	Dibromofluoromethane (µg/L)		50	50.35	101	83 - 121	1/6/00	QC00251
CCV 1	Toluene-d8 (µg/L)		50	49.3	99	91 - 108	1/6/00	QC00251
CCV 1	4-Bromofluorobenzene (µg/L)		50	51.76	104	80 - 120	1/6/00	QC00251

QUARTERLY INJECTION REPORTS

Page 3712 of 5828

APR 30 2019 AM10:53

HOLLYFRONTIER.

April 24, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 5314

RE: 2019 1st Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3 and WDW-4, Navajo Refining LLC

Dear Mr. Chavez,

Enclosed, please find the first quarter 2019 sampling results for fluids injected into WDW-1, WDW-2, WDW-3 and WDW-4 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all four wells was 912 psig and the average flows were 187 gpm for WDW-1, 59 gpm for WDW-2, 63 gpm for WDW-3 and 223 gpm for WDW-4. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2019 to March 31, 2019. Navajo has disposed a total of 1,703,452 barrels of fluid into the four wells during the first quarter of 2019. The volume per well is:

- 584,606 barrels into WDW-1; 30-015-27592
- 190,046 barrels into WDW-2; 30-015-20894
- 218,229 barrels into WDW-3; 30-015-26575
- 710,571 barrels into WDW-4; 30-015-44677

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

2019 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	43,261,695
Jan-19	1,272	1,400	897	248	301	80	576	734	219	263,589	319,920	85,029	**263,589**	43,525,284
Feb-19	1,270	1,400	885	196	293	97	364	576	170	188,160	281,280	103,097	**188,160**	43,713,444
Mar-19	1,184	1,356	1,100	125	150	106	456	701	323	132,857	159,429	112,663	**132,857**	43,846,301
Monthly Avg	1,242			190								**TOTAL**	584,606	
30-015-20894 WDW-2													**Previous Quarter**	27,836,942
Jan-19	1,262	1,400	932	71	94	8	390	543	230	75,463	99,909	8,503	**75,463**	27,912,405
Feb-19	1,252	1,381	1,057	64	81	29	410	588	284	61,440	77,760	27,840	**61,440**	27,973,845
Mar-19	1,157	1,300	1,044	50	77	26	432	659	304	53,143	81,840	27,634	**53,143**	28,026,988
Monthly Avg	1,224			62								**TOTAL**	190,046	
30-015-26575 WDW-3													**Previous Quarter**	19,438,780
Jan-19	1,177	1,400	906	87	144	0	741	938	598	92,469	153,051	0	**92,469**	19,531,249
Feb-19	1,116	1,258	899	69	109	0	700	930	561	66,240	104,640	0	**66,240**	19,597,489
Mar-19	1,064	1,151	999	56	86	25	659	839	592	59,520	91,406	26,571	**59,520**	19,657,009
Monthly Avg	1,119			71								**TOTAL**	218,229	
30-015-44677 WDW-4													**Previous Quarter**	0
Jan-19	58	89	37	422	683	178	152	227	107	202,560	327,840	72,960	**202,560**	202,560
Feb-19	50	98	36	238	729	82	159	226	111	228,480	699,840	78,720	**228,480**	431,040
Mar-19	80	337	51	263	351	192	167	253	96	279,531	373,063	204,069	**279,531**	710,571
Monthly Avg	63			308								**TOTAL**	710,571	

	Total BBLS	Beginning Volume	Ending Volume
WDW1	584,606	43,261,695	43,846,301
WDW2	190,046	27,836,942	28,026,988
WDW3	218,229	19,438,780	19,657,009
WDW4	710,571	0	710,571
	1,703,452	90,537,417	92,240,869

District I
1625 North French, Hobbs, NM 88241
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos, Aztec, NM 84710

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South Saint Francis Drive
Santa Fe, NM 87505
OPERATOR'S MONTHLY REPORT

Form C-115 First Page
Revised January 22, 2004
Instruction on Reverse Side
1 ☐ Amended Report

2 Operator NAVAJO REFINERY CO.	3 OGRID: 15694	1/2019
5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210		6 Page 1 of 4

		INJECTION			PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 CODE 1	9 Volume	10 Pressure	11 CODE 2	12 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 CODE 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	263,589	1,272	W												
30-015-20894 WDW - 2	D	75,463	1,262	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	92,469	1,177	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	202560	58	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

District I
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		INJECTION			PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 CODE 1	9 Volume	10 Pressure	11 CODE 2	12 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 CODE 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	188,160	1,270	W												
30-015-20894 WDW - 2	D	61,440	1,252	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	66,240	1,116	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	228480	50	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

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State of New Mexico
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2 Operator NAVAJO REFINERY CO. | 3 OGRID: 15694 | 3/2019

5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210 | 6 Page 1 of 4

			INJECTION			PRODUCTION					DISPOSITION OF OIL, GAS, AND WATER						
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8 CODE 1	9 Volume	10 Pressure	11 CODE 2	12 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 CODE 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 CODE 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1	D	132,857	1,184	W												
30-015-20894 WDW - 2	D	53,143	1,157	W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3	D	59,520	1,064	W												
96101 SWD-DEVONIAN																
30-015-44677 WDW-4	D	279531	80	W												

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.
24

Signature	Printed Name & Title	E-Mail Address	Date	Phone Number
	L. R. DADE ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	0	575-746-5281

2 Operator	3 OGRID	4 Month/Year	6 Page 2 of 4

Page 3717 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 18, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX:

RE: Quarterly WDW 1 2 3 Inj Well OrderNo.: 1903D14

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/27/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report
Lab Order **1903D14**
Date Reported: **4/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1903D14-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 3/26/2019 8:15:00 AM
Received Date: 3/27/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8081: PESTICIDES TCLP							Analyst: **JME**
Chlordane	ND	0.030		mg/L	1	4/16/2019 12:06:41 PM	43999
Surr: Decachlorobiphenyl	26.3	29.4-99.8	S	%Rec	1	4/16/2019 12:06:41 PM	43999
Surr: Tetrachloro-m-xylene	25.0	20.7-100		%Rec	1	4/16/2019 12:06:41 PM	43999
EPA METHOD 8270C TCLP							Analyst: **JDC**
2-Methylphenol	ND	200		mg/L	1	4/13/2019 10:55:55 PM	44003
3+4-Methylphenol	ND	200		mg/L	1	4/13/2019 10:55:55 PM	44003
2,4-Dinitrotoluene	ND	0.13		mg/L	1	4/13/2019 10:55:55 PM	44003
Hexachlorobenzene	ND	0.13		mg/L	1	4/13/2019 10:55:55 PM	44003
Hexachlorobutadiene	ND	0.50		mg/L	1	4/13/2019 10:55:55 PM	44003
Hexachloroethane	ND	3.0		mg/L	1	4/13/2019 10:55:55 PM	44003
Nitrobenzene	ND	2.0		mg/L	1	4/13/2019 10:55:55 PM	44003
Pentachlorophenol	ND	100		mg/L	1	4/13/2019 10:55:55 PM	44003
Pyridine	ND	5.0		mg/L	1	4/13/2019 10:55:55 PM	44003
2,4,5-Trichlorophenol	ND	400		mg/L	1	4/13/2019 10:55:55 PM	44003
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	4/13/2019 10:55:55 PM	44003
Cresols, Total	ND	200		mg/L	1	4/13/2019 10:55:55 PM	44003
Surr: 2-Fluorophenol	45.0	15-82.5		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: Phenol-d5	35.3	15-74.2		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: 2,4,6-Tribromophenol	73.2	18.6-118		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: Nitrobenzene-d5	67.3	30.4-106		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: 2-Fluorobiphenyl	48.9	15-104		%Rec	1	4/13/2019 10:55:55 PM	44003
Surr: 4-Terphenyl-d14	51.6	15-133		%Rec	1	4/13/2019 10:55:55 PM	44003
SPECIFIC GRAVITY							Analyst: **JRR**
Specific Gravity	1.001	0			1	4/3/2019 10:28:00 AM	R58847
EPA METHOD 300.0: ANIONS							Analyst: **smb**
Fluoride	9.6	0.50	*	mg/L	5	4/1/2019 10:44:34 PM	R58816
Chloride	420	25	*	mg/L	50	4/8/2019 2:18:56 PM	R58998
Bromide	0.94	0.50		mg/L	5	4/1/2019 10:44:34 PM	R58816
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	4/1/2019 10:44:34 PM	R58816
Sulfate	1500	25	*	mg/L	50	4/8/2019 2:18:56 PM	R58998
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/1/2019 11:09:23 PM	R58816
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**
Conductivity	4100	5.0		µmhos/c	1	4/3/2019 1:19:58 PM	R58867
SM2320B: ALKALINITY							Analyst: **JRR**
Bicarbonate (As CaCO3)	488.6	20.00		mg/L Ca	1	4/3/2019 1:19:58 PM	R58867
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	4/3/2019 1:19:58 PM	R58867
Total Alkalinity (as CaCO3)	488.6	20.00		mg/L Ca	1	4/3/2019 1:19:58 PM	R58867

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Page 3719 of 5828

Analytical Report
Lab Order **1903D14**
Date Reported: **4/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1903D14-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 3/26/2019 8:15:00 AM
Received Date: 3/27/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**CJS**
Total Dissolved Solids	3130	100	*D	mg/L	1	4/3/2019 5:30:00 PM	44042
EPA METHOD 7470: MERCURY						Analyst:	**pmf**
Mercury	ND	0.00020		mg/L	1	4/5/2019 12:09:40 PM	44137
EPA METHOD 6010B: DISSOLVED METALS						Analyst:	**ELS**
Calcium	330	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
Magnesium	100	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
Potassium	64	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
Sodium	360	5.0		mg/L	5	4/3/2019 10:55:32 AM	A58849
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst:	**ELS**
Arsenic	ND	0.020		mg/L	1	4/3/2019 9:09:22 AM	44006
Barium	0.045	0.020		mg/L	1	4/3/2019 9:09:22 AM	44006
Cadmium	ND	0.0020		mg/L	1	4/3/2019 9:09:22 AM	44006
Chromium	ND	0.0060		mg/L	1	4/3/2019 9:09:22 AM	44006
Lead	ND	0.0050		mg/L	1	4/5/2019 10:10:57 AM	44006
Selenium	ND	0.050		mg/L	1	4/3/2019 9:09:22 AM	44006
Silver	ND	0.0050		mg/L	1	4/3/2019 9:09:22 AM	44006
TCLP VOLATILES BY 8260B						Analyst:	**RAA**
Benzene	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
2-Butanone	ND	200		mg/L	200	4/3/2019 12:15:00 AM	R58834
Carbon Tetrachloride	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
Chloroform	ND	6.0		mg/L	200	4/3/2019 12:15:00 AM	R58834
1,4-Dichlorobenzene	ND	7.5		mg/L	200	4/3/2019 12:15:00 AM	R58834
1,1-Dichloroethene	ND	0.70		mg/L	200	4/3/2019 12:15:00 AM	R58834
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	4/3/2019 12:15:00 AM	R58834
Trichloroethene (TCE)	ND	0.50		mg/L	200	4/3/2019 12:15:00 AM	R58834
Vinyl chloride	ND	0.20		mg/L	200	4/3/2019 12:15:00 AM	R58834
Chlorobenzene	ND	100		mg/L	200	4/3/2019 12:15:00 AM	R58834
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834
Surr: Dibromofluoromethane	101	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834
Surr: Toluene-d8	96.7	70-130		%Rec	200	4/3/2019 12:15:00 AM	R58834

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report
Lab Order **1903D14**
Date Reported: **4/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1903D14-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 3/27/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
2-Butanone	ND	200		mg/L	1	4/3/2019 1:27:00 AM	R58834
Carbon Tetrachloride	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
Chloroform	ND	6.0		mg/L	1	4/3/2019 1:27:00 AM	R58834
1,4-Dichlorobenzene	ND	7.5		mg/L	1	4/3/2019 1:27:00 AM	R58834
1,1-Dichloroethene	ND	0.70		mg/L	1	4/3/2019 1:27:00 AM	R58834
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	4/3/2019 1:27:00 AM	R58834
Trichloroethene (TCE)	ND	0.50		mg/L	1	4/3/2019 1:27:00 AM	R58834
Vinyl chloride	ND	0.20		mg/L	1	4/3/2019 1:27:00 AM	R58834
Chlorobenzene	ND	100		mg/L	1	4/3/2019 1:27:00 AM	R58834
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834
Surr: Dibromofluoromethane	97.9	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834
Surr: Toluene-d8	97.5	70-130		%Rec	1	4/3/2019 1:27:00 AM	R58834

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 3721 of 5828

1903D14-001F WDW-1,2,&3 EFFLUENT
Collected date/time: 03/26/19 08:15

SAMPLE RESULTS - 01
L1084745

ONE LAB. NATIONWIDE

Wet Chemistry by Method 4500 CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Cyanide	0.0141		0.00500	1	04/06/2019 17:13	WG1261156

Wet Chemistry by Method 4500H+ B-2011

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	7.56	T8	1	04/02/2019 17:45	WG1259617

Sample Narrative:
L1084745-01 WG1259617: 7.56 at 14.8C

Wet Chemistry by Method 9034-9030B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Reactive Sulfide	0.123		0.0500	1	04/02/2019 18:35	WG1259688

Wet Chemistry by Method D93/1010A

Analyte	Result deg F	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	DNF at 170		1	04/05/2019 22:16	WG1261310

Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

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WG1261158

Wet Chemistry by Method 4500 CN E-2011

QUALITY CONTROL SUMMARY

L1084745-01

ONE LAB. NATIONWIDE

Method Blank (MB)

(MB) R3399162-1 04/06/19 16:41

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Reactive Cyanide	U		0.00180	0.00500

L1084328-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1084328-06 04/06/19 16:48 • (DUP) R3399162-3 04/06/19 16:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Reactive Cyanide	ND	0.000	1	0.000		20

L1084328-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1084328-14 04/06/19 17:07 • (DUP) R3399162-8 04/06/19 17:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Reactive Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3399162-2 04/06/19 16:42

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Reactive Cyanide	0.100	0.0978	97.8	85.0-115	

L1084328-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1084328-07 04/06/19 16:50 • (MS) R3399162-4 04/06/19 16:54 • (MSD) R3399162-5 04/06/19 16:55

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.0790	0.0859	79.0	85.9	1	75.0-125			8.37	20

L1084328-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1084328-13 04/06/19 17:02 • (MS) R3399162-6 04/06/19 17:05 • (MSD) R3399162-7 04/06/19 17:06

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Reactive Cyanide	0.100	ND	0.0801	0.0703	80.1	70.3	1	75.0-125		J6	13.0	20

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:
Hall Environmental Analysis Laboratory		L1084745	04/09/19 09:12

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WG1259617

Wet Chemistry by Method 4500H+ B-2011

QUALITY CONTROL SUMMARY

L1084745-01

ONE LAB. NATIONWIDE.

Laboratory Control Sample (LCS)

(LCS) R3397714-1 04/02/19 17:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
Corrosivity by pH	10.0	9.97	99.7	99.0-101	

Sample Narrative:

LCS: 9.97 at 17.6C

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WG1259688

Wet Chemistry by Method 9034-9030B

QUALITY CONTROL SUMMARY

L1084745-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3397727-1 04/02/19 18:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Reactive Sulfide	U		0.00650	0.0500

Laboratory Control Sample (LCS)

(LCS) R3397727-2 04/02/19 18:19

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Reactive Sulfide	0.500	0.476	95.2	85 0-115	

1 Cr
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:
Hall Environmental Analysis Laboratory		L1084745	04/09/19 09:12

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WG1261310
Wet Chemistry by Method D93/1010A

QUALITY CONTROL SUMMARY
L1084745-01

ONE LAB. NATIONWIDE.

L1084808-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1084808-02 04/05/19 22:16 • (DUP) R3399058-2 04/05/19 22:16

Analyte	Original Result deg F	DUP Result deg F	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

L1085800-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1085800-01 04/05/19 22:16 • (DUP) R3399058-3 04/05/19 22:16

Analyte	Original Result deg F	DUP Result deg F	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R3399058-1 04/05/19 22:16

Analyte	Spike Amount deg F	LCS Result deg F	LCS Rec. %	Rec. Limits %	LCS Qualifier
Flashpoint	82.0	81.6	99.5	96.0-104	

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GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
TB	Sample(s) received past/too close to holding time expiration.

Page 3727 of 5828

1903D14-001G WDW-1,2,&3 EFFLUENT
Collected date/time: 03/26/19 08:15

SAMPLE RESULTS - 01
L1084668

ONE LAB. NATIONWIDE

Wet Chemistry by Method 2580

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	mV				
ORP	192	TB	1	04/06/2019 11:25	WG1261694

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

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WG1261694

Wet Chemistry by Method 2580

QUALITY CONTROL SUMMARY

L1084668-01

ONE LAB. NATIONWIDE

L1084668-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1084668-01 04/06/19 11:25 • (DUP) R3399096-2 04/06/19 11:25

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mV	mV		%		%
ORP	192	191	1	0.522		20

Laboratory Control Sample (LCS)

(LCS) R3399096-1 04/06/19 11:25

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mV	mV	%	%	
ORP	228	228	100	95.7-104	

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Page 3729 of 5828

GLOSSARY OF TERMS

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Abbreviations and Definitions

Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
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Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
T8	Sample(s) received past/too close to holding time expiration.

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R58816	RunNo: 58816							
Prep Date:	Analysis Date: 4/1/2019	SeqNo: 1976714	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R58816	RunNo: 58816							
Prep Date:	Analysis Date: 4/1/2019	SeqNo: 1976715	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	101	90	110			
Bromide	2.4	0.10	2.500	0	95.1	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.6	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	98.1	90	110			

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R58998	RunNo: 58998							
Prep Date:	Analysis Date: 4/8/2019	SeqNo: 1985185	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R58998	RunNo: 58998							
Prep Date:	Analysis Date: 4/8/2019	SeqNo: 1985187	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.9	90	110			
Sulfate	10	0.50	10.00	0	100	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified at testcode

Page 3730 of 5828

Page 3731 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903D14-001BMS	SampType: MS	TestCode: EPA Method 8081: Pesticides TCLP
Client ID: WDW-1,2,&3 Effluen	Batch ID: 43999	RunNo: 59212
Prep Date: 4/1/2019	Analysis Date: 4/16/2019	SeqNo: 1993657 Units: %Rec

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.00088		0.002500		35.2	29.4	99.8			
Surr: Tetrachloro-m-xylene	0.00076		0.002500		30.6	20.7	100			

Sample ID: 1903D14-001BMSD	SampType: MSD	TestCode: EPA Method 8081: Pesticides TCLP
Client ID: WDW-1,2,&3 Effluen	Batch ID: 43999	RunNo: 59212
Prep Date: 4/1/2019	Analysis Date: 4/16/2019	SeqNo: 1993658 Units: %Rec

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0017		0.002500		66.0	29.4	99.8	0	0	
Surr: Tetrachloro-m-xylene	0.0015		0.002500		59.0	20.7	100	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 100ng lcs2	SampType: LCS	TestCode: TCLP Volatiles by 8260B							
Client ID: LCSW	Batch ID: R58834	RunNo: 58834							
Prep Date:	Analysis Date: 4/2/2019	SeqNo: 1978496	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50	0.02000	0	100	70	130			
1,1-Dichloroethene	ND	0.70	0.02000	0	95.1	70	130			
Trichloroethene (TCE)	ND	0.50	0.02000	0	90.3	70	130			
Chlorobenzene	ND	100	0.02000	0	95.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.011		0.01000		109	70	130			
Surr: 4-Bromofluorobenzene	0.0099		0.01000		99.2	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		103	70	130			
Surr: Toluene-d8	0.0097		0.01000		97.3	70	130			

Sample ID: rb2	SampType: MBLK	TestCode: TCLP Volatiles by 8260B							
Client ID: PBW	Batch ID: R58834	RunNo: 58834							
Prep Date:	Analysis Date: 4/2/2019	SeqNo: 1978497	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		104	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		100	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		99.5	70	130			
Surr: Toluene-d8	0.0099		0.01000		98.6	70	130			

Sample ID: 1903d14-001ams	SampType: MS	TestCode: TCLP Volatiles by 8260B							
Client ID: WDW-1,2,&3 Effluen	Batch ID: R58834	RunNo: 58834							
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978503	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.1	0.00017	4.000	0.02440	102	70	130			
1,1-Dichloroethene	4.1	0.00021	4.000	0	102	67.6	130			
Trichloroethene (TCE)	3.9	0.00017	4.000	0	97.2	70	130			
Chlorobenzene	4.2	0.00019	4.000	0.03160	105	70	130			
Surr: 1,2-Dichloroethane-d4	2.1		2.000		104	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Page 3733 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903d14-001ams	SampType: MS	TestCode: TCLP Volatiles by 8260B
Client ID: WDW-1,2,&3 Effluen	Batch ID: R58834	RunNo: 58834
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978503 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.9		2.000		96.7	70	130			
Surr: Dibromofluoromethane	1.9		2.000		96.5	70	130			
Surr: Toluene-d8	2.0		2.000		97.7	70	130			

Sample ID: 1903d14-001amsd	SampType: MSD	TestCode: TCLP Volatiles by 8260B
Client ID: WDW-1,2,&3 Effluen	Batch ID: R58834	RunNo: 58834
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978504 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.1	0.00017	4.000	0.02440	101	70	130	1.10	20	
1,1-Dichloroethene	4.0	0.00021	4.000	0	99.0	67.6	130	3.29	20	
Trichloroethene (TCE)	3.8	0.00017	4.000	0	95.6	70	130	1.68	20	
Chlorobenzene	4.0	0.00019	4.000	0.03160	99.7	70	130	5.04	20	
Surr: 1,2-Dichloroethane-d4	2.1		2.000		106	70	130	0	0	
Surr: 4-Bromofluorobenzene	2.0		2.000		102	70	130	0	0	
Surr: Dibromofluoromethane	2.0		2.000		100	70	130	0	0	
Surr: Toluene-d8	2.0		2.000		98.2	70	130	0	0	

Qualifiers:

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PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **1903D14-001Bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **44003** RunNo: **59132**

Prep Date: **4/1/2019** Analysis Date: **4/13/2019** SeqNo: **1990636** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.056	0.0063	0.1000	0	56.5	23.9	129			
3+4-Methylphenol	0.10	0.0054	0.2000	0	51.9	15	167			
2,4-Dinitrotoluene	0.064	0.0058	0.1000	0	64.4	15	147			
Hexachlorobenzene	0.073	0.0062	0.1000	0	73.0	41.4	136			
Hexachlorobutadiene	0.023	0.0064	0.1000	0	23.4	16.2	134			
Hexachloroethane	0.024	0.0060	0.1000	0	23.9	20.6	124			
Nitrobenzene	0.059	0.0060	0.1000	0	59.0	39.5	134			
Pentachlorophenol	0.033	0.0053	0.1000	0	33.5	15	137			
Pyridine	0.016	0.0060	0.1000	0	16.0	15	129			
2,4,5-Trichlorophenol	0.070	0.0054	0.1000	0	70.4	15	158			
2,4,6-Trichlorophenol	0.069	0.0058	0.1000	0	68.7	15	153			
Cresols, Total	0.16	0.012	0.3000	0	53.4	10.6	179			
Surr: 2-Fluorophenol	0.085		0.2000		42.3	15	82.5			
Surr: Phenol-d5	0.067		0.2000		33.3	15	74.2			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		72.0	18.6	118			
Surr: Nitrobenzene-d5	0.068		0.1000		67.8	30.4	106			
Surr: 2-Fluorobiphenyl	0.046		0.1000		46.3	15	104			
Surr: 4-Terphenyl-d14	0.058		0.1000		57.7	15	133			

Sample ID: **1903D14-001Bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **44003** RunNo: **59132**

Prep Date: **4/1/2019** Analysis Date: **4/13/2019** SeqNo: **1990637** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.049	0.0063	0.1000	0	48.9	23.9	129	14.3	20	
3+4-Methylphenol	0.094	0.0054	0.2000	0	47.0	15	167	9.96	20	
2,4-Dinitrotoluene	0.055	0.0058	0.1000	0	54.9	15	147	16.0	23.2	
Hexachlorobenzene	0.063	0.0062	0.1000	0	62.5	41.4	136	15.5	20	
Hexachlorobutadiene	0.023	0.0064	0.1000	0	23.1	16.2	134	1.38	20	
Hexachloroethane	0.022	0.0060	0.1000	0	21.7	20.6	124	9.57	31.3	
Nitrobenzene	0.054	0.0060	0.1000	0	54.2	39.5	134	8.44	26.6	
Pentachlorophenol	0.028	0.0053	0.1000	0	28.2	15	137	16.9	27.9	
Pyridine	0.021	0.0060	0.1000	0	21.0	15	129	26.8	47.4	
2,4,5-Trichlorophenol	0.058	0.0054	0.1000	0	57.7	15	158	19.7	36.9	
2,4,6-Trichlorophenol	0.062	0.0058	0.1000	0	61.9	15	153	10.4	37.2	
Cresols, Total	0.14	0.012	0.3000	0	47.6	10.6	179	11.5	27.4	
Surr: 2-Fluorophenol	0.072		0.2000		36.0	15	82.5	0	0	
Surr: Phenol-d5	0.057		0.2000		28.6	15	74.2	0	0	
Surr: 2,4,6-Tribromophenol	0.13		0.2000		63.4	18.6	118	0	0	

Qualifiers:

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H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode

Page 3735 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903D14-001Bmsd SampType: MSD TestCode: EPA Method 8270C TCLP

Client ID: WDW-1,2,&3 Effluen Batch ID: 44003 RunNo: 59132

Prep Date: 4/1/2019 Analysis Date: 4/13/2019 SeqNo: 1990637 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.062		0.1000		61.7	30.4	106	0	0	
Surr: 2-Fluorobiphenyl	0.041		0.1000		40.8	15	104	0	0	
Surr: 4-Terphenyl-d14	0.049		0.1000		49.1	15	133	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: **lcs-1 99.0uS eC**	SampType: **LCS**			TestCode: **SM2510B: Specific Conductance**						
Client ID: **LCSW**	Batch ID: **R58867**			RunNo: **58867**						
Prep Date:	Analysis Date: **4/3/2019**			SeqNo: **1978677**		Units: **µmhos/cm**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.00	0	100	85	115			

Qualifiers:

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Page 3737 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-44137	SampType: MBLK	TestCode: EPA Method 7470: Mercury							
Client ID: PBW	Batch ID: 44137	RunNo: 58933							
Prep Date: 4/4/2019	Analysis Date: 4/5/2019	SeqNo: 1981797	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LCS-44137	SampType: LCS	TestCode: EPA Method 7470: Mercury							
Client ID: LCSW	Batch ID: 44137	RunNo: 58933							
Prep Date: 4/4/2019	Analysis Date: 4/5/2019	SeqNo: 1981798	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0043	0.00020	0.005000	0	85.5	80	120			

Sample ID: LCSD-44137	SampType: LCSD	TestCode: EPA Method 7470: Mercury							
Client ID: LCSS02	Batch ID: 44137	RunNo: 58933							
Prep Date: 4/4/2019	Analysis Date: 4/5/2019	SeqNo: 1981844	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.7	80	120	15.3	20	

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-A	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: PBW	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978089 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: LCS-A	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: LCSW	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978091 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.2	80	120			
Magnesium	50	1.0	50.00	0	99.5	80	120			
Potassium	49	1.0	50.00	0	98.4	80	120			
Sodium	48	1.0	50.00	0	96.3	80	120			

Sample ID: LCSD-A	SampType: LCSD	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: LCSS02	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978092 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	100	80	120	1.07	20	
Magnesium	50	1.0	50.00	0	101	80	120	1.09	20	
Potassium	50	1.0	50.00	0	99.4	80	120	1.05	20	
Sodium	49	1.0	50.00	0	98.6	80	120	2.32	20	

Sample ID: 1903D14-001DMS	SampType: MS	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978153 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	350	5.0	250.0	100.9	101	75	125			
Potassium	310	5.0	250.0	63.59	100	75	125			

Sample ID: 1903D14-001DMSD	SampType: MSD	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: A58849	RunNo: 58849
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978154 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	360	5.0	250.0	100.9	102	75	125	0.849	20	
Potassium	320	5.0	250.0	63.59	101	75	125	0.298	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
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W	Sample container temperature is out of limit as specified at testcode

Page 3738 of 5828

Page 3739 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-44006	SampType: MBLK	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: PBW	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978079 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: LCS-44006	SampType: LCS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: LCSW	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978084 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.47	0.020	0.5000	0	94.0	80	120			
Barium	0.48	0.020	0.5000	0	96.7	80	120			
Cadmium	0.49	0.0020	0.5000	0	98.3	80	120			
Chromium	0.48	0.0060	0.5000	0	96.7	80	120			
Selenium	0.50	0.050	0.5000	0	99.3	80	120			
Silver	0.10	0.0050	0.1000	0	100	80	120			

Sample ID: 1903D14-001EMS	SampType: MS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978105 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0.01859	93.7	75	125			
Barium	0.50	0.020	0.5000	0.04539	90.9	75	125			
Cadmium	0.48	0.0020	0.5000	0	95.6	75	125			
Chromium	0.46	0.0060	0.5000	0	91.6	75	125			
Selenium	0.52	0.050	0.5000	0.04001	95.3	75	125			
Silver	0.11	0.0050	0.1000	0.003795	101	75	125			

Sample ID: 1903D14-001EMSD	SampType: MSD	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 44006	RunNo: 58849
Prep Date: 4/1/2019	Analysis Date: 4/3/2019	SeqNo: 1978106 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0.01859	94.3	75	125	0.602	20	
Barium	0.50	0.020	0.5000	0.04539	91.6	75	125	0.717	20	
Cadmium	0.48	0.0020	0.5000	0	95.7	75	125	0.0812	20	
Chromium	0.46	0.0060	0.5000	0	91.2	75	125	0.359	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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PQL	Practical Quantitative Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: 1903D14-001EMSD SampType: MSD TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen Batch ID: 44006 RunNo: 58849
Prep Date: 4/1/2019 Analysis Date: 4/3/2019 SeqNo: 1978106 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.53	0.050	0.5000	0.04001	97.3	75	125	1.89	20	
Silver	0.11	0.0050	0.1000	0.003795	103	75	125	1.41	20	

Sample ID: MB-44006 SampType: MBLK TestCode: EPA 6010B: Total Recoverable Metals
Client ID: PBW Batch ID: 44006 RunNo: 58923
Prep Date: 4/1/2019 Analysis Date: 4/5/2019 SeqNo: 1981494 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								

Sample ID: LCS-44006 SampType: LCS TestCode: EPA 6010B: Total Recoverable Metals
Client ID: LCSW Batch ID: 44006 RunNo: 58923
Prep Date: 4/1/2019 Analysis Date: 4/5/2019 SeqNo: 1981495 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.51	0.0050	0.5000	0	101	80	120			

Sample ID: 1903D14-001EMS SampType: MS TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen Batch ID: 44006 RunNo: 58923
Prep Date: 4/1/2019 Analysis Date: 4/5/2019 SeqNo: 1981515 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.48	0.0050	0.5000	0	95.7	75	125			

Sample ID: 1903D14-001EMSD SampType: MSD TestCode: EPA 6010B: Total Recoverable Metals
Client ID: WDW-1,2,&3 Effluen Batch ID: 44006 RunNo: 58923
Prep Date: 4/1/2019 Analysis Date: 4/5/2019 SeqNo: 1981516 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.48	0.0050	0.5000	0	96.9	75	125	1.26	20	

Qualifiers:

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Page 3741 of 5828

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: mb-1 alk	SampType: MBLK	TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R58867	RunNo: 58867							
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978652	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: lcs-1 alk	SampType: LCS	TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R58867	RunNo: 58867							
Prep Date:	Analysis Date: 4/3/2019	SeqNo: 1978653	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.56	20.00	80.00	0	95.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1903D14

18-Apr-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID: MB-44042	SampType: MBLK			TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID: PBW	Batch ID: 44042			RunNo: 58866					
Prep Date: 4/2/2019	Analysis Date: 4/3/2019			SeqNo: 1978621		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: LCS-44042	SampType: LCS			TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID: LCSW	Batch ID: 44042			RunNo: 58866					
Prep Date: 4/2/2019	Analysis Date: 4/3/2019			SeqNo: 1978622		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified at testcode

Page 3743 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1903D14 RcptNo: 1

Received By: Yazmine Garduno 3/27/2019 8:40:00 AM

Completed By: Leah Baca 3/27/2019 1:57:18 PM

Reviewed By: ENH 3/29/19

Labeled by YG 3/29/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 4 (<2 or >12 unless noted)

Adjusted? NO

Checked by: YG 3/29/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____

By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: ____

Client Instructions: ____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.1	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☐ Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1903D14	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	~~-002~~					X	X		
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	~~-003~~		X						
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
3/26/19	8:15	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
3.26.19	1:00	Brady Hubbard	courier		5:41
Date:	Time:	Relinquished by:	Received by:	Date	Time
				3/27/19	

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade. 7.32 pH, 31.0°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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HOLLYFRONTIER

January 23, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 7357

RE: 2018 4th Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3
HollyFrontier Navajo Refining LLC.

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for all three wells was 1245 psig and the average flows were 261 gpm for WDW-1, 79 gpm for WDW-2 and 115 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from October 1, 2018 to December 31, 2018. Navajo has disposed a total of 1,433,520 barrels of fluid into the three wells during the fourth quarter of 2018. The volume per well is:

- 822,549 barrels into WDW-1; 30-015-27592
- 248,228 barrels into WDW-2; 30-015-20894
- 362,743 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager

Electronic cc (w/enc.): R. Combs, L. Dade
Environmental File: NRC/ENV/INJ WELLS/REPORTS C-115/2018

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

Page 3746 of 5828

2018 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	42,439,146
Oct-18	1,291	1,400	1,200	290	328	157	517	930	203	308,229	348,617	215,760	308,229	42,747,375
Nov-18	1,237	1,400	1,066	251	299	161	423	609	221	258,171	307,543	165,600	258,171	43,005,546
Dec-18	1,240	1,400	903	241	297	84	347	538	200	256,149	315,669	89,280	256,149	43,261,695
Monthly Avg	1,256			261										
30-015-20894 WDW-2													**Previous Quarter**	27,588,714
Oct-18	1,276	1,400	1,169	89	180	58	435	565	316	94,594	191,314	61,645	94,954	27,683,308
Nov-18	1,240	1,400	1,174	76	90	62	434	571	274	78,171	92,571	63,771	78,171	27,761,479
Dec-18	1,225	1,400	908	71	84	1	478	585	273	75,463	89,280	1,063	75,463	27,836,942
Monthly Avg	1,247			79										
30-015-26575 WDW-3													**Previous Quarter**	19,076,037
Oct-18	1,251	1,400	1,136	125	146	80	738	932	490	132,857	155,177	85,029	132,857	19,208,894
Nov-18	1,230	1,400	1,133	115	140	76	736	822	599	118,286	144,000	78,171	118,286	19,327,180
Dec-18	1,217	1,400	914	105	124	2	713	812	607	111,600	131,794	2,126	111,600	19,438,780
Monthly Avg	1,233			115										
AVG:	1,245			152										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	43,261,695	42,439,146	822,549
WDW2	27,836,942	27,588,714	248,228
WDW3	19,438,780	19,076,037	362,743
	90,537,417	89,103,897	1,433,520

G:\Environmental\Injection Wells\Reports C-115 and Quarterly\2018\
4Q INJECTION 2018.xlsx

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 18, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 3 Inj Well OrderNo.: 1812E95

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/29/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **JME**
Chlordane	ND	0.030		mg/L	1	1/9/2019 9:47:37 AM
Surr: Decachlorobiphenyl	42.3	47.2-117	S	%Rec	1	1/9/2019 9:47:37 AM
Surr: Tetrachloro-m-xylene	42.3	26.4-126		%Rec	1	1/9/2019 9:47:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Fluoride	20	0.50	*	mg/L	5	1/4/2019 1:02:43 PM
Chloride	660	25	*	mg/L	50	1/15/2019 12:03:59 AM
Bromide	1.5	0.50		mg/L	5	1/4/2019 1:02:43 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	1/4/2019 1:02:43 PM
Sulfate	1900	25	*	mg/L	50	1/15/2019 12:03:59 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/4/2019 6:24:12 PM
EPA METHOD 7470: MERCURY						Analyst: **pmf**
Mercury	ND	0.00020		mg/L	1	1/10/2019 1:48:58 PM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: **rde**
Calcium	66	1.0		mg/L	1	1/4/2019 1:29:10 PM
Magnesium	21	1.0		mg/L	1	1/4/2019 1:29:10 PM
Potassium	94	1.0		mg/L	1	1/4/2019 1:29:10 PM
Sodium	950	10		mg/L	10	1/4/2019 1:35:13 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **rde**
Arsenic	0.085	0.020		mg/L	1	1/9/2019 4:36:22 PM
Barium	0.020	0.020		mg/L	1	1/9/2019 4:36:22 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2019 4:36:22 PM
Chromium	0.0061	0.0060		mg/L	1	1/9/2019 4:36:22 PM
Lead	ND	0.0050		mg/L	1	1/9/2019 4:36:22 PM
Selenium	ND	0.050		mg/L	1	1/9/2019 4:36:22 PM
Silver	ND	0.0050		mg/L	1	1/9/2019 4:36:22 PM
EPA METHOD 8270C TCLP						Analyst: **DAM**
2-Methylphenol	ND	200		mg/L	1	1/9/2019 12:34:44 PM
3+4-Methylphenol	ND	200		mg/L	1	1/9/2019 12:34:44 PM
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/9/2019 12:34:44 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/9/2019 12:34:44 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/9/2019 12:34:44 PM
Hexachloroethane	ND	3.0		mg/L	1	1/9/2019 12:34:44 PM
Nitrobenzene	ND	2.0		mg/L	1	1/9/2019 12:34:44 PM
Pentachlorophenol	ND	100		mg/L	1	1/9/2019 12:34:44 PM
Pyridine	ND	5.0		mg/L	1	1/9/2019 12:34:44 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/9/2019 12:34:44 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/9/2019 12:34:44 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C TCLP						Analyst: **DAM**
Cresols, Total	ND	200		mg/L	1	1/9/2019 12:34:44 PM
Surr: 2-Fluorophenol	58.1	15-73.6		%Rec	1	1/9/2019 12:34:44 PM
Surr: Phenol-d5	41.9	15-63.4		%Rec	1	1/9/2019 12:34:44 PM
Surr: 2,4,6-Tribromophenol	75.6	15-119		%Rec	1	1/9/2019 12:34:44 PM
Surr: Nitrobenzene-d5	78.7	33.5-111		%Rec	1	1/9/2019 12:34:44 PM
Surr: 2-Fluorobiphenyl	57.5	31.8-101		%Rec	1	1/9/2019 12:34:44 PM
Surr: 4-Terphenyl-d14	66.2	17.2-84.7		%Rec	1	1/9/2019 12:34:44 PM
TCLP VOLATILES BY 8260B						Analyst: **DJF**
Benzene	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
2-Butanone	ND	200		mg/L	200	1/3/2019 12:42:43 AM
Carbon Tetrachloride	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
Chloroform	ND	6.0		mg/L	200	1/3/2019 12:42:43 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	200	1/3/2019 12:42:43 AM
1,1-Dichloroethene	ND	0.70		mg/L	200	1/3/2019 12:42:43 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	1/3/2019 12:42:43 AM
Trichloroethene (TCE)	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
Vinyl chloride	ND	0.20		mg/L	200	1/3/2019 12:42:43 AM
Chlorobenzene	ND	100		mg/L	200	1/3/2019 12:42:43 AM
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: 4-Bromofluorobenzene	94.4	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: Dibromofluoromethane	107	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: Toluene-d8	102	70-130		%Rec	200	1/3/2019 12:42:43 AM
CORROSIVITY						Analyst: **SUB**
pH	6.93			su	1	1/4/2019
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>170			°F	1	1/5/2019
OXIDATION REDUCTION POTENTIAL						Analyst: **SUB**
Oxidation-Reduction Potential	200			mV	1	1/4/2019
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	0.0196	0.00500		mg/L	1	1/7/2019
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	0.093	0.0050		mg/L	1	1/9/2019
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5600	5.0		µmhos/c	1	1/2/2019 3:11:27 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	149.5	20.00		mg/L Ca	1	1/2/2019 3:11:27 PM
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	1/2/2019 3:11:27 PM
Total Alkalinity (as CaCO3)	149.5	20.00		mg/L Ca	1	1/2/2019 3:11:27 PM
SPECIFIC GRAVITY						Analyst: **JRR**
Specific Gravity	1.001	0			1	1/8/2019 10:12:00 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3880	100	*D	mg/L	1	1/7/2019 10:44:00 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**
18-Jan-19

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R56793**	RunNo: **56793**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900898** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R56793**	RunNo: **56793**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900899** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			
Bromide	2.4	0.10	2.500	0	94.6	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.1	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.5	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R56999**	RunNo: **56999**
Prep Date:	Analysis Date: **1/14/2019**	SeqNo: **1906790** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R56999**	RunNo: **56999**
Prep Date:	Analysis Date: **1/14/2019**	SeqNo: **1906791** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.2	90	110			
Sulfate	10	0.50	10.00	0	99.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID MB-42425	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: PBW	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902962	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0015		0.002500		59.2	47.2	117			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		54.6	26.4	126			

Sample ID LCS-42425	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902963	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0017		0.002500		69.4	47.2	117			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		61.6	26.4	126			

Sample ID LCSD-42425	SampType: LCSD	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSS02	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902964	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0014		0.002500		54.4	47.2	117	0	0	
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.6	26.4	126	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **rb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T56703**	RunNo: **56703**
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898710** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		100	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		99.8	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		104	70	130			
Surr: Toluene-d8	0.010		0.01000		105	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T56703**	RunNo: **56703**
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898711** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.017	0.0050	0.02000	0	84.3	70	130			
1,1-Dichloroethene	0.019	0.0050	0.02000	0	96.7	70	130			
Trichloroethene (TCE)	0.016	0.0050	0.02000	0	81.2	70	130			
Chlorobenzene	0.019	0.0050	0.02000	0	93.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.0093		0.01000		92.6	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		105	70	130			
Surr: Dibromofluoromethane	0.0099		0.01000		99.1	70	130			
Surr: Toluene-d8	0.010		0.01000		99.5	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **1812e95-001bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903284** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.052	0.0010	0.1000	0	51.5	23.9	129			
3+4-Methylphenol	0.11	0.0010	0.2000	0	52.6	15	167			
2,4-Dinitrotoluene	0.045	0.0010	0.1000	0	45.0	15	147			
Hexachlorobenzene	0.050	0.0010	0.1000	0	49.6	41.4	136			
Hexachlorobutadiene	0.024	0.0010	0.1000	0	24.5	16.2	134			
Hexachloroethane	0.018	0.0010	0.1000	0	18.1	20.6	124			S
Nitrobenzene	0.054	0.0010	0.1000	0	53.7	39.5	134			
Pentachlorophenol	0.048	0.0010	0.1000	0	47.7	15	137			
Pyridine	0.0025	0.0010	0.1000	0	2.46	15	129			S
2,4,5-Trichlorophenol	0.058	0.0010	0.1000	0	58.2	15	158			
2,4,6-Trichlorophenol	0.068	0.0010	0.1000	0	68.5	15	153			
Cresols, Total	0.16	0.0010	0.3000	0	52.2	10.6	179			
Surr: 2-Fluorophenol	0.080		0.2000		40.1	15	73.6			
Surr: Phenol-d5	0.066		0.2000		33.1	15	63.4			
Surr: 2,4,6-Tribromophenol	0.12		0.2000		58.2	15	119			
Surr: Nitrobenzene-d5	0.054		0.1000		53.9	33.5	111			
Surr: 2-Fluorobiphenyl	0.038		0.1000		37.7	31.8	101			
Surr: 4-Terphenyl-d14	0.051		0.1000		50.9	17.2	84.7			

Sample ID **1812e95-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903285** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.068	0.0010	0.1000	0	68.2	23.9	129	27.9	20	R
3+4-Methylphenol	0.14	0.0010	0.2000	0	70.7	15	167	29.3	20	R
2,4-Dinitrotoluene	0.063	0.0010	0.1000	0	63.0	15	147	33.3	23.2	R
Hexachlorobenzene	0.073	0.0010	0.1000	0	73.2	41.4	136	38.5	20	R
Hexachlorobutadiene	0.042	0.0010	0.1000	0	42.3	16.2	134	53.2	20	R
Hexachloroethane	0.032	0.0010	0.1000	0	32.2	20.6	124	56.1	31.3	R
Nitrobenzene	0.073	0.0010	0.1000	0	73.2	39.5	134	30.7	26.6	R
Pentachlorophenol	0.070	0.0010	0.1000	0	69.8	15	137	37.7	27.9	R
Pyridine	0.0043	0.0010	0.1000	0	4.26	15	129	53.6	47.4	RS
2,4,5-Trichlorophenol	0.075	0.0010	0.1000	0	75.3	15	158	25.6	36.9	
2,4,6-Trichlorophenol	0.096	0.0010	0.1000	0	95.8	15	153	33.2	37.2	
Cresols, Total	0.21	0.0010	0.3000	0	69.9	10.6	179	28.8	27.4	R
Surr: 2-Fluorophenol	0.10		0.2000		52.4	15	73.6	0	0	
Surr: Phenol-d5	0.082		0.2000		41.2	15	63.4	0	0	
Surr: 2,4,6-Tribromophenol	0.16		0.2000		81.4	15	119	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **1812e95-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903285** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.077		0.1000		76.9	33.5	111	0	0	
Surr: 2-Fluorobiphenyl	0.062		0.1000		62.0	31.8	101	0	0	
Surr: 4-Terphenyl-d14	0.078		0.1000		78.4	17.2	84.7	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID	lcs-1 99.0uS eC	SampType:	LCS		TestCode:	SM2510B: Specific Conductance				
Client ID:	LCSW	Batch ID:	R56730		RunNo:	56730				
Prep Date:		Analysis Date:	1/2/2019		SeqNo:	1898774	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.00	0	100	80	120			

Sample ID	lcs-2 99.0uS eC	SampType:	LCS		TestCode:	SM2510B: Specific Conductance				
Client ID:	LCSW	Batch ID:	R56730		RunNo:	56730				
Prep Date:		Analysis Date:	1/2/2019		SeqNo:	1898798	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**
18-Jan-19

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-42524**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **42524**	RunNo: **56898**							
Prep Date: **1/9/2019**	Analysis Date: **1/10/2019**	SeqNo: **1903938**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-42524**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **42524**	RunNo: **56898**							
Prep Date: **1/9/2019**	Analysis Date: **1/10/2019**	SeqNo: **1903939**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.7	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID MB-A	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: PBW	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900123	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID LCS-A	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: LCSW	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900124	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	51	1.0	50.00	0	103	80	120			
Potassium	51	1.0	50.00	0	102	80	120			
Sodium	51	1.0	50.00	0	101	80	120			

Sample ID 1812E95-001DMS	SampType: MS	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: WDW-1,2,&3 Effluen	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900141	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	73	1.0	50.00	20.95	104	75	125			

Sample ID 1812E95-001DMSD	SampType: MSD	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID: WDW-1,2,&3 Effluen	Batch ID: A56777	RunNo: 56777							
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900142	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	72	1.0	50.00	20.95	101	75	125	1.57	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID	MB-42405	SampType:	MBLK	TestCode:	EPA 6010B: Total Recoverable Metals
Client ID:	PBW	Batch ID:	42405	RunNo:	56870
Prep Date:	1/2/2019	Analysis Date:	1/9/2019	SeqNo:	1903095 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-42405	SampType:	LCS	TestCode:	EPA 6010B: Total Recoverable Metals
Client ID:	LCSW	Batch ID:	42405	RunNo:	56870
Prep Date:	1/2/2019	Analysis Date:	1/9/2019	SeqNo:	1903096 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0	97.5	80	120			
Barium	0.48	0.020	0.5000	0	96.3	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.1	80	120			
Chromium	0.49	0.0060	0.5000	0	98.0	80	120			
Lead	0.48	0.0050	0.5000	0	95.0	80	120			
Selenium	0.45	0.050	0.5000	0	90.8	80	120			
Silver	0.097	0.0050	0.1000	0	97.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-R56892**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/7/2019**	SeqNo: **1903741**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID **LCS-R56892**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/7/2019**	SeqNo: **1903742**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.101		0.1000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-R56892**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/9/2019**	SeqNo: **1903744**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID **LCS-R56892**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/9/2019**	SeqNo: **1903745**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.45		0.5000	0	90.6	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R56730**	RunNo: **56730**							
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898751**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R56730**	RunNo: **56730**							
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898752**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.96	20.00	80.00	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-42426**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **42426**	RunNo: **56796**
Prep Date: **1/3/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901042** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-42426**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **42426**	RunNo: **56796**
Prep Date: **1/3/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901043** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1812E95 RcptNo: 1

Received By: Andy Freeman 12/29/2018 11:00:00 AM

Completed By: Erin Melendrez 12/31/2018 9:08:51 AM

Reviewed By: DAD 12/31/18

Labeled by: JAB 12/31/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☐	No ☑	
8. Was preservative added to bottles?	Yes ☑	No ☐	NA ☐
9. VOA vials have zero headspace?	Yes ☑	No ☐	HNO3 See remarks No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	2 JAB 12/31/18
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 1; 2 (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? Yes
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: JAB 12/31/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks.

For dissolved metals analysis: Poured off and filter approx. 125mLs into separate container from extra bottle and preserved with 0.4mLs HNO3 for preffered pH. Held 24 hours prior to analysis

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Yes			

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Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P O Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251641

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.7 °

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1812E95	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals. only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A									
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X										
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X											
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X															
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X														
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X													

Date:	Time:	Relinquished by:	Received by:	Date Time
12-27-18	12:00	Brad Hilliard		12/27/18 1100
Date:	Time:	Relinquished by:	Received by:	Date Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

Field pH: 7.28

Field temp: 31.5°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	**Contaminant**	**SW-846 Method**	**Regulatory Level (mg/l)**
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallower 200 - 250 ft bgs

Need All

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NOV 01 2018 PM02:22

HOLLYFRONTIER.

October 29, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 7012

RE: 2018 3rd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, HollyFrontier Navajo Refining LLC.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1285 psig and the average flows were 220 gpm for WDW-1, 92 gpm for WDW-2 and 118 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2018 to September 30, 2018. We have disposed a total of 1,510,625 barrels of fluid into the three wells during the third quarter of 2018. The volume per well is:

- 693,900 barrels into WDW-1; 30-015-27592
- 357,879 barrels into WDW-2; 30-015-20894
- 458,846 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

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Page 3769 of 5828

2018 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												**Previous Quarter**		41,745,246
Jul-18	1,378	1,400	1,315	248	341	73	385	491	195	8,503	10,526	4,320	263,593	42,008,839
Aug-18	1,304	1,400	936	221	657	41	443	836	136	7,577	10,629	5,726	234,887	42,243,726
Sep-18	1,224	1,400	920	190	535	49	397	705	93	6,514	11,623	7,954	195,420	42,439,146
Monthly Avg	1,302			220										
30-015-20894 WDW-2												**Previous Quarter**		27,230,835
Jul-18	1,349	1,400	960	101	114	0	440	1,102	260	3,463	3,909	0	107,349	27,338,184
Aug-18	1,305	1,400	942	96	118	0	415	646	316	3,291	4,046	0	138,222	27,476,406
Sep-18	1,211	1,400	926	78	135	1	419	549	330	2,674	4,629	34	112,308	27,588,714
Monthly Avg	1,286			80										
30-015-26575 WDW-3												**Previous Quarter**		18,617,191
Jul-18	1,338	1,400	1,298	135	142	117	363	454	174	4,629	4,869	4,011	143,486	18,760,677
Aug-18	1,258	1,400	948	116	156	0	570	931	239	3,977	5,349	0	167,040	18,927,717
Sep-18	1,195	1,400	931	103	138	2	639	849	325	3,531	4,731	69	148,320	19,076,037
Monthly Avg	1,264			112								**Total Injected fluids:**		
AVG:	1,285			158										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	42,439,146	41,745,246	693,900
WDW2	27,588,714	27,230,835	357,879
WDW3	19,076,037	18,617,191	458,846
	89,103,897	87,593,272	1,510,625

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 15, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 and 3 Inj Well OrderNo.: 1809619

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/12/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1809619**
Date Reported: **10/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1809619-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2018 9:24:00 AM
Received Date: 9/12/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JDC**	
Specific Gravity	0.9997	0			1	9/14/2018 2:05:00 PM	R54162
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	25	2.0	*	mg/L	20	9/13/2018 3:30:00 AM	R54103
Chloride	420	50		mg/L	100	10/2/2018 7:04:14 PM	R54600
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Bromide	0.90	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	9/13/2018 3:30:00 AM	R54103
Sulfate	2400	50		mg/L	100	10/2/2018 7:04:14 PM	R54600
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5500	5.0		µmhos/c	1	9/18/2018 12:32:37 PM	R54265
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	119.6	20.00		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
Total Alkalinity (as CaCO3)	119.6	20.00		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4180	40.0	*D	mg/L	1	8/18/2019 7:19:00 PM	40386
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.07		H	pH units	1	9/18/2018 12:32:37 PM	R54265
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	9/13/2018 12:27:55 PM	40321
MERCURY, TCLP						Analyst: **rde**	
Mercury	ND	0.020		mg/L	1	10/3/2018 3:45:28 PM	40779
EPA METHOD 6010B: TCLP METALS						Analyst: **pmf**	
Arsenic	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Barium	ND	100		mg/L	1	10/2/2018 3:33:44 PM	40718
Cadmium	ND	1.0		mg/L	1	10/2/2018 3:33:44 PM	40718
Chromium	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Lead	ND	5.0		mg/L	1	10/2/2018 3:33:44 PM	40718
Selenium	ND	1.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Silver	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
EPA 6010B: METALS						Analyst: **ELS**	
Aluminum	5.3	0.10		mg/L	5	10/11/2018 8:56:07 AM	40718
Antimony	ND	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Arsenic	0.050	0.020		mg/L	1	10/11/2018 8:04:22 AM	40718

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1809619**
Date Reported: **10/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1809619-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2018 9:24:00 AM
Received Date: 9/12/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: METALS						Analyst: **ELS**	
Barium	0.022	0.020		mg/L	1	10/10/2018 11:36:58 AM	40718
Beryllium	ND	0.0030		mg/L	1	10/10/2018 11:36:58 AM	40718
Cadmium	ND	0.0020		mg/L	1	10/10/2018 11:36:58 AM	40718
Calcium	63	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Chromium	ND	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Cobalt	ND	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Copper	0.013	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Iron	3.6	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Lead	ND	0.0050		mg/L	1	10/10/2018 11:36:58 AM	40718
Magnesium	21	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Manganese	0.13	0.0020		mg/L	1	10/10/2018 11:36:58 AM	40718
Nickel	0.023	0.010		mg/L	1	10/10/2018 11:36:58 AM	40718
Potassium	75	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Selenium	ND	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Silver	ND	0.0050		mg/L	1	10/10/2018 11:36:58 AM	40718
Sodium	1300	50		mg/L	50	10/10/2018 11:42:09 AM	40718
Thallium	ND	0.050		mg/L	1	10/10/2018 12:31:48 PM	40718
Vanadium	0.052	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Zinc	0.066	0.020		mg/L	1	10/10/2018 11:36:58 AM	40718

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-001	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001D / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1,1,2-Tetrachloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,1-Trichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,2-Trichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-Dichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-Dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2,3-Trichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dibromo-3-chloropropane(DBCP)	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dibromoethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichlorobenzene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,3-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,4-Dichlorobenzene	ND	ug/L	0.5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2,2-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2-Butanone	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2-hexanone	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acetone	886	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acetonitrile	130	ug/L	100	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acrolein	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acrylonitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Allyl Chloride	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Benzene	161	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromochloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromodichloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromoform	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0026; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Sample Number 180919003-001 **Sampling Date** 9/11/2018 **Date/Time Received** 9/14/201811:23 AM
Client Sample ID 1809619-001D / WDW-1,2,&3 EFFLUENT **Sampling Time** 9:24 AM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Bromomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Carbon disulfide	11.8	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Carbon Tetrachloride	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chlorobenzene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroform	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroprene	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
cis-1,2-dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
cis-1,3-Dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dibromochloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dibromomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dichlorodifluoromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Ethyl methacrylate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Ethylbenzene	89.9	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Iodomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Isobutanol	ND	ug/L	1000	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
m+p-Xylene	197	ug/L	10	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methacrylonitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl ethyl ketone (MEK)	35.8	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl isobutyl ketone (MIBK)	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl Methacrylate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methylene chloride	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
o-Xylene	114	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Propionitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Styrene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Tetrachloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Toluene	378	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C586; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-001	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001D / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
trans-1,2-Dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
trans-1,3-Dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
trans-1-4-Dichloro-2-butene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Trichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Trichlorofiouromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Vinyl acetate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Vinyl Chloride	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Epichlorohydrin	ND	ug/L	50	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Surrogate Data

Sample Number 180919003-001

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260C	108.2	70-130
1,2-Dichlorobenzene-d4	EPA 8260C	99.6	70-130
4-Bromofluorobenzene	EPA 8260C	98.0	70-130
4-Bromofluorobenzene	EPA 8260C	104.0	70-130
Toluene-d8	EPA 8260C	98.4	70-130
Toluene-d8	EPA 8260C	99.6	70-130

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Trichloroethene	9.40	ug/L	10	94.0	80-120	9/25/2018	9/25/2018
Toluene	9.79	ug/L	10	97.9	80-120	9/25/2018	9/25/2018
Tetrachloroethene	9.13	ug/L	10	91.3	80-120	9/25/2018	9/25/2018
o-Xylene	9.64	ug/L	10	96.4	80-120	9/25/2018	9/25/2018
Ethylbenzene	9.92	ug/L	10	99.2	80-120	9/25/2018	9/25/2018
Chlorobenzene	9.78	ug/L	10	97.8	80-120	9/25/2018	9/25/2018
Benzene	9.79	ug/L	10	97.9	80-120	9/25/2018	9/25/2018
1,1-Dichloroethene	9.57	ug/L	10	95.7	80-120	9/25/2018	9/25/2018

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Trichloroethene	9.69	ug/L	10	96.9	3.0	0-25	9/25/2018	9/25/2018
Toluene	10.1	ug/L	10	101.0	3.1	0-25	9/25/2018	9/25/2018
Tetrachloroethene	9.48	ug/L	10	94.8	3.8	0-25	9/25/2018	9/25/2018
o-Xylene	10.3	ug/L	10	103.0	6.6	0-25	9/25/2018	9/25/2018
Ethylbenzene	10.2	ug/L	10	102.0	2.8	0-25	9/25/2018	9/25/2018
Chlorobenzene	10.4	ug/L	10	104.0	6.1	0-25	9/25/2018	9/25/2018
Benzene	10.4	ug/L	10	104.0	6.0	0-25	9/25/2018	9/25/2018
1,1-Dichloroethene	9.87	ug/L	10	98.7	3.1	0-25	9/25/2018	9/25/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,1,1,2-Tetrachloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,1-Trichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,2,2-Tetrachloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,2-Trichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-Dichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-Dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2,3-Trichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dibromo-3-chloropropane(DBCP)	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dibromoethane	ND	ug/L	0.5	9/25/2018	9/25/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87693; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2-Dichlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,3-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,4-Dichlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
2,2-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
2-Butanone	ND	ug/L	2.5	9/25/2018	9/25/2018
2-hexanone	ND	ug/L	0.5	9/25/2018	9/25/2018
Acetone	ND	ug/L	2.5	9/25/2018	9/25/2018
Acetonitrile	ND	ug/L	0.5	9/25/2018	9/25/2018
Acrolein	ND	ug/L	2.5	9/25/2018	9/25/2018
Acrylonitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Allyl Chloride	ND	ug/L	0.5	9/25/2018	9/25/2018
Benzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromochloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromodichloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromoform	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Carbon disulfide	ND	ug/L	0.5	9/25/2018	9/25/2018
Carbon Tetrachloride	ND	ug/L	0.5	9/25/2018	9/25/2018
Chlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroform	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroprene	ND	ug/L	0.5	9/25/2018	9/25/2018
cis-1,2-dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
cis-1,3-Dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
Dibromochloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Dibromomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Dichlorodifluoromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Ethyl methacrylate	ND	ug/L	2.5	9/25/2018	9/25/2018
Ethylbenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Iodomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Isobutanol	ND	ug/L	10	9/25/2018	9/25/2018
m+p-Xylene	ND	ug/L	1	9/25/2018	9/25/2018
Methacrylonitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Methyl ethyl ketone (MEK)	ND	ug/L	2.5	9/25/2018	9/25/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Methyl isobutyl ketone (MIBK)	ND	ug/L	2.5	9/25/2018	9/25/2018
Methyl Methacrylate	ND	ug/L	2.5	9/25/2018	9/25/2018
Methylene chloride	ND	ug/L	2.5	9/25/2018	9/25/2018
o-Xylene	ND	ug/L	0.5	9/25/2018	9/25/2018
Propionitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Styrene	ND	ug/L	0.5	9/25/2018	9/25/2018
Tetrachloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
Toluene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1,2-Dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1,3-Dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1-4-Dichloro-2-butene	ND	ug/L	0.5	9/25/2018	9/25/2018
Trichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
Trichlorofluoromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Vinyl acetate	ND	ug/L	0.5	9/25/2018	9/25/2018
Vinyl Chloride	ND	ug/L	0.5	9/25/2018	9/25/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2,4-Trichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2-Diphenyl hydrazine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3,5-TNB	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3-DNB	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Dioxane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Naphthoquinone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1-Methylnaphthalene	56.5	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1-Naphthylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,2-Oxybis(1-chloropropane)	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dimethylphenol	123	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
2,4-Dinitrotoluene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,6-Dichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Acetylaminofluorene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Chlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Methylnaphthalene	59.6	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Methylphenol	585	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Naphthylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Nitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Picoline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3,3-Dimethylbenzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3+4-Methylphenol	1060	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3-Methylcholanthrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Aminobiphenyl	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
4-Chloro-3-methylphenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Chloroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitroquinoline-1-oxide	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
5-Nitro-o-toluidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
7,12-Dimethylbenz(a)anthracene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
a,a-Dimethylphenethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acenaphthene	ND	ug/L	5	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acenaphthylene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acetophenone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Aniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Anthracene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Aramite	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo(ghi)perylene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Benzo[k]fluoranthene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzyl alcohol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Chloroethyl)ether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Butylbenzylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Carbazole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Chlorobenzilate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Chrysene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Diallate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Diethylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dimethoate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dimethylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
diphenylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Disulfoton	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ethyl methanesulfonate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Ethyl parathion	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Famphur	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Fluoranthene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Fluorene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorobenzene	ND	ug/L	10	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachloroethane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachloropropene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachorophene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isodrin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isophorone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isosafrole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Kepone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methapyrilene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methyl methanesulfonate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methyl parathion	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Naphthalene	123	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Nitrosodimethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-nitrosodibutylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosodiethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitroso-di-n-propylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosodiphenylamine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosomethylethylamine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosomorpholine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosopiperadine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosopyrrolidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
o,o,o-Triethyl phosphorothioate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
o-Toluidine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
p-(Dimethylamino)azobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachloroethane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachloronitrobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenacetin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenanthrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenol	5330	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Sample Number 180919003-002 **Sampling Date** 9/11/2018 **Date/Time Received** 9/14/201811:23 AM
Client Sample ID 1809619-001E / WDW-1,2,&3 EFFLUENT **Extraction Date** 9/18/2018
Matrix Water **Sampling Time** 9:24 AM
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Phorate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
p-Phenylenediamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pronamide	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pyrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pyridine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Safrole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Sulfotep	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Thionazin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

Surrogate Data

Sample Number 180919003-002

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	100.4	63-122
2-Fluorobiphenyl	EPA 8270D	82.8	58-127
2-Fluorophenol	EPA 8270D	85.6	44-119
Nitrobenzene-d5	EPA 8270D	77.6	58-120
Phenol-d5	EPA 8270D	71.6	52-115
Terphenyl-d14	EPA 8270D	58.8	22-133

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Pyrene	4.75	ug/L	5	95.0	45-138	9/18/2018	9/26/2018
Phenol	4.17	ug/L	5	83.4	45-134	9/18/2018	9/26/2018
Pentachlorophenol	4.06	ug/L	5	81.2	22-138	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	4.57	ug/L	5	91.4	46-140	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	5.26	ug/L	5	105.2	43-142	9/18/2018	9/26/2018
Acenaphthene	4.50	ug/L	5	90.0	36-122	9/18/2018	9/26/2018
4-Nitrophenol	4.96	ug/L	5	99.2	19-137	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	4.78	ug/L	5	95.6	42-139	9/18/2018	9/26/2018
2-Chlorophenol	4.39	ug/L	5	87.8	50-131	9/18/2018	9/26/2018
2,4-Dinitrotoluene	4.75	ug/L	5	95.0	49-134	9/18/2018	9/26/2018
1,4-Dichlorobenzene	3.74	ug/L	5	74.8	28-108	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	3.84	ug/L	5	76.8	33-109	9/18/2018	9/26/2018

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Pyrene	4.84	ug/L	5	96.8	1.9	0-36	9/18/2018	9/26/2018
Phenol	4.39	ug/L	5	87.8	5.1	0-35	9/18/2018	9/26/2018
Pentachlorophenol	4.09	ug/L	5	81.8	0.7	0-47	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	4.96	ug/L	5	99.2	8.2	0-38	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	5.37	ug/L	5	107.4	2.1	0-50	9/18/2018	9/26/2018
Acenaphthene	4.71	ug/L	5	94.2	4.6	0-23	9/18/2018	9/26/2018
4-Nitrophenol	5.25	ug/L	5	105.0	5.7	0-50	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	4.90	ug/L	5	98.0	2.5	0-33	9/18/2018	9/26/2018
2-Chlorophenol	4.74	ug/L	5	94.8	7.7	0-50	9/18/2018	9/26/2018
2,4-Dinitrotoluene	4.98	ug/L	5	99.6	4.7	0-47	9/18/2018	9/26/2018
1,4-Dichlorobenzene	4.07	ug/L	5	81.4	8.5	0-27	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	3.99	ug/L	5	79.8	3.8	0-27	9/18/2018	9/26/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2,4,5-Tetrachlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,2-Diphenyl hydrazine	ND	ug/L	5	9/18/2018	9/26/2018
1,3,5-TNB	ND	ug/L	5	9/18/2018	9/26/2018
1,3-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,3-DNB	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Dioxane	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Naphthoquinone	ND	ug/L	5	9/18/2018	9/26/2018
1-Methylnaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
1-Naphthylamine	ND	ug/L	5	9/18/2018	9/26/2018
2,2-Oxybis(1-chloropropane)	ND	ug/L	5	9/18/2018	9/26/2018
2,3,4,6-Tetrachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,3,5,6-Tetrachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4,5-Trichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4,6-Trichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dimethylphenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dinitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dinitrotoluene	ND	ug/L	5	9/18/2018	9/26/2018
2,6-Dichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,6-Dinitrotoluene	ND	ug/L	5	9/18/2018	9/26/2018
2-Acetylaminofluorene	ND	ug/L	5	9/18/2018	9/26/2018
2-Chloronaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
2-Chlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Methylnaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
2-Methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Naphthylamine	ND	ug/L	5	9/18/2018	9/26/2018
2-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
2-Nitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Picoline	ND	ug/L	5	9/18/2018	9/26/2018
3,3'-Dichlorobenzidine	ND	ug/L	5	9/18/2018	9/26/2018
3,3-Dimethylbenzidine	ND	ug/L	5	9/18/2018	9/26/2018
3+4-Methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
3-Methylcholanthrene	ND	ug/L	5	9/18/2018	9/26/2018
3-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4,6-Dinitro-2-methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Aminobiphenyl	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

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Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1809619
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
4-Bromophenyl-phenylether	ND	ug/L	5	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Chloroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4-Chlorophenyl-phenylether	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitroquinoline-1-oxide	ND	ug/L	5	9/18/2018	9/26/2018
5-Nitro-o-toluidine	ND	ug/L	5	9/18/2018	9/26/2018
7,12-Dimethylbenz(a)anthracene	ND	ug/L	5	9/18/2018	9/26/2018
a,a-Dimethylphenethylamine	ND	ug/L	5	9/18/2018	9/26/2018
Acenaphthene	ND	ug/L	5	9/18/2018	9/26/2018
Acenaphthylene	ND	ug/L	5	9/18/2018	9/26/2018
Acetophenone	ND	ug/L	5	9/18/2018	9/26/2018
Aniline	ND	ug/L	5	9/18/2018	9/26/2018
Anthracene	ND	ug/L	5	9/18/2018	9/26/2018
Aramite	ND	ug/L	5	9/18/2018	9/26/2018
Benzidine	ND	ug/L	5	9/18/2018	9/26/2018
Benzo(ghi)perylene	ND	ug/L	5	9/18/2018	9/26/2018
Benzo[a]anthracene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[a]pyrene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[b]fluoranthene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[k]fluoranthene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzyl alcohol	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Chloroethoxy)methane	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Chloroethyl)ether	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-chloroisopropyl)ether	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	ND	ug/L	5	9/18/2018	9/26/2018
Butylbenzylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Carbazole	ND	ug/L	5	9/18/2018	9/26/2018
Chlorobenzilate	ND	ug/L	5	9/18/2018	9/26/2018
Chrysene	ND	ug/L	0.1	9/18/2018	9/26/2018
Diallate	ND	ug/L	5	9/18/2018	9/26/2018
Dibenz[a,h]anthracene	ND	ug/L	0.1	9/18/2018	9/26/2018
Dibenzofuran	ND	ug/L	5	9/18/2018	9/26/2018
Diethylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Dimethoate	ND	ug/L	5	9/18/2018	9/26/2018
Dimethylphthalate	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Di-n-butylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Di-n-octylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
diphenylamine	ND	ug/L	5	9/18/2018	9/26/2018
Disulfoton	ND	ug/L	5	9/18/2018	9/26/2018
Ethyl methanesulfonate	ND	ug/L	5	9/18/2018	9/26/2018
Ethyl parathion	ND	ug/L	5	9/18/2018	9/26/2018
Famphur	ND	ug/L	5	9/18/2018	9/26/2018
Fluoranthene	ND	ug/L	5	9/18/2018	9/26/2018
Fluorene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachlorobenzene	ND	ug/L	1	9/18/2018	9/26/2018
Hexachlorobutadiene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachlorocyclopentadiene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachloroethane	ND	ug/L	5	9/18/2018	9/26/2018
Hexachloropropene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachorophene	ND	ug/L	5	9/18/2018	9/26/2018
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.1	9/18/2018	9/26/2018
Isodrin	ND	ug/L	5	9/18/2018	9/26/2018
Isophorone	ND	ug/L	5	9/18/2018	9/26/2018
Isosafrole	ND	ug/L	5	9/18/2018	9/26/2018
Kepone	ND	ug/L	5	9/18/2018	9/26/2018
Methapyrilene	ND	ug/L	5	9/18/2018	9/26/2018
Methyl methanesulfonate	ND	ug/L	5	9/18/2018	9/26/2018
Methyl parathion	ND	ug/L	5	9/18/2018	9/26/2018
Naphthalene	ND	ug/L	5	9/18/2018	9/26/2018
Nitrobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Nitrosodimethylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-nitrosodibutylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosodiethylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosodiphenylamine	ND	ug/L	2	9/18/2018	9/26/2018
n-Nitrosomethylethylamine	ND	ug/L	2	9/18/2018	9/26/2018
n-Nitrosomorpholine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosopiperadine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosopyrrolidine	ND	ug/L	5	9/18/2018	9/26/2018
o,o,o-Triethyl phosphorothioate	ND	ug/L	5	9/18/2018	9/26/2018
o-Toluidine	ND	ug/L	2	9/18/2018	9/26/2018
p-(Dimethylamino)azobenzene	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Pentachlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Pentachloroethane	ND	ug/L	5	9/18/2018	9/26/2018
Pentachloronitrobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Pentachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
Phenacetin	ND	ug/L	5	9/18/2018	9/26/2018
Phenanthrene	ND	ug/L	1	9/18/2018	9/26/2018
Phenol	ND	ug/L	5	9/18/2018	9/26/2018
Phorate	ND	ug/L	5	9/18/2018	9/26/2018
p-Phenylenediamine	ND	ug/L	5	9/18/2018	9/26/2018
Pronamide	ND	ug/L	5	9/18/2018	9/26/2018
Pyrene	ND	ug/L	5	9/18/2018	9/26/2018
Pyridine	ND	ug/L	5	9/18/2018	9/26/2018
Safrole	ND	ug/L	5	9/18/2018	9/26/2018
Sulfotep	ND	ug/L	5	9/18/2018	9/26/2018
Thionazin	ND	ug/L	5	9/18/2018	9/26/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-003	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/2018 11:23 AM
Client Sample ID	1809619-001F / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/L	0.1	9/21/2018 1:00:00 PM	BKP	SW846 CH7	
Flashpoint	>200	°F		9/26/2018 4:45:00 PM	GPB	EPA 1010	
pH	7.28	ph Units		9/26/2018 1:40:00 PM	LAC	SM 4500pH-B	
Reactive sulfide	2.00	mg/L	0.19	10/1/2018 2:00:00 PM	ETL	SW846 CH7	

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Reactive sulfide	0.180	mg/L	0.2	90.0	70-130	10/1/2018	10/1/2018
Cyanide (reactive)	0.520	mg/L	0.5	104.0	80-120	9/20/2018	9/25/2018

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
180925019-001	Reactive sulfide	0.385	0.693	mg/L	0.385	80.0	70-130	10/1/2018	10/1/2018
180919003-003	Cyanide (reactive)	ND	4.91	mg/L	5	98.2	80-120	9/20/2018	9/25/2018

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide (reactive)	4.76	mg/L	5	95.2	3.1	0-25	9/20/2018	9/25/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide (reactive)	ND	mg/L	1	9/20/2018	9/25/2018
Reactive sulfide	ND	mg/L	0.1	10/1/2018	10/1/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0026; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R54103**	RunNo: **54103**
Prep Date:	Analysis Date: **9/13/2018**	SeqNo: **1788975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R54103**	RunNo: **54103**
Prep Date:	Analysis Date: **9/13/2018**	SeqNo: **1788976** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	99.5	90	110			
Bromide	2.5	0.10	2.500	0	98.9	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	101	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R54600**	RunNo: **54600**
Prep Date:	Analysis Date: **10/2/2018**	SeqNo: **1811003** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R54600**	RunNo: **54600**
Prep Date:	Analysis Date: **10/2/2018**	SeqNo: **1811004** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.8	90	110			
Sulfate	9.3	0.50	10.00	0	93.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **lcs-1 98.6uS eC**	SampType: **LCS**	TestCode: **SM2510B: Specific Conductance**	
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**	
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795469**	Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	98.30	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40321**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789572** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-40321**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789573** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	80	120			

Sample ID **1809619-001BMS**	SampType: **MS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789583** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0055	0.00020	0.005000	.00006886	110	75	125			

Sample ID **1809619-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789584** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0057	0.00020	0.005000	.00006886	112	75	125	2.54	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-40779**	SampType: **MBLK**		TestCode: **MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID: **40779**		RunNo: **54613**					
Prep Date:	**10/3/2018**	Analysis Date: **10/3/2018**		SeqNo: **1811409**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-40779**	SampType: **LCS**		TestCode: **MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID: **40779**		RunNo: **54613**					
Prep Date:	**10/3/2018**	Analysis Date: **10/3/2018**		SeqNo: **1811410**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	96.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1809619

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID MB-40718	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810218 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Chromium	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID LCS-40718	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810220 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	96.8	80	120			
Chromium	ND	5.0	0.5000	0	101	80	120			
Selenium	ND	1.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	106	80	120			

Sample ID 1809619-001CMS	SampType: MS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810226 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02964	98.4	75	125			
Chromium	ND	5.0	0.5000	0.0009400	97.2	75	125			
Selenium	ND	1.0	0.5000	0	107	75	125			
Silver	ND	5.0	0.1000	0.001420	109	75	125			

Sample ID 1809619-001CMSD	SampType: MSD	TestCode: EPA Method 6010B: TCLP Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810227 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02964	98.8	75	125	0	20	
Chromium	ND	5.0	0.5000	0.0009400	97.1	75	125	0	20	
Selenium	ND	1.0	0.5000	0	108	75	125	0	20	
Silver	ND	5.0	0.1000	0.001420	109	75	125	0	20	

Sample ID MB-40718	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810246 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40718**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **40718**	RunNo: **54590**
Prep Date: **10/1/2018**	Analysis Date: **10/2/2018**	SeqNo: **1810246** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Cadmium	ND	1.0								
Lead	ND	5.0								

Sample ID **LCS-40718**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **40718**	RunNo: **54590**
Prep Date: **10/1/2018**	Analysis Date: **10/2/2018**	SeqNo: **1810248** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	96.7	80	120			
Cadmium	ND	1.0	0.5000	0	103	80	120			
Lead	ND	5.0	0.5000	0	100	80	120			

Sample ID **1809619-001CMS**	SampType: **MS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40718**	RunNo: **54590**
Prep Date: **10/1/2018**	Analysis Date: **10/2/2018**	SeqNo: **1810254** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.09061	93.5	75	125			
Cadmium	ND	1.0	0.5000	0	103	75	125			
Lead	ND	5.0	0.5000	0	98.2	75	125			

Sample ID **1809619-001CMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40718**	RunNo: **54590**
Prep Date: **10/1/2018**	Analysis Date: **10/2/2018**	SeqNo: **1810255** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.09061	93.0	75	125	0	20	
Cadmium	ND	1.0	0.5000	0	99.7	75	125	0	20	
Lead	ND	5.0	0.5000	0	93.1	75	125	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40718**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**
Client ID: **PBW**	Batch ID: **40718**	RunNo: **54775**
Prep Date: **10/1/2018**	Analysis Date: **10/10/2018**	SeqNo: **1818830** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-40718**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSW**	Batch ID: **40718**	RunNo: **54775**
Prep Date: **10/1/2018**	Analysis Date: **10/10/2018**	SeqNo: **1818832** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.50	0.050	0.5000	0	100	80	120			
Barium	0.52	0.020	0.5000	0	104	80	120			
Beryllium	0.52	0.0030	0.5000	0	105	80	120			
Cadmium	0.52	0.0020	0.5000	0	104	80	120			
Calcium	48	1.0	50.00	0	95.2	80	120			
Chromium	0.51	0.0060	0.5000	0	102	80	120			
Cobalt	0.51	0.0060	0.5000	0	101	80	120			
Copper	0.51	0.0060	0.5000	0	103	80	120			
Iron	0.50	0.050	0.5000	0	99.6	80	120			
Lead	0.51	0.0050	0.5000	0	101	80	120			
Magnesium	50	1.0	50.00	0	99.4	80	120			
Manganese	0.47	0.0020	0.5000	0	95.0	80	120			
Nickel	0.51	0.010	0.5000	0	102	80	120			
Potassium	49	1.0	50.00	0	97.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	LCS-40718	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	40718		RunNo:	54775				
Prep Date:	10/1/2018	Analysis Date:	10/10/2018		SeqNo:	1818832	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.50	0.050	0.5000	0	99.2	80	120			
Silver	0.11	0.0050	0.1000	0	110	80	120			
Sodium	51	1.0	50.00	0	102	80	120			
Vanadium	0.49	0.050	0.5000	0	98.2	80	120			
Zinc	0.49	0.020	0.5000	0	98.7	80	120			

Sample ID	MB-40718	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	40718		RunNo:	54775				
Prep Date:	10/1/2018	Analysis Date:	10/10/2018		SeqNo:	1818855	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	ND	0.050								

Sample ID	LCS-40718	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	40718		RunNo:	54775				
Prep Date:	10/1/2018	Analysis Date:	10/10/2018		SeqNo:	1818857	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.52	0.050	0.5000	0	103	80	120			

Sample ID	MB-40718	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	40718		RunNo:	54800				
Prep Date:	10/1/2018	Analysis Date:	10/11/2018		SeqNo:	1820075	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Arsenic	ND	0.020								

Sample ID	LCS-40718	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	40718		RunNo:	54800				
Prep Date:	10/1/2018	Analysis Date:	10/11/2018		SeqNo:	1820077	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.54	0.020	0.5000	0	108	80	120			
Arsenic	0.48	0.020	0.5000	0	96.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795420**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795421**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.20	20.00	80.00	0	97.7	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795444**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795445**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.92	20.00	80.00	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **1809619-001A** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R54162** RunNo: **54162**

Prep Date: Analysis Date: **9/14/2018** SeqNo: **1790677** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9995	0						0.0200	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40386**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **40386**	RunNo: **54232**
Prep Date: **9/17/2018**	Analysis Date: **8/18/2019**	SeqNo: **1793445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-40386**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **40386**	RunNo: **54232**
Prep Date: **9/17/2018**	Analysis Date: **8/18/2019**	SeqNo: **1793446** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	999	20.0	1000	0	99.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1809619 RcptNo: 1

Received By: Jazzmine Burkhead 9/12/2018 8:40:00 AM

Completed By: Ashley Gallegos 9/12/2018 12:31:07 PM

Reviewed By: JO 9/12/18

Labeled by: JAB 09/12/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1;2 (<2 or >12 unless noted)

Adjusted?

Checked by: JAB 09/12/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler: ✓

On Ice: ☑ Yes ☐ No

Sample Temperature: 4.1+0.2(n) 4.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1809019	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X		
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/11/18	1:30	Brady Hibbard			
Date:	Time:	Relinquished by:	Received by:	Date	Time
				09/12/18	08:40

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH=7.03

37.3°C

Courier

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

JUL 12 2018 PM01:17

HOLLYFRONTIER.

July 10, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 6664

RE: 2018 2nd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1265 psig and the average flows were 281 gpm for WDW-1, 80 gpm for WDW-2 and 112 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2018 to June 30, 2018. We have disposed a total of 1,870,028 barrels of fluid into the three wells during the second quarter of 2018. The volume per well is:

- 1,108,783 barrels into WDW-1; 30-015-27592
- 320,640 barrels into WDW-2; 30-015-20894
- 440,605 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Lewis R. (Randy) Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Released to Imaging: 7/12/2024 10:49:45 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 28, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 and 3 Inj Well OrderNo.: 1806778

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/13/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JRR**
Fluoride	9.5	0.50	*	mg/L	5	6/13/2018 7:04:58 PM
Chloride	570	25		mg/L	50	6/18/2018 9:58:46 PM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	6/13/2018 7:04:58 PM
Bromide	1.6	0.50		mg/L	5	6/13/2018 7:04:58 PM
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	6/13/2018 7:04:58 PM
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	6/13/2018 7:04:58 PM
Sulfate	2100	25		mg/L	50	6/18/2018 9:58:46 PM
EPA METHOD 7470: MERCURY						Analyst: **rde**
Mercury	ND	0.00020		mg/L	1	6/22/2018 4:48:51 PM
MERCURY, TCLP						Analyst: **rde**
Mercury	ND	0.020		mg/L	1	6/22/2018 3:44:25 PM
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**
Arsenic	ND	5.0		mg/L	1	6/24/2018 6:29:55 PM
Barium	ND	100		mg/L	1	6/21/2018 9:34:34 AM
Cadmium	ND	1.0		mg/L	1	6/21/2018 9:34:34 AM
Chromium	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
Lead	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
Selenium	ND	1.0		mg/L	1	6/21/2018 12:16:01 PM
Silver	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
EPA 6010B: METALS						Analyst: **MED**
Aluminum	0.27	0.020		mg/L	1	6/24/2018 6:58:28 PM
Antimony	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Arsenic	ND	0.020		mg/L	1	6/24/2018 6:58:28 PM
Barium	0.028	0.020		mg/L	1	6/24/2018 6:58:28 PM
Beryllium	ND	0.0030		mg/L	1	6/24/2018 6:58:28 PM
Cadmium	ND	0.0020		mg/L	1	6/24/2018 6:58:28 PM
Calcium	110	5.0		mg/L	5	6/25/2018 1:17:11 PM
Chromium	ND	0.0060		mg/L	1	6/24/2018 6:58:28 PM
Cobalt	ND	0.0060		mg/L	1	6/24/2018 6:58:28 PM
Copper	ND	0.0060		mg/L	1	6/25/2018 12:25:43 PM
Iron	0.30	0.050		mg/L	1	6/24/2018 6:58:28 PM
Lead	ND	0.0050		mg/L	1	6/24/2018 6:58:28 PM
Magnesium	34	1.0		mg/L	1	6/25/2018 1:18:27 PM
Manganese	0.047	0.0020		mg/L	1	6/24/2018 6:58:28 PM
Nickel	ND	0.010		mg/L	1	6/24/2018 6:58:28 PM
Potassium	41	1.0		mg/L	1	6/25/2018 1:18:27 PM
Selenium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: METALS						Analyst: **MED**
Silver	ND	0.0050		mg/L	1	6/24/2018 6:58:28 PM
Sodium	1000	50		mg/L	50	6/25/2018 1:15:55 PM
Thallium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Vanadium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Zinc	ND	0.020		mg/L	1	6/24/2018 6:58:28 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
Benzene	ND	0.50		µg/L	1	6/19/2018
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/19/2018
2-Butanone	ND	5.0		µg/L	1	6/19/2018
Carbon Tetrachloride	ND	0.50		µg/L	1	6/19/2018
Chlorobenzene	ND	0.50		µg/L	1	6/19/2018
Chloroform	ND	0.50		µg/L	1	6/19/2018
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/19/2018
1,1-Dichloroethene	ND	0.50		µg/L	1	6/19/2018
Hexachlorobutadiene	ND	0.50		µg/L	1	6/19/2018
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/19/2018
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/19/2018
Vinyl chloride	ND	0.50		µg/L	1	6/19/2018
Surr: 1,2-Dichlorobenzene-d4	103	70-130		%Rec	1	6/19/2018
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	6/19/2018
Surr: Toluene-d8	102	70-130		%Rec	1	6/19/2018
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
2,4,5-Trichlorophenol	ND	50		µg/L	1	6/20/2018
2,4,6-Trichlorophenol	ND	50		µg/L	1	6/20/2018
2,4-Dinitrotoluene	ND	50		µg/L	1	6/20/2018
2-Methylphenol	ND	50		µg/L	1	6/20/2018
Hexachlorobenzene	ND	10		µg/L	1	6/20/2018
Hexachlorobutadiene	ND	50		µg/L	1	6/20/2018
Hexachloroethane	ND	50		µg/L	1	6/20/2018
Nitrobenzene	ND	50		µg/L	1	6/20/2018
Pentachlorophenol	ND	50		µg/L	1	6/20/2018
Phenol	ND	50		µg/L	1	6/20/2018
Pyridine	ND	50		µg/L	1	6/20/2018
Surr: 2,4,6-Tribromophenol	93.4	63-122		%Rec	1	6/20/2018
Surr: 2-Fluorobiphenyl	86.0	58-127		%Rec	1	6/20/2018
Surr: 2-Fluorophenol	81.8	44-119		%Rec	1	6/20/2018
Surr: Nitrobenzene-d5	88.8	58-120		%Rec	1	6/20/2018
Surr: Phenol-d5	101	52-115		%Rec	1	6/20/2018

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
Surr: Terphenyl-d14	106	20-133		%Rec	1	6/20/2018
CORROSIVITY						Analyst: **SUB**
pH	8.05			pH Units	1	6/19/2018
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>200			°F	1	6/18/2018
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	ND	0.100		mg/L	1	6/20/2018
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	ND	0.20		mg/L	1	6/19/2018
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5900	5.0		µmhos/c	1	6/18/2018 5:39:09 PM
SM4500-H+B / 9040C: PH						Analyst: **JRR**
pH	7.96		H	pH units	1	6/18/2018 5:39:09 PM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	237.5	20.00		mg/L Ca	1	6/18/2018 5:39:09 PM
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	6/18/2018 5:39:09 PM
Total Alkalinity (as CaCO3)	237.5	20.00		mg/L Ca	1	6/18/2018 5:39:09 PM
SPECIFIC GRAVITY						Analyst: **SRM**
Specific Gravity	1.006	0			1	6/18/2018 7:15:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **sat**
Total Dissolved Solids	4100	100	*D	mg/L	1	6/15/2018 1:01:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R51968**	RunNo: **51968**
Prep Date:	Analysis Date: **6/13/2018**	SeqNo: **1699258** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R51968**	RunNo: **51968**
Prep Date:	Analysis Date: **6/13/2018**	SeqNo: **1699259** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.7	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.9	90	110			
Bromide	2.3	0.10	2.500	0	90.2	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.4	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	92.0	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A52074**	RunNo: **52074**
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1704016** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.500								
Sulfate	ND	0.500								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A52074**	RunNo: **52074**
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1704017** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.89	0.500	5.000	0	97.9	90	110			
Sulfate	9.64	0.500	10.00	0	96.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711983** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
2-Butanone	ND	2.5								
Benzene	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroform	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.50								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711984** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	9.9	0	10.00	0	98.6	80	120			
Benzene	9.7	0	10.00	0	96.6	80	120			
Chlorobenzene	9.5	0	10.00	0	94.8	80	120			
Tetrachloroethene (PCE)	9.3	0	10.00	0	93.0	80	120			
Trichloroethene (TCE)	9.7	0	10.00	0	96.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711986** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2-Methylphenol	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenol	ND	5.0								
Pyridine	ND	5.0								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711987** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	3.6	0	5.000	0	71.4	22	138			
Phenol	4.6	0	5.000	0	92.8	45	134			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**lcs-1 ~20uS eC**	SampType: **LCS**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**LCSW**	Batch ID: **R52062**		RunNo: **52062**						
Prep Date:		Analysis Date: **6/18/2018**		SeqNo: **1703214**		Units: **µmhos/cm**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		22	5.0	19.98	0	113	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-38840**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**38840**	RunNo:	**52177**					
Prep Date:	**6/22/2018**	Analysis Date:	**6/22/2018**	SeqNo:	**1709180**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-38840**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**38840**	RunNo:	**52177**					
Prep Date:	**6/22/2018**	Analysis Date:	**6/22/2018**	SeqNo:	**1709181**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.7	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38837**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **38837**	RunNo: **52174**
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709087** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-38837**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **38837**	RunNo: **52174**
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709088** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	103	80	120			

Sample ID **TCLP#1-3752**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **38837**	RunNo: **52174**
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709107** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	MB-38797	SampType:	MBLK	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	PBW	Batch ID:	38797	RunNo:	52127					
Prep Date:	6/20/2018	Analysis Date:	6/21/2018	SeqNo:	1707267	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Silver	ND	5.0								

Sample ID	LCS-38797	SampType:	LCS	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	LCSW	Batch ID:	38797	RunNo:	52127					
Prep Date:	6/20/2018	Analysis Date:	6/21/2018	SeqNo:	1707268	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	104	80	120			
Cadmium	ND	1.0	0.5000	0	103	80	120			
Chromium	ND	5.0	0.5000	0	101	80	120			
Lead	ND	5.0	0.5000	0	103	80	120			
Silver	ND	5.0	0.1000	0	110	80	120			

Sample ID	LCSD-38797	SampType:	LCSD	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	LCSS02	Batch ID:	38797	RunNo:	52127					
Prep Date:	6/20/2018	Analysis Date:	6/21/2018	SeqNo:	1707269	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	104	80	120	0	20	
Cadmium	ND	1.0	0.5000	0	103	80	120	0	20	
Chromium	ND	5.0	0.5000	0	101	80	120	0	20	
Lead	ND	5.0	0.5000	0	104	80	120	0	20	
Silver	ND	5.0	0.1000	0	111	80	120	0	20	

Sample ID	MB-38797	SampType:	MBLK	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	PBW	Batch ID:	38797	RunNo:	52127					
Prep Date:	6/20/2018	Analysis Date:	6/21/2018	SeqNo:	1707278	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0								

Sample ID	LCS-38797	SampType:	LCS	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	LCSW	Batch ID:	38797	RunNo:	52127					
Prep Date:	6/20/2018	Analysis Date:	6/21/2018	SeqNo:	1707279	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707279** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0	0.5000	0	97.2	80	120			

Sample ID **LCSD-38797**	SampType: **LCSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707280** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0	0.5000	0	105	80	120	0	20	

Sample ID **MB-38797**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709602** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709603** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	93.7	80	120			

Sample ID **LCSD-38797**	SampType: **LCSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.3	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	MB-38830	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	38830	RunNo:	52182					
Prep Date:	6/21/2018	Analysis Date:	6/24/2018	SeqNo:	1709613	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID	LCS-38830	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	38830	RunNo:	52182					
Prep Date:	6/21/2018	Analysis Date:	6/24/2018	SeqNo:	1709614	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	110	80	120			
Antimony	0.46	0.050	0.5000	0	92.9	80	120			
Arsenic	0.47	0.020	0.5000	0	95.0	80	120			
Barium	0.50	0.020	0.5000	0	101	80	120			
Beryllium	0.53	0.0030	0.5000	0	106	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.4	80	120			
Chromium	0.47	0.0060	0.5000	0	94.5	80	120			
Cobalt	0.47	0.0060	0.5000	0	94.6	80	120			
Iron	0.51	0.050	0.5000	0	102	80	120			
Lead	0.47	0.0050	0.5000	0	94.5	80	120			
Manganese	0.49	0.0020	0.5000	0	97.7	80	120			
Nickel	0.49	0.010	0.5000	0	98.2	80	120			
Selenium	0.45	0.050	0.5000	0	89.1	80	120			
Silver	0.11	0.0050	0.1000	0	111	80	120			
Thallium	0.50	0.050	0.5000	0	99.6	80	120			
Vanadium	0.50	0.050	0.5000	0	99.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **LCS-38830**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSW**	Batch ID: **38830**	RunNo: **52182**
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709614** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.46	0.020	0.5000	0	91.6	80	120			

Sample ID **1806778-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **38830**	RunNo: **52182**
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709617** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.86	0.020	0.5000	0.2671	119	75	125			
Antimony	0.46	0.050	0.5000	0	91.6	75	125			
Arsenic	0.47	0.020	0.5000	0	94.1	75	125			
Barium	0.52	0.020	0.5000	0.02756	97.7	75	125			
Beryllium	0.49	0.0030	0.5000	0	98.7	75	125			
Cadmium	0.49	0.0020	0.5000	0	97.2	75	125			
Chromium	0.46	0.0060	0.5000	0	92.0	75	125			
Cobalt	0.45	0.0060	0.5000	0.001940	89.7	75	125			
Iron	0.78	0.050	0.5000	0.3011	96.1	75	125			
Lead	0.47	0.0050	0.5000	0	93.4	75	125			
Manganese	0.51	0.0020	0.5000	0.04674	92.9	75	125			
Nickel	0.48	0.010	0.5000	0.009450	94.8	75	125			
Selenium	0.50	0.050	0.5000	0.03875	92.8	75	125			
Silver	0.12	0.0050	0.1000	0.001780	116	75	125			
Thallium	0.47	0.050	0.5000	0	94.3	75	125			
Vanadium	0.53	0.050	0.5000	0.03973	97.1	75	125			
Zinc	0.46	0.020	0.5000	0.01812	89.2	75	125			

Sample ID **1806778-001BMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **38830**	RunNo: **52182**
Prep Date: **6/21/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.87	0.020	0.5000	0.2671	120	75	125	0.456	20	
Antimony	0.44	0.050	0.5000	0	88.1	75	125	3.91	20	
Arsenic	0.47	0.020	0.5000	0	93.5	75	125	0.578	20	
Barium	0.51	0.020	0.5000	0.02756	96.9	75	125	0.792	20	
Beryllium	0.49	0.0030	0.5000	0	97.5	75	125	1.14	20	
Cadmium	0.48	0.0020	0.5000	0	95.5	75	125	1.78	20	
Chromium	0.45	0.0060	0.5000	0	91.0	75	125	1.12	20	
Cobalt	0.44	0.0060	0.5000	0.001940	88.0	75	125	1.87	20	
Iron	0.79	0.050	0.5000	0.3011	97.2	75	125	0.718	20	
Lead	0.46	0.0050	0.5000	0	91.2	75	125	2.36	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	1806778-001BMSD	SampType:	MSD	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52182					
Prep Date:	6/21/2018	Analysis Date:	6/24/2018	SeqNo:	1709618	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.51	0.0020	0.5000	0.04674	93.2	75	125	0.328	20	
Nickel	0.47	0.010	0.5000	0.009450	93.0	75	125	1.82	20	
Selenium	0.50	0.050	0.5000	0.03875	92.2	75	125	0.590	20	
Silver	0.12	0.0050	0.1000	0.001780	116	75	125	0.356	20	
Thallium	0.47	0.050	0.5000	0	94.9	75	125	0.636	20	
Vanadium	0.53	0.050	0.5000	0.03973	97.6	75	125	0.477	20	
Zinc	0.46	0.020	0.5000	0.01812	87.8	75	125	1.53	20	

Sample ID	MB-38830	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710333	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.0060								

Sample ID	LCS-38830	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710334	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.47	0.0060	0.5000	0	94.0	80	120			

Sample ID	1806778-001BMS	SampType:	MS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710337	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.50	0.0060	0.5000	0	101	75	125			

Sample ID	1806778-001BMSD	SampType:	MSD	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710338	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.50	0.0060	0.5000	0	101	75	125	0.300	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	MB-38830	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710647	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	LCS-38830	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710648	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.9	80	120			
Magnesium	48	1.0	50.00	0	97.0	80	120			
Potassium	48	1.0	50.00	0	96.4	80	120			
Sodium	49	1.0	50.00	0	97.4	80	120			

Sample ID	1806778-001BMS	SampType:	MS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710653	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	82	1.0	50.00	34.10	95.8	75	125			
Potassium	89	1.0	50.00	40.69	96.0	75	125			

Sample ID	1806778-001BMSD	SampType:	MSD	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710654	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	84	1.0	50.00	34.10	98.9	75	125	1.93	20	
Potassium	90	1.0	50.00	40.69	98.4	75	125	1.36	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711993** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711994** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.505		0.5000	0	101	80	20			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**							
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711996**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.10								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**							
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711997**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703175**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703176**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.04	20.00	80.00	0	96.3	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703199**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703200**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.28	20.00	80.00	0	99.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specifed

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **1806778-001ADUP**	SampType: **DUP**			TestCode: **Specific Gravity**						
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R52078**			RunNo: **52078**						
Prep Date:	Analysis Date: **6/18/2018**			SeqNo: **1704219**		Units:				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.508	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38675**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **PBW**	Batch ID: **38675**	RunNo: **52038**							
Prep Date: **6/14/2018**	Analysis Date: **6/15/2018**	SeqNo: **1702120**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-38675**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **LCSW**	Batch ID: **38675**	RunNo: **52038**							
Prep Date: **6/14/2018**	Analysis Date: **6/15/2018**	SeqNo: **1702121**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1806778 RcptNo: 1

Received By: Jazzmine Burkhead 6/13/2018 9:45:00 AM
Completed By: Ashley Gallegos 6/13/2018 11:22:33 AM
Reviewed By: ENM 6/13/18 labeled by: JB 06/13/18

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 2;12 (<2 or >12 unless noted)
Adjusted? No
Checked by: JB

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.3	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standar X Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.3 + 0.0(CF) = 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1800178	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6-12-18	4:00	Brady Hubbard		Courier JB	06/13/18	09:45
Date:	Time:	Relinquished by:	Received by:		Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH= 7.55, 45.4°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	Contaminant	SW-846 Method	Regulatory Level (mg/l)
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

Shallow to 200 - 250 ft bgs

Need All

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2018 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

		Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**		40,636,463
Apr-18	1,215	1,400	1,160	266	307	126	386	687	244	9,120	10,526	4,320	273,463	40,909,926
May-18	1,224	1,400	1,195	270	310	167	400	892	174	9,257	10,629	5,726	388,800	41,298,726
Jun-18	1,342	1,400	1,374	308	339	232	528	696	297	10,560	11,623	7,954	446,520	41,745,246
Monthly Avg	1,260			281										
30-015-20894 WDW-2													**Previous Quarter**		26,910,195
Apr-18	1,221	1,400	1,160	61	92	1	315	411	211	2,091	3,154	34	62,880	26,973,075
May-18	1,260	1,400	1,177	77	91	61	310	467	219	2,640	3,120	2,091	110,880	27,083,955
Jun-18	1,359	1,400	1,081	102	111	78	341	548	241	3,497	3,806	2,674	146,880	27,230,835
Monthly Avg	1,280			80										
30-015-26575 WDW-3													**Previous Quarter**		18,176,586
Apr-18	1,210	1,400	1,160	102	132	84	451	596	273	3,497	4,526	2,880	105,085	18,281,671
May-18	1,255	1,400	1,155	108	125	89	374	544	275	3,703	4,286	3,051	155,520	18,437,191
Jun-18	1,302	1,400	1,082	125	141	66	527	701	187	4,286	4,834	2,263	180,000	18,617,191
Monthly Avg	1,256			112								**Total Injected fluids:**		
AVG:	1266			158										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	1,108,783	40,636,463	41,745,246
WDW2	320,640	26,910,195	27,230,835
WDW3	440,605	18,176,586	18,617,191
	1,870,028	85,723,244	87,593,272

HOLLYFRONTIER.

May 8, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 6510

RE: 2018 1st Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1298 psig and the average flows were 133 gpm for WDW-1, 112 gpm for WDW-2 and 99 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits. The Mewbourne WDW-1; 30-015-27592, did have repairs due to well issues starting 01/08/2018. Repairs were made and C-103 submitted, MIT was witnessed on 3/7/2018 and well returned to service on 3/8/2018.

This report covers the period from January 1, 2018 to March 31, 2018. We have disposed a total of 1,424,202 barrels of fluid into the three wells during the first quarter of 2018. The volume per well is:

- 540,144 barrels into WDW-1; 30-015-27592
- 317,136 barrels into WDW-2; 30-015-20894
- 566,922 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

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2018 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												**Previous Quarter**		40,096,319
Jan-18	1,361	1,400	1,364	134	144	80	1,142	1,393	213	4,152	4,937	2,743	174,384	40,270,703
Feb-18	1,305	1,400	1,195	128	142	96	1,297	1,393	1,192	4,389	4,869	3,291	184,320	40,455,023
Mar-18	1,183	1,400	1,374	126	454	96	504	1,270	331	3,160	15,566	3,291	181,440	40,636,463
Monthly Avg	1,363			133										
30-015-20894 WDW-2												**Previous Quarter**		26,593,059
Jan-18	1,389	1,400	1,344	114	351	107	479	730	308	3,548	12,034	3,669	140,016	26,733,075
Feb-18	1,312	1,400	1,177	75	118	69	361	447	279	2,571	4,046	2,366	108,000	26,841,075
Mar-18	1,263	1,400	1,081	48	111	54	335	468	232	1,477	3,806	1,851	69,120	26,910,195
Monthly Avg	1,300			112										
30-015-26575 WDW-3												**Previous Quarter**		17,609,664
Jan-18	1,340	1,400	1,248	152	162	119	555	663	430	4,721	5,554	4,080	198,282	17,807,946
Feb-18	1,282	1,400	1,155	133	159	100	535	593	441	4,560	5,451	3,429	191,520	17,999,466
Mar-18	1,251	1,400	1,082	123	157	53	467	587	380	3,808	5,383	1,817	177,120	18,176,586
Monthly Avg	1232			99								**Total Injected fluids:**		85,723,244

	Total BBLS	Beginning Volume	Ending Volume
WDW1	540,144	40,096,319	40,636,463
WDW2	317,136	26,593,059	26,910,195
WDW3	566,922	17,609,664	18,176,586
	1,424,202		
		84,299,042	85,723,244

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 15, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1, 2 and 3 Inj Well OrderNo.: 1802968

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/16/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **MAB**	
Chlordane	ND	0.30		mg/L	10	2/22/2018 10:33:17 AM	36636
Surr: Decachlorobiphenyl	63.2	41.2-177		%Rec	10	2/22/2018 10:33:17 AM	36636
Surr: Tetrachloro-m-xylene	64.4	29-171		%Rec	10	2/22/2018 10:33:17 AM	36636
EPA METHOD 8270C TCLP						Analyst: **DAM**	
2-Methylphenol	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
3+4-Methylphenol	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
Phenol	ND	200		mg/L	10	3/13/2018 8:51:59 PM	36637
2,4-Dinitrotoluene	ND	0.13		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachlorobenzene	ND	0.13		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachlorobutadiene	ND	0.50		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachloroethane	ND	3.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Nitrobenzene	ND	2.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Pentachlorophenol	ND	100		mg/L	1	3/5/2018 11:38:07 AM	36637
Pyridine	ND	5.0		mg/L	1	3/5/2018 11:38:07 AM	36637
2,4,5-Trichlorophenol	ND	400		mg/L	1	3/5/2018 11:38:07 AM	36637
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Cresols, Total	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
Surr: 2-Fluorophenol	62.3	15-73.6		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: Phenol-d5	51.2	15-63.4		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 2,4,6-Tribromophenol	91.6	15-119		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: Nitrobenzene-d5	88.7	33.5-111		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 2-Fluorobiphenyl	85.5	31.8-101		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 4-Terphenyl-d14	53.0	17.2-84.7		%Rec	1	3/5/2018 11:38:07 AM	36637
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>170			°F	1	2/20/2018	R49787
OXIDATION REDUCTION POTENTIAL						Analyst: **SUB**	
Oxidation-Reduction Potential	140			mV	1	2/21/2018	R49787
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	0.38	0.050		mg/L	1	2/20/2018	R49787
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9980	0			1	2/20/2018 12:44:00 PM	R49250
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.50	0.50		mg/L	5	2/27/2018 4:16:33 PM	R49460
Chloride	420	25		mg/L	50	3/4/2018 3:17:41 PM	R49545
Bromide	1.2	0.50		mg/L	5	2/27/2018 4:16:33 PM	R49460
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	2/27/2018 4:16:33 PM	R49460

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Sulfate	1200	25		mg/L	50	3/2/2018 9:09:19 PM	R49522
Nitrate+Nitrite as N	ND	1.0		mg/L	5	2/28/2018 12:07:17 PM	R49476
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	4600	5.0		µmhos/cm	1	2/22/2018 12:59:56 PM	R49344
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	286.5	20.00		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
Carbonate (As CaCO3)	36.16	2.000		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
Total Alkalinity (as CaCO3)	322.6	20.00		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3040	20.0	*	mg/L	1	2/21/2018 7:01:00 PM	36630
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	0.0493	0.00500		mg/L	1	2/23/2018	R49787
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	8.59		*H	pH units	1	2/22/2018 12:59:56 PM	R49344
EPA METHOD 7470: MERCURY						Analyst: **rde**	
Mercury	ND	0.00020		mg/L	1	2/21/2018 10:33:26 AM	36616
MERCURY, TCLP						Analyst: **rde**	
Mercury	ND	0.020		mg/L	1	3/8/2018 3:33:51 PM	36908
EPA METHOD 6010B: TCLP METALS						Analyst: **JLF**	
Arsenic	ND	5.0		mg/L	1	3/13/2018 11:04:59 AM	36855
Barium	ND	100		mg/L	1	3/7/2018 7:32:52 PM	36855
Cadmium	ND	1.0		mg/L	1	3/7/2018 7:32:52 PM	36855
Chromium	ND	5.0		mg/L	1	3/12/2018 2:53:01 PM	36855
Lead	ND	5.0		mg/L	1	3/7/2018 7:32:52 PM	36855
Selenium	ND	1.0		mg/L	1	3/13/2018 1:28:45 PM	36855
Silver	ND	5.0		mg/L	1	3/7/2018 7:32:52 PM	36855
EPA 6010B: METALS						Analyst: **JLF**	
Aluminum	1.3	0.020		mg/L	1	3/7/2018 7:34:50 PM	36855
Antimony	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Arsenic	ND	0.020		mg/L	1	3/13/2018 11:03:41 AM	36855
Barium	ND	0.020		mg/L	1	3/7/2018 7:34:50 PM	36855
Beryllium	ND	0.0030		mg/L	1	3/7/2018 7:34:50 PM	36855
Cadmium	ND	0.0020		mg/L	1	3/7/2018 7:34:50 PM	36855
Calcium	67	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Chromium	ND	0.0060		mg/L	1	3/12/2018 2:50:53 PM	36855

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: METALS						Analyst: **JLF**	
Cobalt	ND	0.0060		mg/L	1	3/12/2018 2:50:53 PM	36855
Copper	ND	0.0060		mg/L	1	3/7/2018 7:34:50 PM	36855
Iron	0.59	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Lead	ND	0.0050		mg/L	1	3/7/2018 7:34:50 PM	36855
Magnesium	21	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Manganese	0.041	0.0020		mg/L	1	3/7/2018 7:34:50 PM	36855
Nickel	ND	0.010		mg/L	1	3/7/2018 7:34:50 PM	36855
Potassium	84	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Selenium	0.10	0.050		mg/L	1	3/13/2018 1:27:28 PM	36855
Silver	ND	0.0050		mg/L	1	3/7/2018 7:34:50 PM	36855
Sodium	820	20		mg/L	20	3/7/2018 7:38:57 PM	36855
Thallium	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Vanadium	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Zinc	ND	0.020		mg/L	1	3/13/2018 11:03:41 AM	36855
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
2-Butanone	ND	200		mg/L	200	2/21/2018 9:53:00 PM	T49300
Carbon Tetrachloride	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Chloroform	ND	6.0		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,4-Dichlorobenzene	ND	7.5		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,1-Dichloroethene	ND	0.70		mg/L	200	2/21/2018 9:53:00 PM	T49300
Hexachlorobutadiene	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	2/21/2018 9:53:00 PM	T49300
Trichloroethene (TCE)	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Vinyl chloride	ND	0.20		mg/L	200	2/21/2018 9:53:00 PM	T49300
Chlorobenzene	ND	100		mg/L	200	2/21/2018 9:53:00 PM	T49300
Surr: 1,2-Dichloroethane-d4	84.8	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: 4-Bromofluorobenzene	78.7	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: Dibromofluoromethane	88.2	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: Toluene-d8	77.3	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R49460**	RunNo: **49460**
Prep Date:	Analysis Date: **2/27/2018**	SeqNo: **1597256** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R49460**	RunNo: **49460**
Prep Date:	Analysis Date: **2/27/2018**	SeqNo: **1597257** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.1	90	110			
Bromide	2.4	0.10	2.500	0	95.9	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.3	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R49476**	RunNo: **49476**
Prep Date:	Analysis Date: **2/28/2018**	SeqNo: **1598370** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R49476**	RunNo: **49476**
Prep Date:	Analysis Date: **2/28/2018**	SeqNo: **1598371** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.2	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R49522**	RunNo: **49522**
Prep Date:	Analysis Date: **3/2/2018**	SeqNo: **1600511** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS-b**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R49522**	RunNo: **49522**
Prep Date:	Analysis Date: **3/2/2018**	SeqNo: **1600513** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.2	0.50	10.00	0	91.9	90	110			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R49545**	RunNo: **49545**							
Prep Date:	Analysis Date: **3/4/2018**	SeqNo: **1601219**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R49545**	RunNo: **49545**							
Prep Date:	Analysis Date: **3/4/2018**	SeqNo: **1601220**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.3	90	110			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT

WO#: **1802968**

Hall Environmental Analysis Laboratory, Inc.

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36636**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592030** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0013		0.002500		52.0	41.2	177			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.9	29	171			

Sample ID **LCS-36636**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592031** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0019		0.002500		74.9	41.2	177			
Surr: Tetrachloro-m-xylene	0.0019		0.002500		77.6	29	171			

Sample ID **LCSD-36636**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592036** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0019		0.002500		77.8	41.2	177	0	0	
Surr: Tetrachloro-m-xylene	0.0019		0.002500		77.2	29	171	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T49300**	RunNo: **49300**
Prep Date:	Analysis Date: **2/21/2018**	SeqNo: **1590903** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.024	0.010	0.02000	0	118	70	130			
1,1-Dichloroethene	0.026	0.010	0.02000	0	128	70	130			
Trichloroethene (TCE)	0.022	0.010	0.02000	0	110	70	130			
Chlorobenzene	0.020	0.010	0.02000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	0.0088		0.01000		88.4	70	130			
Surr: 4-Bromofluorobenzene	0.0080		0.01000		79.5	70	130			
Surr: Dibromofluoromethane	0.0091		0.01000		90.8	70	130			
Surr: Toluene-d8	0.0078		0.01000		78.2	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T49300**	RunNo: **49300**
Prep Date:	Analysis Date: **2/21/2018**	SeqNo: **1590905** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0089		0.01000		88.9	70	130			
Surr: 4-Bromofluorobenzene	0.0076		0.01000		76.1	70	130			
Surr: Dibromofluoromethane	0.0092		0.01000		91.7	70	130			
Surr: Toluene-d8	0.0077		0.01000		77.3	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001ems** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611310** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.14	0.0010	0.1000	0	142	23.9	129			S
3+4-Methylphenol	0.34	0.0010	0.2000	0.01344	165	15	167			
2,4-Dinitrotoluene	0.081	0.0010	0.1000	0	81.2	15	147			
Hexachlorobenzene	0.089	0.0010	0.1000	0	89.1	41.4	136			
Hexachlorobutadiene	0.085	0.0010	0.1000	0	84.9	16.2	134			
Hexachloroethane	0.068	0.0010	0.1000	0	67.6	20.6	124			
Nitrobenzene	0.084	0.0010	0.1000	0	84.4	39.5	134			
Pentachlorophenol	0.084	0.0010	0.1000	0	83.6	15	137			
Pyridine	0.022	0.0010	0.1000	0	21.5	15	129			
2,4,5-Trichlorophenol	0.095	0.0010	0.1000	0	95.2	15	158			
2,4,6-Trichlorophenol	0.096	0.0010	0.1000	0	96.0	15	153			
Cresols, Total	0.93	0.0010	0.3000	0.05632	291	10.6	179			S
Surr: 2-Fluorophenol	0.12		0.2000		57.8	15	73.6			
Surr: Phenol-d5	0.097		0.2000		48.7	15	63.4			
Surr: 2,4,6-Tribromophenol	0.18		0.2000		91.0	15	119			
Surr: Nitrobenzene-d5	0.085		0.1000		84.8	33.5	111			
Surr: 2-Fluorobiphenyl	0.084		0.1000		84.3	31.8	101			
Surr: 4-Terphenyl-d14	0.052		0.1000		52.0	17.2	84.7			

Sample ID **1802968-001emsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611311** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.12	0.0010	0.1000	0	119	23.9	129	17.4	20	
3+4-Methylphenol	0.29	0.0010	0.2000	0.01344	138	15	167	17.1	20	
2,4-Dinitrotoluene	0.069	0.0010	0.1000	0	69.1	15	147	16.1	23.2	
Hexachlorobenzene	0.077	0.0010	0.1000	0	76.6	41.4	136	15.1	20	
Hexachlorobutadiene	0.075	0.0010	0.1000	0	74.8	16.2	134	12.6	20	
Hexachloroethane	0.058	0.0010	0.1000	0	58.4	20.6	124	14.7	31.3	
Nitrobenzene	0.073	0.0010	0.1000	0	72.8	39.5	134	14.7	26.6	
Pentachlorophenol	0.071	0.0010	0.1000	0	71.4	15	137	15.7	27.9	
Pyridine	0.022	0.0010	0.1000	0	21.7	15	129	1.02	47.4	
2,4,5-Trichlorophenol	0.074	0.0010	0.1000	0	74.5	15	158	24.4	36.9	
2,4,6-Trichlorophenol	0.079	0.0010	0.1000	0	78.9	15	153	19.6	37.2	
Cresols, Total	0.79	0.0010	0.3000	0.05632	246	10.6	179	15.6	27.4	S
Surr: 2-Fluorophenol	0.098		0.2000		48.8	15	73.6	0	0	
Surr: Phenol-d5	0.079		0.2000		39.7	15	63.4	0	0	
Surr: 2,4,6-Tribromophenol	0.16		0.2000		77.7	15	119	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- PQL Practical Quanitative Limit
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001emsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611311** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.070		0.1000		70.4	33.5	111	0	0	
Surr: 2-Fluorobiphenyl	0.065		0.1000		64.8	31.8	101	0	0	
Surr: 4-Terphenyl-d14	0.043		0.1000		43.1	17.2	84.7	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	**lcs-1 ~20uS eC**	SampType: **LCS**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**LCSW**	Batch ID: **R49344**		RunNo: **49344**						
Prep Date:		Analysis Date: **2/22/2018**		SeqNo: **1592912**		Units: **µmhos/cm**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		22	5.0	19.96	0	112	80	120			

Sample ID	**1802968-001a dup**	SampType: **DUP**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **R49344**		RunNo: **49344**						
Prep Date:		Analysis Date: **2/22/2018**		SeqNo: **1592915**		Units: **µmhos/cm**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		4600	5.0						0.0261	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	**MB-36616**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**36616**	RunNo:	**49292**					
Prep Date:	**2/20/2018**	Analysis Date:	**2/21/2018**	SeqNo:	**1590635**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-36616**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**36616**	RunNo:	**49292**					
Prep Date:	**2/20/2018**	Analysis Date:	**2/21/2018**	SeqNo:	**1590636**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	**MB-36908**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**36908**	RunNo:	**49646**					
Prep Date:	**3/8/2018**	Analysis Date:	**3/8/2018**	SeqNo:	**1605458**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-36908**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**36908**	RunNo:	**49646**					
Prep Date:	**3/8/2018**	Analysis Date:	**3/8/2018**	SeqNo:	**1605459**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.6	80	120			

Sample ID	**LCSD-36908**	SampType:	**LCSD**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSS02**	Batch ID:	**36908**	RunNo:	**49646**					
Prep Date:	**3/8/2018**	Analysis Date:	**3/8/2018**	SeqNo:	**1605460**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.7	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604968 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0								
Selenium	ND	1.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604970 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0	0.5000	0	106	80	120			
Selenium	ND	1.0	0.5000	0	97.7	80	120			

Sample ID LCSD-36855	SampType: LCSD	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSS02	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604971 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0	0.5000	0	104	80	120	0	20	
Selenium	ND	1.0	0.5000	0	106	80	120	0	20	

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604981 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Lead	ND	5.0								
Silver	ND	5.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604983 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	102	80	120			
Lead	ND	5.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	LCSD-36855	SampType:	LCSD			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	LCSS02	Batch ID:	36855			RunNo:	49620			
Prep Date:	3/6/2018	Analysis Date:	3/7/2018			SeqNo:	1604984	Units:	mg/L	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	102	80	120	0	20	
Lead	ND	5.0	0.5000	0	101	80	120	0	20	
Silver	ND	5.0	0.1000	0	102	80	120	0	20	

Sample ID	MB-36855	SampType:	MBLK			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	PBW	Batch ID:	36855			RunNo:	49727			
Prep Date:	3/6/2018	Analysis Date:	3/12/2018			SeqNo:	1608232	Units:	mg/L	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0								

Sample ID	LCS-36855	SampType:	LCS			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	LCSW	Batch ID:	36855			RunNo:	49727			
Prep Date:	3/6/2018	Analysis Date:	3/12/2018			SeqNo:	1608237	Units:	mg/L	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0	0.5000	0	97.3	80	120			

Sample ID	LCSD-36855	SampType:	LCSD			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	LCSS02	Batch ID:	36855			RunNo:	49727			
Prep Date:	3/6/2018	Analysis Date:	3/12/2018			SeqNo:	1608238	Units:	mg/L	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0	0.5000	0	99.4	80	120	0	20	

Sample ID	MB-36855	SampType:	MBLK			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	PBW	Batch ID:	36855			RunNo:	49740			
Prep Date:	3/6/2018	Analysis Date:	3/13/2018			SeqNo:	1608916	Units:	mg/L	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								

Sample ID	LCS-36855	SampType:	LCS			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	LCSW	Batch ID:	36855			RunNo:	49740			
Prep Date:	3/6/2018	Analysis Date:	3/13/2018			SeqNo:	1608918	Units:	mg/L	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	**LCSD-36855**	SampType: **LCSD**		TestCode: **EPA Method 6010B: TCLP Metals**						
Client ID:	**LCSS02**	Batch ID: **36855**		RunNo: **49740**						
Prep Date:	**3/6/2018**	Analysis Date: **3/13/2018**		SeqNo: **1608919**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	102	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36855**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**
Client ID: **PBW**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605015** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605017** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	111	80	120			
Beryllium	0.52	0.0030	0.5000	0	105	80	120			
Cadmium	0.53	0.0020	0.5000	0	106	80	120			
Calcium	47	1.0	50.00	0	94.2	80	120			
Cobalt	0.49	0.0060	0.5000	0	98.0	80	120			
Copper	0.52	0.0060	0.5000	0	104	80	120			
Iron	0.49	0.050	0.5000	0	98.5	80	120			
Magnesium	48	1.0	50.00	0	96.3	80	120			
Manganese	0.50	0.0020	0.5000	0	99.8	80	120			
Nickel	0.51	0.010	0.5000	0	101	80	120			
Potassium	47	1.0	50.00	0	94.7	80	120			
Selenium	0.49	0.050	0.5000	0	97.7	80	120			
Vanadium	0.52	0.050	0.5000	0	103	80	120			
Zinc	0.49	0.020	0.5000	0	98.5	80	120			

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605018** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605018**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	110	80	120	0.806	20	
Beryllium	0.52	0.0030	0.5000	0	105	80	120	0.0553	20	
Cadmium	0.52	0.0020	0.5000	0	104	80	120	1.39	20	
Calcium	47	1.0	50.00	0	94.4	80	120	0.153	20	
Cobalt	0.49	0.0060	0.5000	0	97.0	80	120	1.02	20	
Copper	0.52	0.0060	0.5000	0	103	80	120	1.22	20	
Iron	0.49	0.050	0.5000	0	98.7	80	120	0.110	20	
Magnesium	48	1.0	50.00	0	95.3	80	120	0.952	20	
Manganese	0.50	0.0020	0.5000	0	99.8	80	120	0.00601	20	
Nickel	0.51	0.010	0.5000	0	101	80	120	0.00395	20	
Potassium	47	1.0	50.00	0	93.4	80	120	1.31	20	
Selenium	0.53	0.050	0.5000	0	106	80	120	8.29	20	
Vanadium	0.52	0.050	0.5000	0	103	80	120	0.240	20	
Zinc	0.49	0.020	0.5000	0	98.7	80	120	0.254	20	

Sample ID **MB-36855**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**							
Client ID: **PBW**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605019**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Barium	ND	0.020								
Lead	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605021**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.50	0.050	0.5000	0	101	80	120			
Barium	0.51	0.020	0.5000	0	102	80	120			
Lead	0.50	0.0050	0.5000	0	101	80	120			
Silver	0.10	0.0050	0.1000	0	101	80	120			
Sodium	47	1.0	50.00	0	94.6	80	120			
Thallium	0.49	0.050	0.5000	0	98.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	LCSD-36855	SampType:	LCSD		TestCode:	EPA 6010B: Metals				
Client ID:	LCSS02	Batch ID:	36855		RunNo:	49620				
Prep Date:	3/6/2018	Analysis Date:	3/7/2018		SeqNo:	1605022	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.51	0.050	0.5000	0	102	80	120	1.00	20	
Barium	0.51	0.020	0.5000	0	102	80	120	0.114	20	
Lead	0.51	0.0050	0.5000	0	101	80	120	0.131	20	
Silver	0.10	0.0050	0.1000	0	102	80	120	0.913	20	
Sodium	46	1.0	50.00	0	92.7	80	120	2.00	20	
Thallium	0.51	0.050	0.5000	0	102	80	120	3.95	20	

Sample ID	MB-36855	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	36855		RunNo:	49727				
Prep Date:	3/6/2018	Analysis Date:	3/12/2018		SeqNo:	1608906	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060								

Sample ID	LCS-36855	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	36855		RunNo:	49727				
Prep Date:	3/6/2018	Analysis Date:	3/12/2018		SeqNo:	1608908	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.49	0.0060	0.5000	0	97.3	80	120			

Sample ID	LCSD-36855	SampType:	LCSD		TestCode:	EPA 6010B: Metals				
Client ID:	LCSS02	Batch ID:	36855		RunNo:	49727				
Prep Date:	3/6/2018	Analysis Date:	3/12/2018		SeqNo:	1608909	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.50	0.0060	0.5000	0	99.4	80	120	2.07	20	

Sample ID	MB-36855	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	36855		RunNo:	49740				
Prep Date:	3/6/2018	Analysis Date:	3/13/2018		SeqNo:	1608962	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								

Sample ID	LCS-36855	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	36855		RunNo:	49740				
Prep Date:	3/6/2018	Analysis Date:	3/13/2018		SeqNo:	1608964	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	**LCS-36855**	SampType: **LCS**			TestCode: **EPA 6010B: Metals**					
Client ID:	**LCSW**	Batch ID: **36855**			RunNo: **49740**					
Prep Date:	**3/6/2018**	Analysis Date: **3/13/2018**			SeqNo: **1608964**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.52	0.020	0.5000	0	105	80	120			

Sample ID	**LCSD-36855**	SampType: **LCSD**			TestCode: **EPA 6010B: Metals**					
Client ID:	**LCSS02**	Batch ID: **36855**			RunNo: **49740**					
Prep Date:	**3/6/2018**	Analysis Date: **3/13/2018**			SeqNo: **1608965**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.51	0.020	0.5000	0	102	80	120	2.38	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001a dup** SampType: **DUP** TestCode: **SM4500-H+B / 9040C: pH**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R49344** RunNo: **49344**

Prep Date: Analysis Date: **2/22/2018** SeqNo: **1592953** Units: **pH units**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.57									*H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-R49787**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R49787**	RunNo: **49787**							
Prep Date:	Analysis Date: **2/23/2018**	SeqNo: **1610825**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID **LCS-R49787**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R49787**	RunNo: **49787**							
Prep Date:	Analysis Date: **2/23/2018**	SeqNo: **1610826**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.107		0.1000	0	107	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-R49787**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R49787**	RunNo: **49787**
Prep Date:	Analysis Date: **2/20/2018**	SeqNo: **1610828** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID **LCS-R49787**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R49787**	RunNo: **49787**
Prep Date:	Analysis Date: **2/20/2018**	SeqNo: **1610829** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.50		0.5000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592876**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592877**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.16	20.00	80.00	0	99.0	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592900**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592901**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.04	20.00	80.00	0	100	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

WO#: **1802968**

Hall Environmental Analysis Laboratory, Inc.

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36630**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **36630**	RunNo: **49297**
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**	SeqNo: **1590748** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-36630**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **36630**	RunNo: **49297**
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**	SeqNo: **1590749** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1802968 RcptNo: 1

Received By: Sophia Campuzano 2/16/2018 9:30:00 AM Sophia Campuzano
Completed By: Anne Thorne 2/19/2018 7:17:43 AM Anne Thorne
Reviewed By:

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 4 2 (<2 or >12 unless noted)
Adjusted? _____
Checked by: AT 02/19/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks: Custody seals intact on sample bottles / AT 02/19/18

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turnaround Time: X Standard Rush

Project Name: Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager: Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1802968	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
2/14/18	1:11	Liquid	WDW-1, 2, & 3 Effluent	15	H2SO4/HNO3/HCL	001	X	X	X	X	X	X	X	X

Date:	Time:	Relinquished by:	Received by:	Date	Time
2.15.18	10:00	Brady Hibbard	courier	02/16/18	0930
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH: 8.15
Temp: 42.7°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Received by OCD: 5/16/2022 2:12:41 PM

The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	Contaminant	SW-846 Method	Regulatory Level (mg/l)
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D006	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallower 200 - 250 ftbgs

Need All

Released to Imaging: 7/12/2024 10:49:45 AM

HOLLYFRONTIER.

April 20, 2017

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 6274

RE: 2017 1st Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2017 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1315 psig and the average flows were 129 gpm for WDW-1, 107 gpm for WDW-2 and 140 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2017 to March 31, 2017. We have disposed a total of 1,162,526 barrels of fluid into the three wells during the first quarter of 2017. The volume per well is:

- 398,023 barrels into WDW-1
- 332,126 barrels into WDW-2
- 432,377 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-748-5487.

Respectfully,

Scott Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R. O'Brien, R Orosco, R Combs, M. Holder, L Dade
Environmental File: Injection Wells/Reports C-115 & Quarterly/2017/1st quarter/2017-4-20 1st QTR Inj. Rpt. for Wells WDW-1,2,3

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Received by OCD: 5/16/2022 2:12:41 PM

2017 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	38,368,242
Jan-17	1,390	1,400	1,364	130	144	80	414	690	175	4,028	4,937	2,743	138,103	38,506,345
Feb-17	1,318	1,400	1,195	120	142	96	247	446	134	3,370	4,869	3,291	115,543	38,621,888
Mar-17	1,272	1,400	1,374	136	454	96	419	639	123	4,211	15,566	3,291	144,377	38,766,265
30-015-20894 WDW-2													**Previous Quarter**	25,195,125
Jan-17	1,383	1,400	1,344	132	351	107	249	394	103	4,101	12,034	3,669	140,606	25,335,731
Feb-17	1,313	1,400	1,177	100	118	69	274	407	175	2,801	4,046	2,366	96,034	25,431,765
Mar-17	1,267	1,400	1,081	90	111	54	330	561	192	2,785	3,806	1,851	95,486	25,527,251
30-015-26575 WDW-3													**Previous Quarter**	15,743,225
Jan-17	1,344	1,400	1,248	151	162	119	712	800	629	4,684	5,554	4,080	160,594	15,903,819
Feb-17	1,301	1,400	1,155	142	159	100	714	804	600	3,970	5,451	3,429	136,114	16,039,933
Mar-17	1,246	1,400	1,082	128	157	53	679	859	568	3,957	5,383	1,817	135,669	16,175,602
													Total Injected fluids:	80,469,118

	Monthly Avg.	Monthly Avg.
WDW-1	1,327	129
WDW-2	1,321	107
WDW-3	1,297	140

	Total BBLS	Beginning Volume	Ending Volume
WDW1	398,023	38,368,242	38,766,265
WDW2	332,126	25,195,125	25,527,251
WDW3	432,377	15,743,225	16,175,602
	1,162,526	79,306,592	80,469,118

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 28, 2017

Micki Schultz

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1701255

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/9/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **LGT**
Fluoride	4.2	0.50	*	mg/L	5	1/9/2017 10:45:27 PM
Chloride	800	25		mg/L	50	1/11/2017 1:20:45 AM
Bromide	2.7	0.50		mg/L	5	1/9/2017 10:45:27 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	1/9/2017 10:45:27 PM
Sulfate	1300	25		mg/L	50	1/11/2017 1:20:45 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/10/2017 12:24:43 AM
EPA METHOD 7470: MERCURY						Analyst: **MED**
Mercury	ND	0.00020		mg/L	1	1/10/2017 12:31:08 PM
MERCURY, TCLP						Analyst: **pmf**
Mercury	ND	0.10		mg/L	5	1/11/2017 5:09:34 PM
EPA METHOD 6010B: TCLP METALS						Analyst: **pmf**
Arsenic	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Barium	ND	100		mg/L	1	1/20/2017 12:57:03 PM
Cadmium	ND	1.0		mg/L	1	1/20/2017 12:57:03 PM
Chromium	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Lead	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Selenium	ND	1.0		mg/L	1	1/20/2017 12:57:03 PM
Silver	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
EPA 6010B: METALS						Analyst: **pmf**
Aluminum	0.62	0.020		mg/L	1	1/18/2017 2:20:24 PM
Antimony	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Arsenic	0.026	0.020		mg/L	1	1/18/2017 2:20:24 PM
Barium	0.025	0.020		mg/L	1	1/18/2017 2:20:24 PM
Beryllium	ND	0.0030		mg/L	1	1/18/2017 2:20:24 PM
Cadmium	ND	0.0020		mg/L	1	1/18/2017 2:20:24 PM
Calcium	99	5.0		mg/L	5	1/18/2017 3:52:07 PM
Chromium	ND	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Cobalt	ND	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Copper	0.011	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Iron	1.3	0.050		mg/L	1	1/18/2017 2:20:24 PM
Lead	ND	0.0050		mg/L	1	1/18/2017 2:20:24 PM
Magnesium	31	1.0		mg/L	1	1/18/2017 2:20:24 PM
Manganese	0.13	0.0020		mg/L	1	1/18/2017 2:20:24 PM
Nickel	0.011	0.010		mg/L	1	1/18/2017 2:20:24 PM
Potassium	31	1.0		mg/L	1	1/18/2017 2:20:24 PM
Selenium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Silver	ND	0.0050		mg/L	1	1/18/2017 2:20:24 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: METALS						Analyst: **pmf**
Sodium	950	20		mg/L	20	1/20/2017 1:05:10 PM
Thallium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Vanadium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Zinc	ND	0.020		mg/L	1	1/18/2017 2:20:24 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
2-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Acetonitrile	ND	2.5		µg/L	1	1/16/2017
Allyl chloride	ND	0.50		µg/L	1	1/16/2017
Chloroprene	ND	0.50		µg/L	1	1/16/2017
Cyclohexane	ND	2.0		µg/L	1	1/16/2017
Diethyl ether	ND	2.0		µg/L	1	1/16/2017
Diisopropyl ether	ND	2.0		µg/L	1	1/16/2017
Epichlorohydrin	ND	5.0		µg/L	1	1/16/2017
Ethyl acetate	ND	2.0		µg/L	1	1/16/2017
Ethyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Ethyl tert-butyl ether	ND	2.0		µg/L	1	1/16/2017
Freon-113	ND	2.0		µg/L	1	1/16/2017
Isobutanol	ND	10		µg/L	1	1/16/2017
Isopropyl acetate	ND	2.0		µg/L	1	1/16/2017
Methacrylonitrile	ND	2.5		µg/L	1	1/16/2017
Methyl acetate	ND	2.0		µg/L	1	1/16/2017
Methyl ethyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl isobutyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Methylcyclohexane	ND	2.0		µg/L	1	1/16/2017
n-Amyl acetate	ND	2.0		µg/L	1	1/16/2017
n-Hexane	ND	2.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
Pentachloroethane	ND	5.0		µg/L	1	1/16/2017
p-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Propionitrile	ND	2.5		µg/L	1	1/16/2017
Tetrahydrofuran	ND	0.50		µg/L	1	1/16/2017
Benzene	ND	0.50		µg/L	1	1/16/2017
Toluene	ND	0.50		µg/L	1	1/16/2017
Ethylbenzene	ND	0.50		µg/L	1	1/16/2017
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	1/16/2017
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	1/16/2017
Naphthalene	ND	0.50		µg/L	1	1/16/2017
Acetone	8.4	2.5		µg/L	1	1/16/2017
Bromobenzene	ND	0.50		µg/L	1	1/16/2017
Bromodichloromethane	ND	0.50		µg/L	1	1/16/2017
Bromoform	ND	0.50		µg/L	1	1/16/2017
Bromomethane	ND	0.50		µg/L	1	1/16/2017
2-Butanone	ND	2.5		µg/L	1	1/16/2017
Carbon disulfide	0.56	0.50		µg/L	1	1/16/2017
Carbon Tetrachloride	ND	0.50		µg/L	1	1/16/2017
Chlorobenzene	ND	0.50		µg/L	1	1/16/2017
Chloroethane	5.9	0.50		µg/L	1	1/16/2017
Chloroform	ND	0.50		µg/L	1	1/16/2017
Chloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
4-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
cis-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	1/16/2017
Dibromochloromethane	ND	0.50		µg/L	1	1/16/2017
Dibromomethane	ND	0.50		µg/L	1	1/16/2017
1,2-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,3-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,4-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
Dichlorodifluoromethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,3-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
2,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	0.50		µg/L	1	1/16/2017
2-Hexanone	ND	0.50		µg/L	1	1/16/2017
Isopropylbenzene	ND	0.50		µg/L	1	1/16/2017
Methylene Chloride	ND	2.5		µg/L	1	1/16/2017
n-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
n-Propylbenzene	ND	0.50		µg/L	1	1/16/2017
sec-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
Styrene	ND	0.50		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
tert-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	1/16/2017
trans-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
Trichloroethene (TCE)	ND	0.50		µg/L	1	1/16/2017
Trichlorofluoromethane	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichloropropane	ND	0.50		µg/L	1	1/16/2017
Vinyl chloride	ND	0.50		µg/L	1	1/16/2017
mp-Xylenes	ND	1.0		µg/L	1	1/16/2017
o-Xylene	ND	0.50		µg/L	1	1/16/2017
tert-Amyl methyl ether	ND	2.0		µg/L	1	1/16/2017
tert-Butyl alcohol	ND	10		µg/L	1	1/16/2017
Acrolein	ND	2.5		µg/L	1	1/16/2017
Acrylonitrile	ND	2.5		µg/L	1	1/16/2017
Bromochloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chloroethyl vinyl ether	ND	4.0		µg/L	1	1/16/2017
Iodomethane	ND	0.50		µg/L	1	1/16/2017
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	1/16/2017
Vinyl acetate	ND	0.50		µg/L	1	1/16/2017
1,4-Dioxane	ND	20		µg/L	1	1/16/2017
Surr: 1,2-Dichlorobenzene-d4	103	70-130		%Rec	1	1/16/2017
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	1/16/2017
Surr: Toluene-d8	106	70-130		%Rec	1	1/16/2017
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
1,1-Biphenyl	ND	0.50		µg/L	1	1/16/2017
Atrazine	ND	0.50		µg/L	1	1/16/2017
Benzaldehyde	1.4	0.50		µg/L	1	1/16/2017
Caprolactam	ND	0.50		µg/L	1	1/16/2017
N-Nitroso-di-n-butylamine	ND	0.50		µg/L	1	1/16/2017
Acetophenone	ND	5.0		µg/L	1	1/16/2017
1-Methylnaphthalene	ND	5.0		µg/L	1	1/16/2017
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dichlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dimethylphenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dinitrophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dinitrotoluene	ND	5.0		µg/L	1	1/16/2017
2,6-Dinitrotoluene	ND	5.0		µg/L	1	1/16/2017
2-Chloronaphthalene	ND	5.0		µg/L	1	1/16/2017
2-Chlorophenol	ND	5.0		µg/L	1	1/16/2017
2-Methylnaphthalene	ND	5.0		µg/L	1	1/16/2017
2-Methylphenol	ND	5.0		µg/L	1	1/16/2017
2-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
2-Nitrophenol	ND	5.0		µg/L	1	1/16/2017
3,3´-Dichlorobenzidine	ND	5.0		µg/L	1	1/16/2017
3-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	1/16/2017
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	1/16/2017
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	1/16/2017
4-Chloroaniline	ND	5.0		µg/L	1	1/16/2017
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	1/16/2017
4-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
4-Nitrophenol	ND	5.0		µg/L	1	1/16/2017
Acenaphthene	ND	5.0		µg/L	1	1/16/2017
Acenaphthylene	ND	5.0		µg/L	1	1/16/2017
Anthracene	ND	5.0		µg/L	1	1/16/2017
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	1/16/2017
Benz(a)anthracene	ND	0.50		µg/L	1	1/16/2017
Benzo(a)pyrene	ND	0.50		µg/L	1	1/16/2017
Benzo(b)fluoranthene	ND	0.50		µg/L	1	1/16/2017
Benzo(k)fluoranthene	ND	0.50		µg/L	1	1/16/2017
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	1/16/2017
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	1/16/2017
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	1/16/2017
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	1/16/2017
Butyl benzyl phthalate	ND	5.0		µg/L	1	1/16/2017
Carbazole	ND	5.0		µg/L	1	1/16/2017
Chrysene	ND	0.50		µg/L	1	1/16/2017
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	1/16/2017
Dibenzofuran	ND	5.0		µg/L	1	1/16/2017
Diethyl phthalate	ND	5.0		µg/L	1	1/16/2017

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
Dimethyl phthalate	ND	5.0		µg/L	1	1/16/2017
Di-n-butyl phthalate	ND	5.0		µg/L	1	1/16/2017
Di-n-octyl phthalate	ND	5.0		µg/L	1	1/16/2017
Fluoranthene	ND	5.0		µg/L	1	1/16/2017
Fluorene	ND	5.0		µg/L	1	1/16/2017
Hexachlorobenzene	ND	1.0		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	5.0		µg/L	1	1/16/2017
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	1/16/2017
Hexachloroethane	ND	5.0		µg/L	1	1/16/2017
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	1/16/2017
Isophorone	ND	5.0		µg/L	1	1/16/2017
Naphthalene	ND	5.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	1/16/2017
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	1/16/2017
Pentachlorophenol	ND	5.0		µg/L	1	1/16/2017
Phenanthrene	ND	5.0		µg/L	1	1/16/2017
Phenol	ND	5.0		µg/L	1	1/16/2017
Pyrene	ND	5.0		µg/L	1	1/16/2017
o-Toluidine	ND	2.0		µg/L	1	1/16/2017
Pyridine	ND	5.0		µg/L	1	1/16/2017
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	1/16/2017
Surr: 2,4,6-Tribromophenol	134	63-110	S	%Rec	1	1/16/2017
Surr: 2-Fluorobiphenyl	88.4	58-112		%Rec	1	1/16/2017
Surr: 2-Fluorophenol	88.2	47-109		%Rec	1	1/16/2017
Surr: Nitrobenzene-d5	99.6	58-110		%Rec	1	1/16/2017
Surr: Phenol-d5	97.0	52-105		%Rec	1	1/16/2017
Surr: Terphenyl-d14	23.9	22-133		%Rec	1	1/16/2017
CORROSIVITY						Analyst: **SUB**
pH	7.47			pH Units	1	1/12/2017
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>200			°F	1	1/12/2017
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	0.0802	0.0100		mg/L	1	1/18/2017
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	0.50	0.50		mg/L	1	1/16/2017
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**

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Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5300	1.0		µmhos/cm	1	1/9/2017 3:38:00 PM
SM4500-H+B: PH						Analyst: **JRR**
pH	7.51	1.68	H	pH units	1	1/9/2017 3:38:00 PM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	165.9	20.00		mg/L CaCO3	1	1/11/2017 4:55:22 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	1/11/2017 4:55:22 PM
Total Alkalinity (as CaCO3)	165.9	20.00		mg/L CaCO3	1	1/11/2017 4:55:22 PM
SPECIFIC GRAVITY						Analyst: **LGT**
Specific Gravity	1.000	0			1	1/10/2017 12:21:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3310	40.0	*D	mg/L	1	1/11/2017 5:59:00 PM

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Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well **Collection Date:** 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
2-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Acetonitrile	ND	2.5		µg/L	1	1/16/2017
Allyl chloride	ND	0.50		µg/L	1	1/16/2017
Chloroprene	ND	0.50		µg/L	1	1/16/2017
Cyclohexane	ND	2.0		µg/L	1	1/16/2017
Diethyl ether	ND	2.0		µg/L	1	1/16/2017
Diisopropyl ether	ND	2.0		µg/L	1	1/16/2017
Epichlorohydrin	ND	5.0		µg/L	1	1/16/2017
Ethyl acetate	ND	2.0		µg/L	1	1/16/2017
Ethyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Ethyl tert-butyl ether	ND	2.0		µg/L	1	1/16/2017
Freon-113	ND	2.0		µg/L	1	1/16/2017
Isobutanol	ND	10		µg/L	1	1/16/2017
Isopropyl acetate	ND	2.0		µg/L	1	1/16/2017
Methacrylonitrile	ND	2.5		µg/L	1	1/16/2017
Methyl acetate	ND	2.0		µg/L	1	1/16/2017
Methyl ethyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl isobutyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Methylcyclohexane	ND	2.0		µg/L	1	1/16/2017
n-Amyl acetate	ND	2.0		µg/L	1	1/16/2017
n-Hexane	ND	2.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
Pentachloroethane	ND	5.0		µg/L	1	1/16/2017
p-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Propionitrile	ND	2.5		µg/L	1	1/16/2017
Tetrahydrofuran	ND	0.50		µg/L	1	1/16/2017
Benzene	ND	0.50		µg/L	1	1/16/2017
Toluene	ND	0.50		µg/L	1	1/16/2017
Ethylbenzene	ND	0.50		µg/L	1	1/16/2017
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	1/16/2017
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	1/16/2017
Naphthalene	ND	0.50		µg/L	1	1/16/2017
Acetone	ND	2.5		µg/L	1	1/16/2017
Bromobenzene	ND	0.50		µg/L	1	1/16/2017
Bromodichloromethane	ND	0.50		µg/L	1	1/16/2017

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Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well **Collection Date:** 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
Bromoform	ND	0.50		µg/L	1	1/16/2017
Bromomethane	ND	0.50		µg/L	1	1/16/2017
2-Butanone	ND	2.5		µg/L	1	1/16/2017
Carbon disulfide	ND	0.50		µg/L	1	1/16/2017
Carbon Tetrachloride	ND	0.50		µg/L	1	1/16/2017
Chlorobenzene	ND	0.50		µg/L	1	1/16/2017
Chloroethane	ND	0.50		µg/L	1	1/16/2017
Chloroform	ND	0.50		µg/L	1	1/16/2017
Chloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
4-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
cis-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	1/16/2017
Dibromochloromethane	ND	0.50		µg/L	1	1/16/2017
Dibromomethane	ND	0.50		µg/L	1	1/16/2017
1,2-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,3-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,4-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
Dichlorodifluoromethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,3-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
2,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	0.50		µg/L	1	1/16/2017
2-Hexanone	ND	0.50		µg/L	1	1/16/2017
Isopropylbenzene	ND	0.50		µg/L	1	1/16/2017
Methylene Chloride	ND	2.5		µg/L	1	1/16/2017
n-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
n-Propylbenzene	ND	0.50		µg/L	1	1/16/2017
sec-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
Styrene	ND	0.50		µg/L	1	1/16/2017
tert-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	1/16/2017
trans-1,2-DCE	ND	0.50		µg/L	1	1/16/2017

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Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well **Collection Date:** 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
Trichloroethene (TCE)	ND	0.50		µg/L	1	1/16/2017
Trichlorofluoromethane	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichloropropane	ND	0.50		µg/L	1	1/16/2017
Vinyl chloride	ND	0.50		µg/L	1	1/16/2017
mp-Xylenes	ND	1.0		µg/L	1	1/16/2017
o-Xylene	ND	0.50		µg/L	1	1/16/2017
tert-Amyl methyl ether	ND	2.0		µg/L	1	1/16/2017
tert-Butyl alcohol	ND	10		µg/L	1	1/16/2017
Acrolein	ND	2.5		µg/L	1	1/16/2017
Acrylonitrile	ND	2.5		µg/L	1	1/16/2017
Bromochloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chloroethyl vinyl ether	ND	4.0		µg/L	1	1/16/2017
Iodomethane	ND	0.50		µg/L	1	1/16/2017
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	1/16/2017
Vinyl acetate	ND	0.50		µg/L	1	1/16/2017
1,4-Dioxane	ND	20		µg/L	1	1/16/2017
Surr: 1,2-Dichlorobenzene-d4	101	70-130		%Rec	1	1/16/2017
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	1/16/2017
Surr: Toluene-d8	104	70-130		%Rec	1	1/16/2017

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R39919**	RunNo: **39919**
Prep Date:	Analysis Date: **1/9/2017**	SeqNo: **1251098** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R39919**	RunNo: **39919**
Prep Date:	Analysis Date: **1/9/2017**	SeqNo: **1251099** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.8	90	110			
Bromide	2.5	0.10	2.500	0	99.5	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.9	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R39952**	RunNo: **39952**
Prep Date:	Analysis Date: **1/10/2017**	SeqNo: **1251860** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R39952**	RunNo: **39952**
Prep Date:	Analysis Date: **1/10/2017**	SeqNo: **1251861** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.2	90	110			
Sulfate	9.4	0.50	10.00	0	94.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279689** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,1-Dichloropropene	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
2-Butanone	ND	2.5								
2-Hexanone	ND	0.50								
Acetone	ND	2.5								
Acetonitrile	ND	2.5								
Acrolein	ND	2.5								
Acrylonitrile	ND	2.5								
Allyl chloride	ND	0.50								
Benzene	ND	0.50								
Bromochloromethane	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
Chloroprene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
Dichlorodifluoromethane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**		TestCode: **EPA Method 8260B: VOLATILES**		
Client ID: **PBW**	Batch ID: **R40852**		RunNo: **40852**		
Prep Date:	Analysis Date: **1/16/2017**		SeqNo: **1279689**	Units: **µg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Ethyl methacrylate	ND	2.5								
Ethylbenzene	ND	0.50								
Iodomethane	ND	0.50								
Isobutanol	ND	10								
mp-Xylenes	ND	1.0								
Methacrylonitrile	ND	2.5								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	2.5								
Methylene Chloride	ND	2.5								
o-Xylene	ND	0.50								
Propionitrile	ND	2.5								
Styrene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
Toluene	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
Vinyl acetate	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
Vinyl chloride	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dioxane	ND	20								
2-Chloroethyl vinyl ether	ND	4.0								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
Bromobenzene	ND	0.50								
Cyclohexane	ND	2.0								
Diethyl ether	ND	2.0								
Diisopropyl ether	ND	2.0								
Epichlorohydrin	ND	5.0								
Ethyl acetate	ND	2.0								
Ethyl tert-butyl ether	ND	2.0								
Freon-113	ND	2.0								
Hexachlorobutadiene	ND	0.50								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279689** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Isopropyl acetate	ND	2.0								
Isopropylbenzene	ND	0.50								
Methyl acetate	ND	2.0								
Methylcyclohexane	ND	2.0								
Methyl tert-butyl ether (MTBE)	ND	10								
n-Amyl acetate	ND	2.0								
Naphthalene	ND	0.50								
n-Butylbenzene	ND	0.50								
n-Hexane	ND	2.0								
Nitrobenzene	ND	5.0								
n-Propylbenzene	ND	0.50								
Pentachloroethane	ND	5.0								
p-isopropyltoluene	ND	0.50								
sec-Butylbenzene	ND	0.50								
tert-Amyl methyl ether	ND	2.0								
tert-Butyl alcohol	ND	10								
tert-Butylbenzene	ND	0.50								
Tetrahydrofuran	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
2,2-Dichloropropane	ND	0.50								
2-isopropyltoluene	ND	0.50								

Sample ID **LCS-R40852**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279690** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	2.1		2.000	0	107	80	120			
Benzene	2.0		2.000	0	102	80	120			
Chlorobenzene	1.9		2.000	0	96.5	80	120			
Ethylbenzene	2.0		2.000	0	99.2	80	120			
o-Xylene	2.0		2.000	0	102	80	120			
Tetrachloroethene (PCE)	1.9		2.000	0	95.0	80	120			
Toluene	2.1		2.000	0	106	80	120			
Trichloroethene (TCE)	2.1		2.000	0	103	80	120			
Cyclohexane	3.9		4.000	0	96.5	70	130			
n-Hexane	3.8		4.000	0	94.0	70	130			
Tetrahydrofuran	1.7		2.000	0	84.4	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**		TestCode: **EPA 8270C: Semivolatiles/Mod**		
Client ID: **PBW**	Batch ID: **R40852**		RunNo: **40852**		
Prep Date:	Analysis Date: **1/16/2017**		SeqNo: **1279692**	Units: **µg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	0.50								
Atrazine	ND	0.50								
Benzaldehyde	ND	0.50								
Caprolactam	ND	0.50								
N-Nitroso-di-n-butylamine	ND	0.50								
Acetophenone	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2,3,4,6-Tetrachlorophenol	ND	0.50								
2,4,5-Trichlorophenol	ND	0.50								
2,4,6-Trichlorophenol	ND	0.50								
2,4-Dichlorophenol	ND	0.50								
2,4-Dimethylphenol	ND	0.50								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
2-Chloronaphthalene	ND	0.50								
2-Chlorophenol	ND	0.50								
2-Methylnaphthalene	ND	0.50								
2-Methylphenol	ND	0.50								
2-Nitroaniline	ND	0.50								
2-Nitrophenol	ND	0.50								
3,3′-Dichlorobenzidine	ND	0.50								
3-Nitroaniline	ND	0.50								
4,6-Dinitro-2-methylphenol	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.50								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
4-Chlorophenyl phenyl ether	ND	0.50								
4-Nitroaniline	ND	0.50								
4-Nitrophenol	ND	0.50								
Acenaphthene	ND	0.50								
Acenaphthylene	ND	0.50								
Anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								
Benzo(k)fluoranthene	ND	0.50								
Bis(2-chloroethoxy)methane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279692** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroethyl)ether	ND	0.50								
Bis(2-chloroisopropyl)ether	ND	0.50								
Bis(2-ethylhexyl)phthalate	ND	0.50								
Butyl benzyl phthalate	ND	0.50								
Carbazole	ND	0.50								
Chrysene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Dibenzofuran	ND	0.50								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.50								
Di-n-butyl phthalate	ND	0.50								
Di-n-octyl phthalate	ND	0.50								
Fluoranthene	ND	0.50								
Fluorene	ND	0.50								
Hexachlorobenzene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
Hexachlorocyclopentadiene	ND	0.50								
Hexachloroethane	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Isophorone	ND	0.50								
Naphthalene	ND	0.50								
Nitrobenzene	ND	0.50								
N-Nitrosodi-n-propylamine	ND	0.50								
N-Nitrosodiphenylamine	ND	0.50								
Pentachlorophenol	ND	0.50								
Phenanthrene	ND	0.50								
Phenol	ND	0.50								
Pyrene	ND	0.50								
o-Toluidine	ND	0.50								
Pyridine	ND	0.50								
1,2,4,5-Tetrachlorobenzene	ND	0.50								

Sample ID **LCS-R40852**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279693** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	3.9	0.50	5.000	0	78.8	49	145			
2-Chlorophenol	4.1		5.000	0	81.6	50	131			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**LCS-R40852**	SampType:	**LCS**	TestCode:	**EPA 8270C: Semivolatiles/Mod**					
Client ID:	**LCSW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/16/2017**	SeqNo:	**1279693**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chloro-3-methylphenol	4.6		5.000	0	93.0	42	139			
4-Nitrophenol	2.8		5.000	0	55.8	19	137			
Acenaphthene	4.5		5.000	0	89.6	36	131			
Bis(2-ethylhexyl)phthalate	4.6		5.000	0	91.6	43	148			
N-Nitrosodi-n-propylamine	4.8		5.000	0	96.4	46	135			
Pentachlorophenol	4.4		5.000	0	87.2	22	138			
Phenol	3.6		5.000	0	71.0	45	134			
Pyrene	4.8		5.000	0	95.6	45	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29607**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**29607**	RunNo:	**39928**					
Prep Date:	**1/9/2017**	Analysis Date:	**1/10/2017**	SeqNo:	**1251289**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-29607**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**29607**	RunNo:	**39928**					
Prep Date:	**1/9/2017**	Analysis Date:	**1/10/2017**	SeqNo:	**1251290**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**

28-Feb-17

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29638**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252475**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-29638**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252476**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.7	80	120			

Sample ID	**1701255-001CMS**	SampType:	**MS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252485**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.10	0.005000	0	116	75	125			

Sample ID	**1701255-001CMSD**	SampType:	**MSD**	TestCode:	**MERCURY, TCLP**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252486**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.10	0.005000	0	114	75	125	0	20	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29669**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**PBW**	Batch ID:	**29669**	RunNo:	**40172**					
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259320**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID	**LCS-29669**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**LCSW**	Batch ID:	**29669**	RunNo:	**40172**					
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259321**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.6	80	120			
Barium	ND	100	0.5000	0	97.4	80	120			
Cadmium	ND	1.0	0.5000	0	101	80	120			
Chromium	ND	5.0	0.5000	0	97.3	80	120			
Lead	ND	5.0	0.5000	0	98.1	80	120			
Selenium	ND	1.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001BMS** SampType: **MS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258095** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.3	0.020	0.5000	0.6211	130	75	125			S
Antimony	0.53	0.050	0.5000	0	106	75	125			
Arsenic	0.57	0.020	0.5000	0.02614	109	75	125			
Barium	0.53	0.020	0.5000	0.02451	102	75	125			
Beryllium	0.52	0.0030	0.5000	0	104	75	125			
Cadmium	0.53	0.0020	0.5000	0	105	75	125			
Chromium	0.50	0.0060	0.5000	0	99.5	75	125			
Cobalt	0.50	0.0060	0.5000	0.001980	100	75	125			
Copper	0.59	0.0060	0.5000	0.01121	117	75	125			
Iron	1.8	0.050	0.5000	1.346	91.7	75	125			
Lead	0.51	0.0050	0.5000	0	102	75	125			
Magnesium	80	1.0	50.00	30.99	98.8	75	125			
Manganese	0.64	0.0020	0.5000	0.1301	101	75	125			
Nickel	0.51	0.010	0.5000	0.01117	99.1	75	125			
Potassium	80	1.0	50.00	30.50	98.6	75	125			
Selenium	0.52	0.050	0.5000	0	105	75	125			
Silver	0.11	0.0050	0.1000	0	107	75	125			
Thallium	0.56	0.050	0.5000	0.04293	104	75	125			
Vanadium	0.53	0.050	0.5000	0.004290	106	75	125			
Zinc	0.52	0.020	0.5000	0.01969	99.7	75	125			

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.3	0.020	0.5000	0.6211	134	75	125	1.38	20	S
Antimony	0.53	0.050	0.5000	0	105	75	125	0.685	20	
Arsenic	0.57	0.020	0.5000	0.02614	108	75	125	1.24	20	
Barium	0.53	0.020	0.5000	0.02451	102	75	125	0.204	20	
Beryllium	0.52	0.0030	0.5000	0	104	75	125	0.557	20	
Cadmium	0.53	0.0020	0.5000	0	105	75	125	0.243	20	
Chromium	0.50	0.0060	0.5000	0	99.2	75	125	0.346	20	
Cobalt	0.50	0.0060	0.5000	0.001980	99.9	75	125	0.559	20	
Copper	0.59	0.0060	0.5000	0.01121	116	75	125	0.300	20	
Iron	1.8	0.050	0.5000	1.346	98.2	75	125	1.79	20	
Lead	0.51	0.0050	0.5000	0	102	75	125	0.513	20	
Magnesium	80	1.0	50.00	30.99	98.0	75	125	0.479	20	
Manganese	0.64	0.0020	0.5000	0.1301	101	75	125	0.130	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	0.51	0.010	0.5000	0.01117	99.0	75	125	0.142	20	
Potassium	79	1.0	50.00	30.50	97.5	75	125	0.698	20	
Selenium	0.55	0.050	0.5000	0	111	75	125	5.59	20	
Silver	0.11	0.0050	0.1000	0	108	75	125	0.214	20	
Thallium	0.57	0.050	0.5000	0.04293	106	75	125	1.14	20	
Vanadium	0.53	0.050	0.5000	0.004290	105	75	125	0.120	20	
Zinc	0.52	0.020	0.5000	0.01969	99.9	75	125	0.172	20	

Sample ID **1701255-001BPS** SampType: **PS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: Analysis Date: **1/18/2017** SeqNo: **1258097** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.2	0.020	0.5000	0.6211	124	80	120			S

Sample ID **1701255-001BMS** SampType: **MS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258099** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	150	5.0	50.00	98.98	97.6	75	125			

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258100** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	150	5.0	50.00	98.98	103	75	125	1.92	20	

Sample ID **MB-29669** SampType: **MBLK** TestCode: **EPA 6010B: Metals**
Client ID: **PBW** Batch ID: **29669** RunNo: **40172**
Prep Date: **1/12/2017** Analysis Date: **1/20/2017** SeqNo: **1259232** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-29669**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**							
Client ID: **PBW**	Batch ID: **29669**	RunNo: **40172**							
Prep Date: **1/12/2017**	Analysis Date: **1/20/2017**	SeqNo: **1259232**	Units: **mg/L**						

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-29669**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **29669**	RunNo: **40172**							
Prep Date: **1/12/2017**	Analysis Date: **1/20/2017**	SeqNo: **1259233**	Units: **mg/L**						

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	111	80	120			
Antimony	0.52	0.050	0.5000	0	104	80	120			
Arsenic	0.50	0.020	0.5000	0	99.6	80	120			
Barium	0.49	0.020	0.5000	0	97.4	80	120			
Beryllium	0.51	0.0030	0.5000	0	102	80	120			
Cadmium	0.50	0.0020	0.5000	0	101	80	120			
Calcium	48	1.0	50.00	0	96.9	80	120			
Chromium	0.49	0.0060	0.5000	0	97.3	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.8	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.49	0.050	0.5000	0	97.1	80	120			
Lead	0.49	0.0050	0.5000	0	98.1	80	120			
Magnesium	49	1.0	50.00	0	98.3	80	120			
Manganese	0.48	0.0020	0.5000	0	96.2	80	120			
Nickel	0.48	0.010	0.5000	0	96.2	80	120			
Potassium	48	1.0	50.00	0	95.5	80	120			
Selenium	0.51	0.050	0.5000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**LCS-29669**	SampType:	**LCS**	TestCode:	**EPA 6010B: Metals**					
Client ID:	**LCSW**	Batch ID:	**29669**	RunNo:	**40172**					
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259233**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.10	0.0050	0.1000	0	101	80	120			
Sodium	49	1.0	50.00	0	97.6	80	120			
Thallium	0.53	0.050	0.5000	0	106	80	120			
Vanadium	0.50	0.050	0.5000	0	100	80	120			
Zinc	0.48	0.020	0.5000	0	95.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-R40852**	SampType:	**MBLK**	TestCode:	**CYANIDE, Reactive**					
Client ID:	**PBW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/18/2017**	SeqNo:	**1279635**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.0100								

Sample ID	**LCS-R40852**	SampType:	**LCS**	TestCode:	**CYANIDE, Reactive**					
Client ID:	**LCSW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/18/2017**	SeqNo:	**1279636**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.486		0.5000	0	97.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-R40852**	SampType:	**MBLK**	TestCode:	**SULFIDE, Reactive**					
Client ID:	**PBW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/16/2017**	SeqNo:	**1279640**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.50								

Sample ID	**LCS-R40852**	SampType:	**LCS**	TestCode:	**SULFIDE, Reactive**					
Client ID:	**LCSW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/16/2017**	SeqNo:	**1279641**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**mb-1**	SampType:	**mblk**	TestCode:	**SM2320B: Alkalinity**					
Client ID:	**PBW**	Batch ID:	**R39972**	RunNo:	**39972**					
Prep Date:		Analysis Date:	**1/11/2017**	SeqNo:	**1252683**	Units:	**mg/L CaCO3**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	**lcs-1**	SampType:	**lcs**	TestCode:	**SM2320B: Alkalinity**					
Client ID:	**LCSW**	Batch ID:	**R39972**	RunNo:	**39972**					
Prep Date:		Analysis Date:	**1/11/2017**	SeqNo:	**1252684**	Units:	**mg/L CaCO3**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.84	20.00	80.00	0	97.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R39926** RunNo: **39926**
Prep Date: Analysis Date: **1/10/2017** SeqNo: **1251236** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.0600	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29623**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**29623**	RunNo:	**39966**					
Prep Date:	**1/10/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252489**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-29623**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**29623**	RunNo:	**39966**					
Prep Date:	**1/10/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252490**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1060	20.0	1000	0	106	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1701255 RcptNo: 1

Received by/date: RE 01/09/17

Logged By: **Ashley Gallegos** 1/9/2017 9:20:00 AM

Completed By: **Ashley Gallegos** 1/9/2017 10:01:26 AM

Reviewed By: 01/09/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes	No	Not Present ✔
2. Is Chain of Custody complete?	Yes ✔	No	Not Present
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ✔	No	NA
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
6. Sample(s) in proper container(s)?	Yes ✔	No	
7. Sufficient sample volume for indicated test(s)?	Yes ✔	No	
8. Are samples (except VOA and ONG) properly preserved?	Yes ✔	No	
9. Was preservative added to bottles?	Yes	No ✔	NA
10. VOA vials have zero headspace?	Yes ✔	No	No VOA Vials
11. Were any sample containers received broken?	Yes	No ✔	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	# of preserved bottles checked for pH: 2,2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ✔	No	Adjusted? NO
14. Is it clear what analyses were requested?	Yes ✔	No	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes No NA ✔

Person Notified: Date

By Whom: Via: eMail Phone Fax In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☒ Standar ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Brady Hubbard

On Ice: ☒ Yes ☐ No

Sample Temperature: 1 - 3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1701257	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
1/5/17	3:57	Liquid	Trip Blank	2	Neat	-002		X					
1/5/17	xxx	Liquid	Temperature Blank	1	Neat	-002							

Date:	Time:	Relinquished by:	Received by:	Date	Time
1.6.17	1:30	Brady Hubbard		1/9/17	0920
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HOLLYFRONTIER.

July 11, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 5918

RE: 2016 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2016 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1355 psig and the average flows were 131 gpm for WDW-1, 104 gpm for WDW-2 and 152 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2016 to June 30, 2016. We have disposed a total of 1,214,229 barrels of fluid into the three wells during the second quarter of 2016. The volume per well is:

- 417,759 barrels into WDW-1
- 331,533 barrels into WDW-2
- 483,519 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-748-5487.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2016 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	37,950,483
Apr-16	1,361	1,400	1,312	125	134	113	338	511	199	3,171	4,594	3,874	133,178	38,083,661
May-16	1,387	1,400	1,383	135	140	125	362	544	222	3,411	4,800	4,286	143,265	38,226,926
Jun-16	1,343	1,400	1,335	133	146	80	607	857	178	3,365	5,006	2,743	141,316	38,368,242
30-015-20894 WDW-2													**Previous Quarter**	24,863,592
Apr-16	1,360	1,400	1,222	103	113	89	312	432	220	2,598	3,874	3,051	109,111	24,972,703
May-16	1,388	1,400	1,377	112	117	105	301	391	218	2,843	4,011	3,600	119,407	25,092,110
Jun-16	1,315	1,400	1,335	97	121	80	346	455	194	2,453	4,149	2,743	103,015	25,195,125
30-015-26575 WDW-3													**Previous Quarter**	15,259,706
Apr-16	1,355	1,395	1,338	152	161	138	726	900	683	3,856	5,520	4,731	161,973	15,421,679
May-16	1,375	1,390	1,335	160	165	148	625	807	621	4,049	5,657	5,074	170,061	15,591,740
Jun-16	1,313	1,386	1,335	143	168	22	668	907	584	3,607	5,760	754	151,485	15,743,225
													Total Injected fluids:	79,306,592

	Monthly Avg.	Monthly Avg.
WDW-1	1,364	131
WDW-2	1,354	104
WDW-3	1,348	152

	Total BBLS	Beginning Volume	Ending Volume
WDW1	417,759	37,950,483	38,368,242
WDW2	331,533	24,863,592	25,195,125
WDW3	483,519	15,259,706	15,743,225
	1,232,811		79,306,592

HOLLYFRONTIER.

May 12, 2016

Submitted electronically via email to jim.griswold@state.nm.us and carlj.chavez@state.nm.us

Oil Conservation Division
New Mexico Energy, Minerals & Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: Discharge Permit GW-028
Monthly Report – April 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's April 2016 monthly report, for the period of April 1-30, 2016, under the Permit.

Specifically, this report covers the April 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

- Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.
- Analytical results of a discharge sample collected on April 5, 2016.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the two permanent RO units and the temporary RO unit on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. (Note that the temporary RO unit operated through April 2016, and will be replaced in the second quarter of 2016 with the permanent unit, as authorized by OCD on April 1, 2016.)

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the second quarter, samples were collected for the RO reject streams from the permanent units and temporary unit on April 5, 2016. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results are provided in Attachment 2.

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

Navajo is committed to proactively meeting the requirements of the Permit and working cooperatively with OCD. If you have any questions or comments, please contact me at 575-746-5487.

Sincerely,

Scott M. Denton
Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates
Attachment 2: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder
OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

	Permanent RO Units				Temporary Unit		Daily Discharge Volume
	Metered Data		Combined RO Reject Discharge (Calculated)		Total RO Reject Discharge (Calculated from Log Data)		
	GPM SOUTH	GPM NORTH	GPM	BBL/DAY	GPM	BBL/DAY	BBL
4/1/2016	68	82	151	5,163	131	4489	9,652
4/2/2016	73	87	160	5,488	133	4557	10,045
4/3/2016	73	85	159	5,443	130	4453	9,896
4/4/2016	72	81	153	5,247	134	4585	9,832
4/5/2016	0	8	8	270	146	4991	5,261
4/6/2016	0	57	57	1,958	132	4509	6,467
4/7/2016	3	8	10	356	136	4646	5,002
4/8/2016	102	36	138	4,730	141	4849	9,579
4/9/2016	111	89	200	6,867	140	4801	11,668
4/10/2016	106	90	195	6,701	134	4596	11,297
4/11/2016	113	94	207	7,090	139	4772	11,862
4/12/2016	113	92	205	7,014	145	4954	11,968
4/13/2016	111	89	200	6,873	148	5091	11,964
4/14/2016	114	102	216	7,392	155	5307	12,699
4/15/2016	109	83	191	6,553	157	5390	11,943
4/16/2016	110	83	194	6,644	149	5110	11,754
4/17/2016	113	86	199	6,824	131	4485	11,309
4/18/2016	109	81	190	6,529	119	4066	10,595
4/19/2016	103	82	186	6,365	148	5081	11,446
4/20/2016	108	85	193	6,611	152	5207	11,818
4/21/2016	108	80	188	6,434	143	4903	11,337
4/22/2016	106	82	188	6,440	137	4688	11,128
4/23/2016	87	77	164	5,616	136	4679	10,295
4/24/2016	84	81	165	5,662	139	4754	10,416
4/25/2016	66	82	149	5,096	134	4593	9,689
4/26/2016	75	88	163	5,603	131	4476	10,079
4/27/2016	82	78	159	5,460	136	4653	10,113
4/28/2016	81	73	154	5,273	139	4768	10,041
4/29/2016	84	82	166	5,708	129	4427	10,135
4/30/2016	82	81	163	5,590	126	4314	9,904

Attachment 2
Analytical Lab Report

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 12, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly R.O. Reject OrderNo.: 1604184

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/6/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**	
Arsenic	ND	0.0050		mg/L	5	4/19/2016 6:19:56 PM	A33644
Lead	ND	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
Selenium	ND	0.020		mg/L	20	4/20/2016 6:29:13 PM	A33677
Uranium	0.0067	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**	
Radium-226	1.02	0.578		pCi/L	1	4/29/2016	R34156
Radium-226 ±	0.608	0.578		pCi/L	1	4/29/2016	R34156
Radium-228	0.143	0.803		pCi/L	1	4/29/2016	R34156
Radium-228 ±	0.361	0.803		pCi/L	1	4/29/2016	R34156
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	4.7	2.0	*	mg/L	20	4/18/2016 10:52:15 PM	R33628
Chloride	390	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	4/7/2016 4:51:08 AM	R33368
Nitrogen, Nitrate (As N)	2.4	0.10		mg/L	1	4/7/2016 4:38:43 AM	R33368
Sulfate	2400	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	5190	20.0	*	mg/L	1	4/7/2016 3:22:00 PM	24656
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**	
Cyanide	ND	0.0100		mg/L	1	4/13/2016	R34156
SM4500-H+B: PH						Analyst: **MRA**	
pH	8.17	1.68	H	pH units	1	4/9/2016 2:23:07 AM	R33424
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Aluminum	ND	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Barium	0.094	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Boron	0.10	0.040		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cadmium	ND	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Chromium	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cobalt	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Copper	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Iron	0.034	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Manganese	ND	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Molybdenum	ND	0.0080		mg/L	1	4/18/2016 5:43:21 PM	A33606
Nickel	ND	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
Silver	ND	0.0050		mg/L	1	4/18/2016 5:43:21 PM	A33606
Zinc	0.027	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	4/15/2016 12:01:33 PM	24817
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:39:53 PM	24682
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1221	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1232	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1242	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1248	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1254	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1260	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Surr: Decachlorobiphenyl	121	26.1-140		%Rec	1	4/19/2016 2:38:24 AM	24708
Surr: Tetrachloro-m-xylene	95.2	15-123		%Rec	1	4/19/2016 2:38:24 AM	24708
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**	
Diesel Range Organics (DRO)	9.4	1.0		mg/L	1	4/8/2016 9:58:45 PM	24652
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/8/2016 9:58:45 PM	24652
Surr: DNOP	114	70-141		%Rec	1	4/8/2016 9:58:45 PM	24652
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 11:55:58 AM	R33412
Surr: BFB	89.0	49.5-130		%Rec	1	4/8/2016 11:55:58 AM	R33412
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
1-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
2-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
Benzo(a)pyrene	ND	0.070		µg/L	1	4/19/2016 11:30:48 AM	24709
Surr: Benzo(e)pyrene	74.7	33.4-129		%Rec	1	4/19/2016 11:30:48 AM	24709
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Toluene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:30:43 PM	R33550
Surr: 1,2-Dichloroethane-d4	98.3	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Dibromofluoromethane	110	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Toluene-d8	94.9	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/21/2016	24923

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-002
Client Sample ID: Trip Blank
Collection Date:
Matrix: TRIP BLANK
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:54:59 PM	24682
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 12:20:35 PM	R33412
Surr: BFB	85.7	49.5-130		%Rec	1	4/8/2016 12:20:35 PM	R33412
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Toluene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:59:37 PM	R33550
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Dibromofluoromethane	111	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Toluene-d8	96.2	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034060** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034061** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	ND	0.0020	0.002000	0	94.5	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	94.9	50	150			
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	ND	0.0060	0.006000	0	92.7	50	150			
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	ND	0.020	0.02000	0	98.6	50	150			
Manganese	ND	0.0020	0.002000	0	90.5	50	150			
Molybdenum	ND	0.0080	0.008000	0	99.0	50	150			
Nickel	ND	0.010	0.005000	0	86.2	50	150			
Silver	ND	0.0050	0.005000	0	92.6	50	150			
Zinc	ND	0.010	0.005000	0	108	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036133** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.5	85	115			
Lead	0.011	0.00050	0.01250	0	91.9	85	115			
Uranium	0.011	0.00050	0.01250	0	91.8	85	115			

Sample ID **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			
Lead	0.00052	0.00050	0.0005000	0	105	50	150			
Uranium	ND	0.00050	0.0005000	0	99.1	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Uranium	ND	0.00050								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037321** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.024	0.0010	0.02500	0	97.2	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037322** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0011	0.0010	0.001000	0	106	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037323** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24817**	SampType: **MBLK**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **PBW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-24817**	SampType: **LCS**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **LCSW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032805** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R33368**	RunNo: **33368**							
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025773**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R33368**	RunNo: **33368**							
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025774**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R33628**	RunNo: **33628**							
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035257**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R33628**	RunNo: **33628**							
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035258**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Chloride	4.8	0.50	5.000	0	96.7	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24682**	SampType: **MBLK**	TestCode: **EPA Method 8011/504.1: EDB**							
Client ID: **PBW**	Batch ID: **24682**	RunNo: **33411**							
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027492**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID **LCS-24682**	SampType: **LCS**	TestCode: **EPA Method 8011/504.1: EDB**							
Client ID: **LCSW**	Batch ID: **24682**	RunNo: **33411**							
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027494**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	116	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24652**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**							
Client ID: **PBW**	Batch ID: **24652**	RunNo: **33385**							
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026445**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	70	141			

Sample ID **LCS-24652**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**							
Client ID: **LCSW**	Batch ID: **24652**	RunNo: **33385**							
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026634**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	71.3	139			
Surr: DNOP	0.53		0.5000		107	70	141			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027408** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.6	49.5	130			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027409** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.9	80	120			
Surr: BFB	19		20.00		96.6	49.5	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24708**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **PBW**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034347**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			

Sample ID **LCS-24708**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **LCSW**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034348**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5	1.0	5.000	0	130	15	131			
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S

Sample ID **LCSD-24708**	SampType: **LCSD**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **LCSS02**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034349**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**

Client ID: **LCSW** Batch ID: **R33550** RunNo: **33550**

Prep Date: Analysis Date: **4/14/2016** SeqNo: **1032303** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID **rb** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**

Client ID: **PBW** Batch ID: **R33550** RunNo: **33550**

Prep Date: Analysis Date: **4/14/2016** SeqNo: **1032305** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24709**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034469** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID **LCSD-24709**	SampType: **LCSD**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSS02**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034484**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.30	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	2[illegible].4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	33.4	129	0		

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24923**	SampType: **MBLK**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **PBW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037376**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID **LCS-24923**	SampType: **LCS**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **LCSW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037377**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	89.0	64.4	135			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-R34156**	SampType: **MBLK**	TestCode: **EPA 335.4: Total Cyanide Subbed**							
Client ID: **PBW**	Batch ID: **R34156**	RunNo: **34156**							
Prep Date:	Analysis Date: **4/13/2016**	SeqNo: **1053134**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID **LCS-R34156**	SampType: **LCS**	TestCode: **EPA 335.4: Total Cyanide Subbed**							
Client ID: **LCSW**	Batch ID: **R34156**	RunNo: **34156**							
Prep Date:	Analysis Date: **4/13/2016**	SeqNo: **1053135**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.507		0.5000	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-R34156**	SampType: **MBLK**	TestCode: **EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID: **PBW**	Batch ID: **R34156**	RunNo: **34156**
Prep Date:	Analysis Date: **4/29/2016**	SeqNo: **1053137** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	-2.01	0.933								
Radium-226 ±	0.459	0.933								
Radium-228	0.321	0.795								
Radium-228 ±	0.376	0.795								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24656**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025974** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-24656**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1604184 RcptNo: 1

Received by/date: 04/06/16

Logged By: Ashley Gallegos 4/6/2016 9:40:00 AM

Completed By: Ashley Gallegos 4/6/2016 12:24:03 PM

Reviewed By: 04/06/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 6 (1) (<2 or >12 unless noted)

Adjusted? NO

Checked by: AJS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

ent: Navajo Refinery

ailing Address: P.O. Box 159 Artesia,

M 88211-0159

one #: 575-748-3311

ail or Fax#: 575-746-5451

VQC Package:

Standard ☐ Level 4 (Full Validation)

Other

EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Brady Hubbard

On Ice: X Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB	Air Bubbles (Y or N)
4/5/16	8:15	liquid	R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001									X		X	X	X	X		Y
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	HCL		X															
4/5/16	8:15	liquid	R.O. Reject	1-500ml P	HNO3						X											
4/5/16	8:15	liquid	R.O. Reject	1-125ml P	HNO3				X													
4/5/16	8:15	liquid	R.O. Reject	1-500ml P	NaOH					X												
4/5/16	8:15	liquid	R.O. Reject	2- 1L P	HNO3									X								
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	Na2S2O3																X	
4/5/16	8:15	liquid	R.O. Reject	2 - 1L Glass	unpres								X									
4/5/16	8:15	liquid	R.O. Reject	1 - 1L Glass	unpres			X														
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	HCl							X										
4/5/16	8:15	liquid	R.O. Reject	1-250mlGlas	unpres							X										
4/5/16	8:15	liquid	R.O. Reject	1 - 1L Glass	H2SO4											X						
4/5/16	8:15	liquid	Trip Blank	2-40ml VOA	HCL	-002																

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/16	12:00	Elizabeth Salsberry / Elizabeth Salsberry		04/06/16	0940
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride

SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene

This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Quarterly RO Reject Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Brady Hubbard
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	4/5/2016 @ 8:05 a.m.
End Date and Time	4/5/2016 @ 8:30 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: ☐ North Field R.O. Reject Discarge ☑ South Field R.O. Reject Discarge

Container	Size	Material	Quantities	Preservatives: None	Ice	HCl	Other	Analysis and/or Method Requested
	500ml	Plastic	2	X		X		pH, Cl, F, S04, NO2/NO3, TDS
	40ml	VOA	3		X			8015 GRO
	500ml	Plastic	1			X		6020 total metals, 7470 Hg
	125ml	Plastic	1			X		6020 Dissolved Metals
	500ml	Plastic	2				X	Cyanide
	1L	Plastic	3			X		Radium 226/228
	40ml	VOA	2		X			8260 see attached list
	1L	Glass	1	X				8270 see attached list
	1L	Glass	2	X				8082 PCBs
	40ml	VOA	2	X				8015 DRO
	40ml	VOA	2		X			Radium 226/228

Field Data (Weather, Observations, etc.) and Date and Time: 4/5/2016 Tmp.55.4 °F, Humidity 41%, Wind Dir. SE, Wind Speed 4.6mph, Conditions Clear

Field Temp. 23.6C Field pH 7.05

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 10, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly Temporary R.O. Reject OrderNo.: 1604182

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/6/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1604182**
Date Reported: **5/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject
Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB						Analyst: **JME**
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:24:54 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1221	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1232	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1242	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1248	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1254	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1260	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Surr: Decachlorobiphenyl	106	26.1-140		%Rec	1	4/19/2016 2:04:17 AM
Surr: Tetrachloro-m-xylene	74.4	15-123		%Rec	1	4/19/2016 2:04:17 AM
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**
Diesel Range Organics (DRO)	2.4	1.0		mg/L	1	4/8/2016 9:37:25 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/8/2016 9:37:25 PM
Surr: DNOP	114	70-141		%Rec	1	4/8/2016 9:37:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 10:42:12 AM
Surr: BFB	84.7	49.5-130		%Rec	1	4/8/2016 10:42:12 AM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
1-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
2-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
Benzo(a)pyrene	ND	0.070		µg/L	1	4/19/2016 11:01:30 AM
Surr: Benzo(e)pyrene	101	33.4-129		%Rec	1	4/19/2016 11:01:30 AM
EPA METHOD 300.0: ANIONS						Analyst: **LGT**
Fluoride	1.9	0.10		mg/L	1	4/18/2016 10:02:35 PM
Chloride	55	10		mg/L	20	4/7/2016 5:15:57 AM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/7/2016 5:03:33 AM
Nitrogen, Nitrate (As N)	1.0	0.10		mg/L	1	4/7/2016 5:03:33 AM
Sulfate	880	25		mg/L	50	4/18/2016 10:15:00 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**
Aluminum	ND	0.020		mg/L	1	4/18/2016 5:39:41 PM
Barium	0.040	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Boron	0.052	0.040		mg/L	1	4/18/2016 5:39:41 PM
Cadmium	ND	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Chromium	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604182**
Date Reported: **5/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject
Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**
Cobalt	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM
Copper	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM
Iron	0.051	0.020		mg/L	1	4/18/2016 5:39:41 PM
Manganese	ND	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Molybdenum	ND	0.0080		mg/L	1	4/18/2016 5:39:41 PM
Nickel	ND	0.010		mg/L	1	4/18/2016 5:39:41 PM
Silver	ND	0.0050		mg/L	1	4/18/2016 5:39:41 PM
Zinc	0.032	0.010		mg/L	1	4/18/2016 5:39:41 PM
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**
Arsenic	ND	0.0050		mg/L	5	4/19/2016 6:16:53 PM
Lead	ND	0.00050		mg/L	1	4/19/2016 2:29:28 PM
Selenium	ND	0.0050		mg/L	5	4/20/2016 6:26:09 PM
Uranium	0.0029	0.00050		mg/L	1	4/19/2016 2:29:28 PM
EPA METHOD 245.1: MERCURY						Analyst: **pmf**
Mercury	ND	0.00020		mg/L	1	4/15/2016 11:59:33 AM
EPA METHOD 8260B: VOLATILES						Analyst: **AG**
Benzene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Toluene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:01:59 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:01:59 PM
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: Dibromofluoromethane	117	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: Toluene-d8	103	70-130		%Rec	1	4/14/2016 6:01:59 PM

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Qualifiers:

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W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604182**
Date Reported: **5/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject
Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/21/2016
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**
Cyanide	ND	0.0100		mg/L	1	4/8/2016
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**
Radium-226	5.67	0.512		pCi/L	1	4/26/2016 7:54:00 PM
Radium-226 ±	2.13	0.512		pCi/L	1	4/26/2016 7:54:00 PM
Radium-228	0.76	0.949		pCi/L	1	4/26/2016 7:54:00 PM
Radium-228 ±	0.5	0.949		pCi/L	1	4/26/2016 7:54:00 PM
SM4500-H+B: PH						Analyst: **MRA**
pH	8.26	1.68	H	pH units	1	4/9/2016 2:18:47 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	1870	20.0	*	mg/L	1	4/7/2016 3:22:00 PM

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034060** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034061** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	ND	0.0020	0.002000	0	94.5	50	150			

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	94.9	50	150			
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	ND	0.0060	0.006000	0	92.7	50	150			
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	ND	0.020	0.02000	0	98.6	50	150			
Manganese	ND	0.0020	0.002000	0	90.5	50	150			
Molybdenum	ND	0.0080	0.008000	0	99.0	50	150			
Nickel	ND	0.010	0.005000	0	86.2	50	150			
Silver	ND	0.0050	0.005000	0	92.6	50	150			
Zinc	ND	0.010	0.005000	0	108	50	150			

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035657** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.013	0.00050	0.01250	0	100	85	115			
Uranium	0.012	0.00050	0.01250	0	97.5	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035658** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00054	0.00050	0.0005000	0	107	50	150			
Uranium	ND	0.00050	0.0005000	0	97.6	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035659** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Uranium	ND	0.00050								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036133** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.5	85	115			

Sample ID **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037321** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.024	0.0010	0.02500	0	97.2	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037322** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0011	0.0010	0.001000	0	106	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037323** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24817**	SampType: **MBLK**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **PBW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-24817**	SampType: **LCS**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **LCSW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032805** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R33368**	RunNo: **33368**							
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025773**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R33368**	RunNo: **33368**							
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025774**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R33628**	RunNo: **33628**							
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035257**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R33628**	RunNo: **33628**							
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035258**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24682**	SampType: **MBLK**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **PBW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027492** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID **LCS-24682**	SampType: **LCS**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **LCSW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027494** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	116	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24652**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	70	141			

Sample ID **LCS-24652**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	71.3	139			
Surr: DNOP	0.53		0.5000		107	70	141			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027408** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.6	49.5	130			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027409** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.9	80	120			
Surr: BFB	19		20.00		96.6	49.5	130			

Sample ID **1604182-001BMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Temporary R.O. Rej**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027412** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.4	70	130			
Surr: BFB	20		20.00		98.2	49.5	130			

Sample ID **1604182-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Temporary R.O. Rej**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027413** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.6	70	130	0.884	20	
Surr: BFB	20		20.00		99.5	49.5	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24708**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBW**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034347** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			

Sample ID **LCS-24708**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSW**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034348** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5	1.0	5.000	0	130	15	131			
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S

Sample ID **LCSD-24708**	SampType: **LCSD**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS02**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034349** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R33550**	RunNo: **33550**
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032303** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R33550**	RunNo: **33550**
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032305** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24709**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034469** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID **LCSD-24709**	SampType: **LCSD**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSS02**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034484** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.80	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	21.4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	33.4	129	0		

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24923**	SampType: **MBLK**	TestCode: **Total Phenolics by SW-846 9067**
Client ID: **PBW**	Batch ID: **24923**	RunNo: **33678**
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037376** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID **LCS-24923**	SampType: **LCS**	TestCode: **Total Phenolics by SW-846 9067**
Client ID: **LCSW**	Batch ID: **24923**	RunNo: **33678**
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037377** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	89.0	64.4	135			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-R34094**	SampType: **MBLK**	TestCode: **EPA 335.4: Total Cyanide Subbed**
Client ID: **PBW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1050918** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID **LCS-R34094**	SampType: **LCS**	TestCode: **EPA 335.4: Total Cyanide Subbed**
Client ID: **LCSW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1050919** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.512		0.5000	0	102	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-R34094**	SampType: **MBLK**	TestCode: **EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID: **PBW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/26/2016**	SeqNo: **1050921** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.965	0.799								
Radium-226 ±	0.644	0.799								
Radium-228	0.0941	0.772								
Radium-228 ±	0.341	0.772								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24656**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025974** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-24656**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1604182 RcptNo: 1

Received by/date: RM 04/06/16

Logged By: Ashley Gallegos 4/6/2016 9:40:00 AM AG

Completed By: Ashley Gallegos 4/6/2016 12:16:42 PM AG

Reviewed By: 04/06/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? AJ ~~Yes ☑~~ No ☑
9. Was preservative added to bottles? Yes ☑ ~~No ☑~~ AJ NA ☐
10. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 6 1 (<2 or >12 unless noted)
Adjusted? Yes
Checked by: AJ

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks: For metals analysis: added 1 mL HNO_3 to -0016 for acceptable PH 4/7 @ 1150 AJ

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

lient: Navajo Refinery

lailing Address: P.O. Box 159 Artesia,

M 88211-0159

hone #: 575-748-3311

mail or Fax#: 575-746-5451

A/QC Package:

St ndard ☐ Level 4 (Full Validation)

] Other

] EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly Temporary R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Brady Hubbard

On Ice: X Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type		8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB	Air Bubbles (Y or N)
4/5/16	7:45	liquid	Temporary R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001 -002									X		X	X	X	X		Y
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	HCL		X															
4/5/16	7:45	liquid	Temporary R.O. Reject	1-500ml P	HNO3						X											
4/5/16	7:45	liquid	Temporary R.O. Reject	1-125ml P	HNO3				X													
4/5/16	7:45	liquid	Temporary R.O. Reject	1-500ml P	NaOH					X												
4/5/16	7:45	liquid	Temporary R.O. Reject	2- 1L P	HNO3									X								
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	Na2S2O3																X	
4/5/16	7:45	liquid	Temporary R.O. Reject	2 - 1L Glass	unpres								X									
4/5/16	7:45	liquid	Temporary R.O. Reject	1 - 1L Glass	unpres			X														
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	HCl							X										
4/5/16	7:45	liquid	Temporary R.O. Reject	1-250mlGlass	unpres							X										
4/5/16	7:45	liquid	Temporary R.O. Reject	1 - 1L Glass	H2SO4	* Did not receive TB										X						
4/5/16	7:45	liquid	~~Trip Blank~~	2-40ml VOA	HCL	-003																

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/11/16	12:00	Elizabeth Salsbury		04/26/16	0940
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride

SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Quarterly Temporary RO Reject Sample Details

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Brady Hubbard
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	4/5/2016 @ 7:30 a.m.
End Date and Time	4/5/2016 @ 8:00 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall Sample Location: ☐ North Field R.O. Reject Discarge ☑ South Field R.O. Reject Discarge

Container	Size	Container Material	# of Containers	Preservative: Ice	HNO3	HCl	H2SO4	NaOH	ZnAc+NaOH	NaHSO4	Other	Analysis and Method Requested
	500ml	Plastic	2	X			X					pH, Cl, F, S04, NO2/NO3, TDS
	40ml	VOA	3		X							8015 GRO
	500ml	Plastic	1			X						6020 total metals, 7470 Hg
	125ml	Plastic	1			X						6020 Dissolved Metals
	500ml	Plastic	2					X				Cyanide
	1L	Plastic	3			X						Radium 226/228
	40ml	VOA	2		X							8260 see attached list
	1L	Glass	1	X								8270 see attached list
	1L	Glass	2	X								8082 PCBs
	40ml	VOA	2	X								8015 DRO
	40ml	VOA	2		X							Radium 226/228

Field Data / Weather Observations (Temp., Humidity, Wind Dir., Wind Speed, Conditions) Date and Time: 4/5/2016 Tmp. 48.2 °F, Humidity 46%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear

Field Temp. 23.6C Field pH 7.05

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

May 13, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 3010 0000 3143 3326

RE: 2016 1st Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2016 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1338 psig and the average flows were 132 gpm for WDW-1, 98 gpm for WDW-2 and 155 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2016 to March 31, 2016. We have disposed a total of 1,214,229 barrels of fluid into the three wells during the first quarter of 2016. The volume per well is:

- 415,338 barrels into WDW-1
- 308,949 barrels into WDW-2
- 489,942 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

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Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, L.L.C.

2016 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	37,535,146
Jan-16	1,377	1,400	1,312	135	209	120	411	577	199	4,629	7,166	4,114	143,486	37,678,632
Feb-16	1,399	1,400	1,383	131	142	128	401	637	222	4,491	4,869	4,389	134,743	37,813,375
Mar-16	1,389	1,400	1,335	129	133	119	284	417	178	4,423	4,560	4,080	137,109	37,950,483
30-015-20894 WDW-2													**Previous Quarter**	24,554,643
Jan-16	1,329	1,390	1,222	85	104	52	271	350	220	2,914	3,566	1,783	90,343	24,644,986
Feb-16	1,394	1,400	1,377	103	107	98	300	423	218	3,531	3,669	3,360	105,943	24,750,929
Mar-16	1,385	1,400	1,335	106	111	95	292	437	194	3,634	3,806	3,257	112,663	24,863,592
30-015-26575 WDW-3													**Previous Quarter**	14,769,763
Jan-16	1,377	1,390	1,338	152	158	139	849	965	683	5,211	5,417	4,766	161,554	14,931,317
Feb-16	1,387	1,390	1,335	156	159	143	699	768	621	5,349	5,451	4,903	160,457	15,091,774
Mar-16	1,384	1,400	1,335	158	162	147	675	732	584	5,417	5,554	5,040	167,931	15,259,706
													Total Injected fluids:	78,073,781

Page 3955 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 15, 2016

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1601864

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/22/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	1/29/2016	R32136
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	ND	1.0		mg/L	1	1/29/2016	R32136
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.006	0			1	1/27/2016 3:13:00 PM	R31723
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	20	2.0	*	mg/L	20	1/23/2016 12:57:44 AM	R31638
Chloride	570	25		mg/L	50	1/26/2016 11:44:39 PM	R31714
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	1/23/2016 12:45:19 AM	R31638
Bromide	2.1	2.0		mg/L	20	1/23/2016 12:57:44 AM	R31638
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	1/23/2016 12:45:19 AM	R31638
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	1/23/2016 12:45:19 AM	R31638
Sulfate	2000	25		mg/L	50	1/26/2016 11:44:39 PM	R31714
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5600	0.010		µmhos/cm	1	1/25/2016 8:12:02 PM	R31664
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	220.4	20.00		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
Total Alkalinity (as CaCO3)	220.4	20.00		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3780	40.0	*D	mg/L	1	1/28/2016 6:43:00 PM	23428
CORROSIVITY						Analyst: **SUB**	
pH	7.16			pH Units	1	1/28/2016	R32136
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	2/4/2016	R32136
EPA METHOD 7470: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	1/25/2016 4:48:50 PM	23378
MERCURY, TCLP						Analyst: **pmf**	
Mercury	ND	0.020		mg/L	1	1/28/2016 11:50:30 AM	23438
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Barium	ND	100		mg/L	1	1/25/2016 11:17:08 AM	23359
Cadmium	ND	1.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Chromium	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Lead	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Selenium	ND	1.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Silver	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	1.0	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Antimony	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Arsenic	ND	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Barium	ND	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Beryllium	ND	0.0030		mg/L	1	1/27/2016 10:18:42 AM	23359
Cadmium	ND	0.0020		mg/L	1	1/27/2016 10:18:42 AM	23359
Calcium	39	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Chromium	ND	0.0060		mg/L	1	1/27/2016 10:18:42 AM	23359
Cobalt	ND	0.0060		mg/L	1	1/28/2016 10:29:14 AM	23359
Copper	0.012	0.0060		mg/L	1	1/27/2016 10:18:42 AM	23359
Iron	7.6	0.25		mg/L	5	1/27/2016 10:20:32 AM	23359
Lead	ND	0.0050		mg/L	1	1/27/2016 10:18:42 AM	23359
Magnesium	13	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Manganese	0.15	0.0020		mg/L	1	1/27/2016 10:18:42 AM	23359
Nickel	0.042	0.010		mg/L	1	1/27/2016 10:18:42 AM	23359
Potassium	72	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Selenium	0.53	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Silver	ND	0.0050		mg/L	1	1/27/2016 10:18:42 AM	23359
Sodium	1200	50		mg/L	50	1/29/2016 11:10:54 AM	23359
Thallium	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Vanadium	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Zinc	0.035	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	12		µg/L	1	2/2/2016	R32136
Allyl chloride	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroprene	ND	2.5		µg/L	1	2/2/2016	R32136
Cyclohexane	ND	2.5		µg/L	1	2/2/2016	R32136
Diethyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Diisopropyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Epichlorohydrin	ND	25		µg/L	1	2/2/2016	R32136
Ethyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Ethyl methacrylate	ND	12		µg/L	1	2/2/2016	R32136
Ethyl tert-butyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Freon-113	ND	2.5		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Isobutanol	ND	25		µg/L	1	2/2/2016	R32136
Isopropyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Methacrylonitrile	ND	12		µg/L	1	2/2/2016	R32136
Methyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl ethyl ketone	ND	12		µg/L	1	2/2/2016	R32136
Methyl isobutyl ketone	ND	12		µg/L	1	2/2/2016	R32136
Methyl methacrylate	ND	12		µg/L	1	2/2/2016	R32136
Methylcyclohexane	ND	5.0		µg/L	1	2/2/2016	R32136
n-Amyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
n-Hexane	ND	2.5		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	25		µg/L	1	2/2/2016	R32136
Pentachloroethane	ND	25		µg/L	1	2/2/2016	R32136
p-isopropyltoluene	ND	2.5		µg/L	1	2/2/2016	R32136
Propionitrile	ND	12		µg/L	1	2/2/2016	R32136
Tetrahydrofuran	ND	2.5		µg/L	1	2/2/2016	R32136
Benzene	ND	2.5		µg/L	1	2/2/2016	R32136
Toluene	ND	2.5		µg/L	1	2/2/2016	R32136
Ethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl tert-butyl ether (MTBE)	3.2	2.5		µg/L	1	2/2/2016	R32136
1,2,4-Trimethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,3,5-Trimethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	1	2/2/2016	R32136
Naphthalene	ND	2.5		µg/L	1	2/2/2016	R32136
Acetone	100	12		µg/L	1	2/2/2016	R32136
Bromobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Bromodichloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
Bromoform	ND	2.5		µg/L	1	2/2/2016	R32136
Bromomethane	ND	2.5		µg/L	1	2/2/2016	R32136
Carbon disulfide	ND	2.5		µg/L	1	2/2/2016	R32136
Carbon Tetrachloride	ND	2.5		µg/L	1	2/2/2016	R32136
Chlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroform	ND	2.5		µg/L	1	2/2/2016	R32136
Chloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
2-Chlorotoluene	ND	2.5		µg/L	1	2/2/2016	R32136
4-Chlorotoluene	ND	2.5		µg/L	1	2/2/2016	R32136
cis-1,2-DCE	ND	2.5		µg/L	1	2/2/2016	R32136
cis-1,3-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2-Dibromo-3-chloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
Dibromochloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
Dibromomethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,3-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,4-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Dichlorodifluoromethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloroethene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
1,3-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
2,2-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	2.5		µg/L	1	2/2/2016	R32136
2-Hexanone	ND	2.5		µg/L	1	2/2/2016	R32136
Isopropylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Methylene Chloride	ND	12		µg/L	1	2/2/2016	R32136
n-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
n-Propylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
sec-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Styrene	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Tetrachloroethene (PCE)	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,2-DCE	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,3-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,3-Trichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,4-Trichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,1-Trichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,2-Trichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Trichloroethene (TCE)	ND	2.5		µg/L	1	2/2/2016	R32136
Trichlorofluoromethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,3-Trichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
Vinyl chloride	ND	2.5		µg/L	1	2/2/2016	R32136
mp-Xylenes	ND	5.0		µg/L	1	2/2/2016	R32136
o-Xylene	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Amyl methyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Butyl alcohol	ND	25		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acrolein	ND	12		µg/L	1	2/2/2016	R32136
Acrylonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Bromochloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Iodomethane	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,4-Dichloro-2-butene	ND	2.5		µg/L	1	2/2/2016	R32136
Vinyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	100		µg/L	1	2/2/2016	R32136
Surr: 1,2-Dichlorobenzene-d4	89.2	70-130		%Rec	1	2/2/2016	R32136
Surr: 4-Bromofluorobenzene	94.0	70-130		%Rec	1	2/2/2016	R32136
Surr: Toluene-d8	99.6	70-130		%Rec	1	2/2/2016	R32136
EPA 8270D: SEMIVOLATILES							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	5.0		µg/L	1	2/2/2016	R32136
Atrazine	ND	5.0		µg/L	1	2/2/2016	R32136
Benzaldehyde	ND	5.0		µg/L	1	2/2/2016	R32136
Caprolactam	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	2/2/2016	R32136
Acetophenone	ND	5.0		µg/L	1	2/2/2016	R32136
1-Methylnaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dimethylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dinitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dinitrotoluene	ND	5.0		µg/L	1	2/2/2016	R32136
2,6-Dinitrotoluene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Chloronaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Chlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2-Methylnaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
2-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
2-Nitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	2/2/2016	R32136
3-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	2/2/2016	R32136
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270D: SEMIVOLATILES						Analyst: **SUB**	
4-Chloroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	2/2/2016	R32136
4-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4-Nitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
Acenaphthene	ND	5.0		µg/L	1	2/2/2016	R32136
Acenaphthylene	ND	5.0		µg/L	1	2/2/2016	R32136
Anthracene	ND	5.0		µg/L	1	2/2/2016	R32136
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	2/2/2016	R32136
Benz(a)anthracene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(a)pyrene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(b)fluoranthene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(k)fluoranthene	ND	0.50		µg/L	1	2/2/2016	R32136
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Butyl benzyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Carbazole	ND	5.0		µg/L	1	2/2/2016	R32136
Chrysene	ND	0.50		µg/L	1	2/2/2016	R32136
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	2/2/2016	R32136
Dibenzofuran	ND	5.0		µg/L	1	2/2/2016	R32136
Diethyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Dimethyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Di-n-butyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Di-n-octyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Fluoranthene	ND	5.0		µg/L	1	2/2/2016	R32136
Fluorene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachloroethane	ND	5.0		µg/L	1	2/2/2016	R32136
Indeno(1,2,3-cd)pyrene	ND	0.50		µg/L	1	2/2/2016	R32136
Isophorone	ND	5.0		µg/L	1	2/2/2016	R32136
Naphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	2/2/2016	R32136
Pentachlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
Phenanthrene	ND	5.0		µg/L	1	2/2/2016	R32136

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Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270D: SEMIVOLATILES						Analyst: **SUB**	
Phenol	ND	5.0		µg/L	1	2/2/2016	R32136
Pyrene	ND	5.0		µg/L	1	2/2/2016	R32136
o-Toluidine	ND	5.0		µg/L	1	2/2/2016	R32136
Pyridine	ND	5.0		µg/L	1	2/2/2016	R32136
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Surr: 2,4,6-Tribromophenol	94.2	10-123		%Rec	1	2/2/2016	R32136
Surr: 2-Fluorobiphenyl	80.4	19-130		%Rec	1	2/2/2016	R32136
Surr: 2-Fluorophenol	82.8	21-120		%Rec	1	2/2/2016	R32136
Surr: Nitrobenzene-d5	89.6	25-130		%Rec	1	2/2/2016	R32136
Surr: Phenol-d5	86.0	10-130		%Rec	1	2/2/2016	R32136
Surr: Terphenyl-d14	32.8	20-137		%Rec	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1601864-002
Matrix: TRIP BLANK
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Allyl chloride	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroprene	ND	0.50		µg/L	1	2/2/2016	R32136
Cyclohexane	ND	0.50		µg/L	1	2/2/2016	R32136
Diethyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Diisopropyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Epichlorohydrin	ND	5.0		µg/L	1	2/2/2016	R32136
Ethyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Ethyl methacrylate	ND	2.5		µg/L	1	2/2/2016	R32136
Ethyl tert-butyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Freon-113	ND	0.50		µg/L	1	2/2/2016	R32136
Isobutanol	ND	5.0		µg/L	1	2/2/2016	R32136
Isopropyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Methacrylonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Methyl ethyl ketone	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl isobutyl ketone	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl methacrylate	ND	2.5		µg/L	1	2/2/2016	R32136
Methylcyclohexane	ND	1.0		µg/L	1	2/2/2016	R32136
n-Amyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
n-Hexane	ND	0.50		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Pentachloroethane	ND	5.0		µg/L	1	2/2/2016	R32136
p-isopropyltoluene	ND	0.50		µg/L	1	2/2/2016	R32136
Propionitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Tetrahydrofuran	ND	0.50		µg/L	1	2/2/2016	R32136
Benzene	ND	0.50		µg/L	1	2/2/2016	R32136
Toluene	ND	0.50		µg/L	1	2/2/2016	R32136
Ethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	2/2/2016	R32136
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	2/2/2016	R32136
Naphthalene	ND	0.50		µg/L	1	2/2/2016	R32136
Acetone	ND	2.5		µg/L	1	2/2/2016	R32136
Bromobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Bromodichloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
Bromoform	ND	0.50		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	2/2/2016	R32136
Carbon disulfide	ND	0.50		µg/L	1	2/2/2016	R32136
Carbon Tetrachloride	ND	0.50		µg/L	1	2/2/2016	R32136
Chlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroform	ND	0.50		µg/L	1	2/2/2016	R32136
Chloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
2-Chlorotoluene	ND	0.50		µg/L	1	2/2/2016	R32136
4-Chlorotoluene	ND	0.50		µg/L	1	2/2/2016	R32136
cis-1,2-DCE	ND	0.50		µg/L	1	2/2/2016	R32136
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
Dibromochloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
Dibromomethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,3-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,4-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Dichlorodifluoromethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloroethene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
1,3-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
2,2-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	0.50		µg/L	1	2/2/2016	R32136
2-Hexanone	ND	0.50		µg/L	1	2/2/2016	R32136
Isopropylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Methylene Chloride	ND	2.5		µg/L	1	2/2/2016	R32136
n-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
n-Propylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
sec-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Styrene	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,2-DCE	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,1-Trichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,2-Trichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Trichloroethene (TCE)	ND	0.50		µg/L	1	2/2/2016	R32136
Trichlorofluoromethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,2,3-Trichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
Vinyl chloride	ND	0.50		µg/L	1	2/2/2016	R32136
mp-Xylenes	ND	1.0		µg/L	1	2/2/2016	R32136
o-Xylene	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Amyl methyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Butyl alcohol	ND	5.0		µg/L	1	2/2/2016	R32136
Acrolein	ND	2.5		µg/L	1	2/2/2016	R32136
Acrylonitrile	ND	0.50		µg/L	1	2/2/2016	R32136
Bromochloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Iodomethane	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	2/2/2016	R32136
Vinyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	20		µg/L	1	2/2/2016	R32136
Surr: 1,2-Dichlorobenzene-d4	89.2	70-130		%Rec	1	2/2/2016	R32136
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	1	2/2/2016	R32136
Surr: Toluene-d8	99.6	70-130		%Rec	1	2/2/2016	R32136

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R31638**	RunNo: **31638**
Prep Date:	Analysis Date: **1/22/2016**	SeqNo: **968134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R31638**	RunNo: **31638**
Prep Date:	Analysis Date: **1/22/2016**	SeqNo: **968135** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.4	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.1	90	110			
Bromide	2.5	0.10	2.500	0	98.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.2	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.3	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R31714**	RunNo: **31714**
Prep Date:	Analysis Date: **1/26/2016**	SeqNo: **970466** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R31714**	RunNo: **31714**
Prep Date:	Analysis Date: **1/26/2016**	SeqNo: **970467** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.5	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	2.5								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	10								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	2.5								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	2.5								
Methylcyclohexane	ND	0.50								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	0.50								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	2.5								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	2.5								
Acrylonitrile	ND	2.5								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	0.50								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982422** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.8		10.00	0	97.7	80	120			
Toluene	9.8		10.00	0	98.4	80	120			
Ethylbenzene	10		10.00	0	102	80	120			
Chlorobenzene	9.6		10.00	0	96.0	80	120			
1,1-Dichloroethene	9.6		10.00	0	96.4	80	120			
Tetrachloroethene (PCE)	9.2		10.00	0	92.4	80	120			
Trichloroethene (TCE)	9.8		10.00	0	98.0	80	120			
o-Xylene	10		10.00	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982533** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	5.0								
1,4-Dioxane	ND	5.0								
Atrazine	ND	5.0								
Benzaldehyde	ND	5.0								
Caprolactam	ND	5.0								
N-Nitroso-di-n-butylamine	ND	5.0								
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3'-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982533** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	5.0								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
o-Toluidine	ND	2.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982534** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.6		5.000	0	93.0	49	134			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982534** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Chlorophenol	4.6		5.000	0	91.6	50	131			
4-Chloro-3-methylphenol	4.7		5.000	0	94.4	42	139			
4-Nitrophenol	4.5		5.000	0	90.2	19	137			
Acenaphthene	5.0		5.000	0	100	36	122			
Bis(2-ethylhexyl)phthalate	5.2		5.000	0	105	50	150			
N-Nitrosodi-n-propylamine	4.7		5.000	0	93.6	46	135			
Pentachlorophenol	3.7		5.000	0	73.2	22	138			
Phenol	5.2		5.000	0	103	45	134			
Pyrene	4.7		5.000	0	93.2	45	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-23378**	SampType: **MBLK**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968855**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-23378**	SampType: **LCS**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968856**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	80	120			

Sample ID	**1601864-001BMS**	SampType: **MS**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968858**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0040	0.00020	0.005000	.00006177	79.6	75	125			

Sample ID	**1601864-001BMSD**	SampType: **MSD**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968859**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0041	0.00020	0.005000	.00006177	80.1	75	125	0.688	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-23438**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**23438**	RunNo:	**31746**					
Prep Date:	**1/27/2016**	Analysis Date:	**1/28/2016**	SeqNo:	**971551**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-23438**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**23438**	RunNo:	**31746**					
Prep Date:	**1/27/2016**	Analysis Date:	**1/28/2016**	SeqNo:	**971552**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968535** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968536** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	96.1	80	120			
Barium	ND	100	0.5000	0	94.0	80	120			
Cadmium	ND	1.0	0.5000	0	92.5	80	120			
Chromium	ND	5.0	0.5000	0	93.7	80	120			
Lead	ND	5.0	0.5000	0	92.9	80	120			
Selenium	ND	1.0	0.5000	0	95.8	80	120			
Silver	ND	5.0	0.1000	0	92.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968316** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968317** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	91.9	80	120			
Antimony	0.48	0.050	0.5000	0	95.5	80	120			
Arsenic	0.48	0.020	0.5000	0	96.1	80	120			
Barium	0.47	0.020	0.5000	0	94.0	80	120			
Beryllium	0.49	0.0030	0.5000	0	99.0	80	120			
Cadmium	0.46	0.0020	0.5000	0	92.5	80	120			
Chromium	0.47	0.0060	0.5000	0	93.7	80	120			
Copper	0.47	0.0060	0.5000	0	94.5	80	120			
Iron	0.48	0.050	0.5000	0	95.5	80	120			
Lead	0.46	0.0050	0.5000	0	92.9	80	120			
Manganese	0.47	0.0020	0.5000	0	93.5	80	120			
Nickel	0.46	0.010	0.5000	0	92.2	80	120			
Potassium	44	1.0	50.00	0	88.6	80	120			
Selenium	0.48	0.050	0.5000	0	95.8	80	120			
Silver	0.092	0.0050	0.1000	0	92.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968317** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.47	0.050	0.5000	0	93.8	80	120			
Vanadium	0.49	0.050	0.5000	0	98.1	80	120			
Zinc	0.48	0.020	0.5000	0	95.2	80	120			

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31648**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968397** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Sodium	ND	1.0								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31648**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968398** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.1	80	120			
Magnesium	49	1.0	50.00	0	98.8	80	120			
Sodium	48	1.0	50.00	0	96.6	80	120			

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31737**
Prep Date: **1/22/2016**	Analysis Date: **1/28/2016**	SeqNo: **971326** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	ND	0.0060								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31737**
Prep Date: **1/22/2016**	Analysis Date: **1/28/2016**	SeqNo: **971327** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	0.46	0.0060	0.5000	0	91.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **2/4/2016**	SeqNo: **982430**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **2/4/2016**	SeqNo: **982431**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.542		0.5000	0	108	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **1/29/2016**	SeqNo: **982433**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **1/29/2016**	SeqNo: **982434**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R31664**	RunNo: **31664**							
Prep Date:	Analysis Date: **1/25/2016**	SeqNo: **968939**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R31664**	RunNo: **31664**							
Prep Date:	Analysis Date: **1/25/2016**	SeqNo: **968940**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.44	20.00	80.00	0	94.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1601864-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R31723** RunNo: **31723**

Prep Date: Analysis Date: **1/27/2016** SeqNo: **970796** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.004	0						0.179	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23428**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971754** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-23428**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971755** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Sample ID **1601864-001AMS**	SampType: **MS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971765** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	5800	40.0	2000	3784	101	80	120			D

Sample ID **1601864-001AMSD**	SampType: **MSD**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971766** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	5820	40.0	2000	3784	102	80	120	0.379	5	D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1601864 RcptNo: 1

Received by/date: LM 01/22/16

Logged By: Michelle Garcia 1/22/2016 9:40:00 AM Michelle Garcia

Completed By: Michelle Garcia 1/22/2016 11:23:27 AM Michelle Garcia

Reviewed By: JO 01/27/16

Chain of Custody

1	Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3.	How was the sample delivered?	Courier		

Log In

4	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5.	Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6	Sample(s) in proper container(s)?	Yes ☑	No ☐	
7	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8	Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10.	VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11.	Were any sample containers received broken?	Yes ☐	No ☑	
12.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2,2 (<2 or >12 unless noted)
13.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? No
14.	Is it clear what analyses were requested?	Yes ☑	No ☐	
15.	Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: MG

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.2	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standar ☐ **Rush**

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1601864	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH cond ,Fl, Cation/anion bal., Br, Fh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136 3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
1/21/16	7:35	Liquid	Trip Blank	2	Neat	-002		X					
1/21/16	7:35	Liquid	Temperature Blank	1	Neat								

Date	Time	Relinquished by	Received by	Date	Time
1/21/2016	1:00	Elizabeth Salsberry			
		Elizabeth Salsberry		01/22/16	0440
Date	Time	Relinquished by	Received by	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	1/21/2016 @ 7:30 a.m.
End Date and Time	1/21/2016 @ 7:40 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east) ☐ P-856 sample point (third from east)
☑ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

Container	Size	Material	# of Containers	Preservatives: Ice Only (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/Or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS pH, cond., Fl Cation/anion ba., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc):	1/21/2016 Temp. 37.4 °F Humidity 70% Wind direction NW Wind Speed 11.5 mph Condition Clear
Date and Time	

Field Temp. 40.7C Field pH 7.49

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

February 4, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 3010 0000 3143 3111

RE: 2015 4th Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1361 psig and the average flows were 123 gpm for WDW-1, 91 gpm for WDW-2 and 140 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from October 1, 2015 to December 31, 2015. We have disposed a total of 1,115,486 barrels of fluid into the three wells during the fourth quarter of 2015. The volume per well is:

- 388,046 barrels into WDW-1
- 287,006 barrels into WDW-2
- 440,434 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2015 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	37,147,100
Oct-15	1,379	1,400	1,234	124	129	95	480	837	305	4,251	4,423	3,257	131,794	37,278,894
Nov-15	1,376	1,400	1,252	121	128	94	335	447	91	4,149	4,389	3,223	124,457	37,403,351
Dec-15	1,342	1,400	1,256	124	256	99	398	661	193	4,251	8,777	3,394	131,794	37,535,146
WDW-2													**Previous Quarter**	24,267,637
Oct-15	1,378	1,234	1,252	102	181	59	467	769	248	3,497	6,206	2,023	108,411	24,376,048
Nov-15	1,376	1,400	1,252	92	100	54	341	787	217	3,154	3,429	1,851	94,629	24,470,677
Dec-15	1,326	1,400	1,253	79	99	55	281	345	209	2,709	3,394	1,886	83,966	24,554,643
WDW-3													**Previous Quarter**	14,329,329
Oct-15	1,370	1,390	1,233	141	769	52	855	1,006	708	4,834	26,366	1,783	149,863	14,479,192
Nov-15	1,369	1,390	1,252	143	151	110	857	983	686	4,903	5,177	3,771	147,086	14,626,278
Dec-15	1,334	1,390	1,255	135	151	108	812	965	715	4,629	5,177	3,703	143,486	14,769,763
													Total Injected fluids:	76,859,552

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Navajo Refining Company, L.L.C.

2015 FOURTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/6/15	10/12/15	10/19/15	10/26/15	11/2/15	11/9/15	11/16/15	11/23/15	11/30/15	12/7/15	12/14/16	12/16/15	12/21/15	12/28/15
WDW -1[1]	100	100	155**	150	150	150	145	145	145	145	145		145	Inaccessible
WDW-2[1]	100	100	150**	150	145	145	150	150	150	150	150		150	Inaccessible
WDW-3[1]	255*	170	250	310***	150	250	130****	150	200	245	255	300*****	145	Inaccessible
Comments: * Removed 130 gal. ** Added 55 gal. glycol *** Removed 255 gal. ****Removed 180 gal. *****Removed 200 gal.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 24, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1510908

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/20/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	10/23/2015	R30423
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	ND	1.0		mg/L	1	10/23/2015	R30423
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9991	0			1	10/20/2015 1:22:00 PM	R29675
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	5.5	0.50	*	mg/L	5	10/20/2015 2:08:09 PM	R29684
Chloride	520	50		mg/L	100	10/27/2015 11:24:40 PM	R29842
Bromide	0.72	0.50		mg/L	5	10/20/2015 2:08:09 PM	R29684
Phosphorus, Orthophosphate (As P)	ND	10	H	mg/L	20	11/7/2015 4:57:03 AM	A30103
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	11/3/2015 11:53:29 PM	R29992
Sulfate	2700	50		mg/L	100	10/27/2015 11:24:40 PM	R29842
Nitrate+Nitrite as N	ND	1.0		mg/L	5	10/30/2015 11:15:10 AM	R29930
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	6800	0.010		µmhos/cm	1	10/20/2015 2:13:12 PM	R29677
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	296.6	20.00		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
Total Alkalinity (as CaCO3)	296.6	20.00		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4880	100	*D	mg/L	1	10/23/2015 11:44:00 AM	21952
CORROSIVITY						Analyst: **SUB**	
pH	7.63			pH Units	1	10/26/2015	R30423
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	10/28/2015	R30423
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.75	1.68	H	pH units	1	10/20/2015 2:13:12 PM	R29677
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	10/21/2015 3:46:07 PM	21960
MERCURY, TCLP						Analyst: **DBD**	
Mercury	ND	0.020		mg/L	1	11/3/2015 4:41:03 PM	22145
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Barium	ND	100		mg/L	1	10/22/2015 5:15:45 PM	21978
Cadmium	ND	1.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Chromium	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Lead	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Selenium	ND	1.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Silver	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	0.57	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Antimony	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Arsenic	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Barium	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Beryllium	ND	0.0060		mg/L	2	10/22/2015 4:50:43 PM	21972
Cadmium	ND	0.0040		mg/L	2	10/22/2015 4:50:43 PM	21972
Calcium	65	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Chromium	ND	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Cobalt	ND	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Copper	0.016	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Iron	0.45	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Lead	ND	0.010		mg/L	2	10/22/2015 4:50:43 PM	21972
Magnesium	20	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Manganese	0.089	0.0040		mg/L	2	10/22/2015 4:50:43 PM	21972
Nickel	ND	0.020		mg/L	2	10/22/2015 4:50:43 PM	21972
Potassium	28	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Selenium	0.27	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Silver	ND	0.010		mg/L	2	10/22/2015 4:50:43 PM	21972
Sodium	1400	50		mg/L	50	10/22/2015 4:46:39 PM	21972
Thallium	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Vanadium	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Zinc	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Allyl chloride	ND	2.0		µg/L	1	11/2/2015	R30423
Chloroprene	ND	2.0		µg/L	1	11/2/2015	R30423
Cyclohexane	ND	2.0		µg/L	1	11/2/2015	R30423
Diethyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Diisopropyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Epichlorohydrin	ND	5.0		µg/L	1	11/2/2015	R30423
Ethyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl methacrylate	ND	2.0		µg/L	1	11/2/2015	R30423
Ethyl tert-butyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Freon-113	ND	2.0		µg/L	1	11/2/2015	R30423
Isobutanol	ND	2.0		µg/L	1	11/2/2015	R30423
Isopropyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
Methacrylonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Methyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
Methyl ethyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl isobutyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl methacrylate	ND	2.0		µg/L	1	11/2/2015	R30423
Methylcyclohexane	ND	2.0		µg/L	1	11/2/2015	R30423
n-Amyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
n-Hexane	ND	0.50		µg/L	1	11/2/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	11/2/2015	R30423
Pentachloroethane	ND	5.0		µg/L	1	11/2/2015	R30423
p-isopropyltoluene	ND	0.50		µg/L	1	11/2/2015	R30423
Propionitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Tetrahydrofuran	ND	2.0		µg/L	1	11/2/2015	R30423
Benzene	ND	0.50		µg/L	1	11/2/2015	R30423
Toluene	ND	0.50		µg/L	1	11/2/2015	R30423
Ethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	11/2/2015	R30423
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	11/2/2015	R30423
Naphthalene	ND	0.50		µg/L	1	11/2/2015	R30423
Acetone	ND	2.5		µg/L	1	11/2/2015	R30423
Bromobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Bromodichloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Bromoform	ND	0.50		µg/L	1	11/2/2015	R30423
Bromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon disulfide	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon Tetrachloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroform	ND	0.50		µg/L	1	11/2/2015	R30423
Chloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
4-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Dichlorodifluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
2,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
Hexachlorobutadiene	ND	0.50		µg/L	1	11/2/2015	R30423
2-Hexanone	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methylene Chloride	ND	2.5		µg/L	1	11/2/2015	R30423
n-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
n-Propylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
sec-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Styrene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Trichloroethene (TCE)	ND	0.50		µg/L	1	11/2/2015	R30423
Trichlorofluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
mp-Xylenes	ND	1.0		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
o-Xylene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Amyl methyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
tert-Butyl alcohol	ND	0.50		µg/L	1	11/2/2015	R30423
Acrolein	ND	2.0		µg/L	1	11/2/2015	R30423
Acrylonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Bromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chloroethyl vinyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Iodomethane	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
1,4-Dioxane	ND	20		µg/L	1	11/2/2015	R30423
Surr: 1,2-Dichlorobenzene-d4	111	70-130		%REC	1	11/2/2015	R30423
Surr: 4-Bromofluorobenzene	106	70-130		%REC	1	11/2/2015	R30423
Surr: Toluene-d8	104	70-130		%REC	1	11/2/2015	R30423
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	2.0		µg/L	1	10/30/2015	R30423
Atrazine	ND	2.0		µg/L	1	10/30/2015	R30423
Benzaldehyde	3.6	2.0		µg/L	1	10/30/2015	R30423
Caprolactam	ND	2.0		µg/L	1	10/30/2015	R30423
N-Nitroso-di-n-butylamine	ND	2.0		µg/L	1	10/30/2015	R30423
Acetophenone	ND	5.0		µg/L	1	10/30/2015	R30423
1-Methylnaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dimethylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dinitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dinitrotoluene	ND	5.0		µg/L	1	10/30/2015	R30423
2,6-Dinitrotoluene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Chloronaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Chlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2-Methylnaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
2-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
2-Nitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	10/30/2015	R30423
3-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 10/19/2015 7:40:00 AM
Lab ID: 1510908-001 **Matrix:** AQUEOUS **Received Date:** 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chloroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	10/30/2015	R30423
4-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4-Nitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
Acenaphthene	ND	5.0		µg/L	1	10/30/2015	R30423
Acenaphthylene	ND	5.0		µg/L	1	10/30/2015	R30423
Anthracene	ND	5.0		µg/L	1	10/30/2015	R30423
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	10/30/2015	R30423
Benz(a)anthracene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(a)pyrene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(b)fluoranthene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(k)fluoranthene	ND	0.10		µg/L	1	10/30/2015	R30423
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Butyl benzyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Carbazole	ND	5.0		µg/L	1	10/30/2015	R30423
Chrysene	ND	0.10		µg/L	1	10/30/2015	R30423
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	10/30/2015	R30423
Dibenzofuran	ND	5.0		µg/L	1	10/30/2015	R30423
Diethyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Dimethyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Di-n-butyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Di-n-octyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Fluoranthene	ND	5.0		µg/L	1	10/30/2015	R30423
Fluorene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachlorobenzene	ND	1.0		µg/L	1	10/30/2015	R30423
Hexachlorobutadiene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachloroethane	ND	5.0		µg/L	1	10/30/2015	R30423
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	10/30/2015	R30423
Isophorone	ND	5.0		µg/L	1	10/30/2015	R30423
Naphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	10/30/2015	R30423
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	10/30/2015	R30423
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	10/30/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Pentachlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
Phenanthrene	ND	5.0		µg/L	1	10/30/2015	R30423
Phenol	ND	5.0		µg/L	1	10/30/2015	R30423
Pyrene	ND	5.0		µg/L	1	10/30/2015	R30423
o-Toluidine	ND	2.0		µg/L	1	10/30/2015	R30423
Pyridine	ND	5.0		µg/L	1	10/30/2015	R30423
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	10/30/2015	R30423
Surr: 2,4,6-Tribromophenol	104	10-123		%REC	1	10/30/2015	R30423
Surr: 2-Fluorobiphenyl	90.8	19-130		%REC	1	10/30/2015	R30423
Surr: 2-Fluorophenol	70.2	21-120		%REC	1	10/30/2015	R30423
Surr: Nitrobenzene-d5	85.6	25-130		%REC	1	10/30/2015	R30423
Surr: Phenol-d5	121	10-130		%REC	1	10/30/2015	R30423
Surr: Terphenyl-d14	44.4	21-141		%REC	1	10/30/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Duc to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1510908-002
Matrix: TRIP BLANK
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Allyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroprene	ND	0.50		µg/L	1	11/2/2015	R30423
Cyclohexane	ND	0.50		µg/L	1	11/2/2015	R30423
Diethyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Diisopropyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Epichlorohydrin	ND	5.0		µg/L	1	11/2/2015	R30423
Ethyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Ethyl methacrylate	ND	0.50		µg/L	1	11/2/2015	R30423
Ethyl tert-butyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Freon-113	ND	0.50		µg/L	1	11/2/2015	R30423
Isobutanol	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Methacrylonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl ethyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl isobutyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl methacrylate	ND	0.50		µg/L	1	11/2/2015	R30423
Methylcyclohexane	ND	1.0		µg/L	1	11/2/2015	R30423
n-Amyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
n-Hexane	ND	0.50		µg/L	1	11/2/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	11/2/2015	R30423
Pentachloroethane	ND	5.0		µg/L	1	11/2/2015	R30423
p-isopropyltoluene	ND	0.50		µg/L	1	11/2/2015	R30423
Propionitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrahydrofuran	ND	0.50		µg/L	1	11/2/2015	R30423
Benzene	ND	0.50		µg/L	1	11/2/2015	R30423
Toluene	ND	0.50		µg/L	1	11/2/2015	R30423
Ethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	11/2/2015	R30423
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	11/2/2015	R30423
Naphthalene	ND	0.50		µg/L	1	11/2/2015	R30423
Acetone	ND	2.5		µg/L	1	11/2/2015	R30423
Bromobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Bromodichloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Bromoform	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1510908-002 **Matrix:** TRIP BLANK **Received Date:** 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon disulfide	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon Tetrachloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroform	ND	0.50		µg/L	1	11/2/2015	R30423
Chloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
4-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Dichlorodifluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
2,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
Hexachlorobutadiene	ND	0.50		µg/L	1	11/2/2015	R30423
2-Hexanone	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methylene Chloride	ND	2.5		µg/L	1	11/2/2015	R30423
n-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
n-Propylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
sec-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Styrene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1510908-002
Matrix: TRIP BLANK
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Trichloroethene (TCE)	ND	0.50		µg/L	1	11/2/2015	R30423
Trichlorofluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
mp-Xylenes	ND	1.0		µg/L	1	11/2/2015	R30423
o-Xylene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Amyl methyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butyl alcohol	ND	0.50		µg/L	1	11/2/2015	R30423
Acrolein	ND	0.50		µg/L	1	11/2/2015	R30423
Acrylonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Bromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Iodomethane	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dioxane	ND	20		µg/L	1	11/2/2015	R30423
Surr: 1,2-Dichlorobenzene-d4	108	70-130		%REC	1	11/2/2015	R30423
Surr: 4-Bromofluorobenzene	105	70-130		%REC	1	11/2/2015	R30423
Surr: Toluene-d8	102	70-130		%REC	1	11/2/2015	R30423

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Valuc above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29842**	RunNo: **29842**
Prep Date:	Analysis Date: **10/27/2015**	SeqNo: **908890** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29842**	RunNo: **29842**
Prep Date:	Analysis Date: **10/27/2015**	SeqNo: **908891** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29930**	RunNo: **29930**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **911773** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29930**	RunNo: **29930**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **911774** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	96.6	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29992**	RunNo: **29992**
Prep Date:	Analysis Date: **11/3/2015**	SeqNo: **913762** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29992**	RunNo: **29992**
Prep Date:	Analysis Date: **11/3/2015**	SeqNo: **913763** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.1	90	110			

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A30103**	RunNo: **30103**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916979** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A30103**	RunNo: **30103**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916980** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.3	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928381** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
p-isopropyltoluene	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928381** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	2.5								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	0.50								
o-Xylene	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928382** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.2	0	10.00	0	92.1	80	120			
Toluene	9.6	0	10.00	0	96.5	80	120			
Ethylbenzene	9.7	0	10.00	0	96.9	80	120			
Chlorobenzene	9.5	0	10.00	0	94.7	80	120			
1,1-Dichloroethene	10	0	10.00	0	102	80	120			
Tetrachloroethene (PCE)	9.9	0	10.00	0	99.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928382** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	10	0	10.00	0	102	80	120			
o-Xylene	10	0	10.00	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928385** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	5.0								

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928385** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
o-Toluidine	ND	2.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928386** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.8	0	5.000	0	95.6	49	134			
2-Chlorophenol	4.7	0	5.000	0	94.4	50	31			S
4-Chloro-3-methylphenol	4.8	0	5.000	0	95.4	42	139			
4-Nitrophenol	3.2	0	5.000	0	65.0	19	137			
Acenaphthene	5.2	0	5.000	0	105	36	122			
Bis(2-ethylhexyl)phthalate	5.9	0	5.000	0	118	43	142			
N-Nitrosodi-n-propylamine	4.7	0	5.000	0	94.4	46	140			

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928386** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	4.8	0	5.000	0	95.4	22	138			
Phenol	4.5	0	5.000	0	90.8	45	134			
Pyrene	4.6	0	5.000	0	92.2	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21960**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **21960**	RunNo: **29703**							
Prep Date: **10/21/2015**	Analysis Date: **10/21/2015**	SeqNo: **904542**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-21960**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **21960**	RunNo: **29703**							
Prep Date: **10/21/2015**	Analysis Date: **10/21/2015**	SeqNo: **904543**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.3	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-22145**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **22145**	RunNo: **29977**
Prep Date: **11/3/2015**	Analysis Date: **11/3/2015**	SeqNo: **913123** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-22145**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **22145**	RunNo: **29977**
Prep Date: **11/3/2015**	Analysis Date: **11/3/2015**	SeqNo: **913124** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21978**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **21978**	RunNo: **29736**
Prep Date: **10/22/2015**	Analysis Date: **10/22/2015**	SeqNo: **905688** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-21978**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **21978**	RunNo: **29736**
Prep Date: **10/22/2015**	Analysis Date: **10/22/2015**	SeqNo: **905689** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	107	80	120			
Barium	ND	100	0.5000	0	100	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	100	80	120			
Lead	ND	5.0	0.5000	0	101	80	120			
Selenium	ND	1.0	0.5000	0	107	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21972**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905617** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-21972**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.52	0.020	0.5000	0	103	80	120			
Antimony	0.52	0.050	0.5000	0	103	80	120			
Arsenic	0.51	0.020	0.5000	0	101	80	120			
Barium	0.49	0.020	0.5000	0	97.9	80	120			
Beryllium	0.51	0.0030	0.5000	0	103	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.2	80	120			
Calcium	49	1.0	50.00	0	97.9	80	120			
Chromium	0.49	0.0060	0.5000	0	97.6	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.3	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.49	0.050	0.5000	0	97.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-21972**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.49	0.0050	0.5000	0	97.9	80	120			
Magnesium	50	1.0	50.00	0	99.1	80	120			
Manganese	0.48	0.0020	0.5000	0	96.9	80	120			
Nickel	0.48	0.010	0.5000	0	95.8	80	120			
Potassium	47	1.0	50.00	0	94.3	80	120			
Selenium	0.49	0.050	0.5000	0	98.4	80	120			
Silver	0.099	0.0050	0.1000	0	99.2	80	120			
Sodium	49	1.0	50.00	0	98.4	80	120			
Thallium	0.51	0.050	0.5000	0	103	80	120			
Vanadium	0.51	0.050	0.5000	0	102	80	120			
Zinc	0.48	0.020	0.5000	0	95.3	80	120			

Sample ID **1510908-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.2	0.040	0.5000	0.5719	126	75	125			S
Antimony	0.60	0.10	0.5000	0	120	75	125			
Arsenic	0.63	0.040	0.5000	0	126	75	125			S
Barium	0.54	0.040	0.5000	0.01050	106	75	125			
Beryllium	0.55	0.0060	0.5000	0	110	75	125			
Cadmium	0.56	0.0040	0.5000	0	111	75	125			
Calcium	120	2.0	50.00	65.14	113	75	125			
Chromium	0.52	0.012	0.5000	0	105	75	125			
Cobalt	0.53	0.012	0.5000	0	106	75	125			
Copper	0.62	0.012	0.5000	0.01570	121	75	125			
Iron	0.99	0.10	0.5000	0.4468	110	75	125			
Lead	0.55	0.010	0.5000	0	110	75	125			
Magnesium	74	2.0	50.00	19.57	110	75	125			
Manganese	0.62	0.0040	0.5000	0.08908	106	75	125			
Nickel	0.54	0.020	0.5000	0	108	75	125			
Potassium	85	2.0	50.00	27.55	115	75	125			
Selenium	0.86	0.10	0.5000	0.2670	118	75	125			
Silver	0.11	0.010	0.1000	0	112	75	125			
Thallium	0.58	0.10	0.5000	0	115	75	125			
Vanadium	0.57	0.10	0.5000	0.01404	110	75	125			
Zinc	0.59	0.040	0.5000	0.03952	110	75	125			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1510908-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **21972** RunNo: **29736**

Prep Date: **10/21/2015** Analysis Date: **10/22/2015** SeqNo: **905635** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.040	0.5000	0.5719	115	75	125	4.76	20	
Antimony	0.54	0.10	0.5000	0	108	75	125	10.5	20	
Arsenic	0.59	0.040	0.5000	0	118	75	125	6.26	20	
Barium	0.51	0.040	0.5000	0.01050	99.5	75	125	6.53	20	
Beryllium	0.50	0.0060	0.5000	0	101	75	125	8.90	20	
Cadmium	0.52	0.0040	0.5000	0	104	75	125	6.55	20	
Calcium	110	2.0	50.00	65.14	88.0	75	125	11.0	20	
Chromium	0.49	0.012	0.5000	0	98.8	75	125	5.80	20	
Cobalt	0.50	0.012	0.5000	0	99.8	75	125	6.05	20	
Copper	0.58	0.012	0.5000	0.01570	112	75	125	7.19	20	
Iron	0.90	0.10	0.5000	0.4468	91.6	75	125	9.48	20	
Lead	0.51	0.010	0.5000	0	102	75	125	7.39	20	
Magnesium	69	2.0	50.00	19.57	99.3	75	125	7.30	20	
Manganese	0.58	0.0040	0.5000	0.08908	98.6	75	125	6.53	20	
Nickel	0.51	0.020	0.5000	0	101	75	125	6.22	20	
Potassium	77	2.0	50.00	27.55	98.0	75	125	10.6	20	
Selenium	0.80	0.10	0.5000	0.2670	108	75	125	6.07	20	
Silver	0.10	0.010	0.1000	0	102	75	125	8.73	20	
Thallium	0.54	0.10	0.5000	0	107	75	125	7.22	20	
Vanadium	0.53	0.10	0.5000	0.01404	103	75	125	6.69	20	
Zinc	0.55	0.040	0.5000	0.03952	103	75	125	6.44	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/28/2015**	SeqNo: **928390** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/28/2015**	SeqNo: **928391** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.478		0.5000	0	95.6	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/23/2015**	SeqNo: **928393** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/23/2015**	SeqNo: **928394** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.20		0.2000	0	100	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R29677**	RunNo: **29677**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904176** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R29677**	RunNo: **29677**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904177** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.04	20.00	80.00	0	96.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1510908-001ADUP**	SampType: **DUP**			TestCode: **Specific Gravity**						
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R29675**			RunNo: **29675**						
Prep Date:	Analysis Date: **10/20/2015**			SeqNo: **903627**		Units:				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.000	0						0.0900	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21952**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **21952**	RunNo: **29751**
Prep Date: **10/21/2015**	Analysis Date: **10/23/2015**	SeqNo: **906219** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-21952**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **21952**	RunNo: **29751**
Prep Date: **10/21/2015**	Analysis Date: **10/23/2015**	SeqNo: **906220** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1510908 RcptNo: 1

Received by/date: 10/20/15

Logged By: Lindsay Mangin 10/20/2015 8:55:00 AM

Completed By: Lindsay Mangin 10/20/2015 9:15:21 AM

Reviewed By: 10/20/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2 2 2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? no
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standar ☐ **Rush**

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:
Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☑ Yes ☐ No

Sample Temperature: 2.4

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1510908	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Ehv40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
10/19/15	7:40	Liquid	Trip Blank	2	Neat	-002		X					
10/19/15	7:40	Liquid	Temperature Blank	1	Neat	-							

Date	Time	Relinquished by	Received by	Date	Time
10/19/15	11:30	Elizabeth Salsberry			
				10/20/15	0855
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	10/19/2015 @ 7:30am
End Date and Time	10/19/2015 @ 7:45 am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Parts / Sample Intervals	One

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells

☑ P-846 sample point (first from east) ☐ P-856 sample point (third from east)
☐ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc):	10/19/2015 Temp.55.4 °F Humidity 100% Wind Direction South Wind Speed 8.1 mph Condition Clear
Date and Time	
Field Temp. 42.8C	Field pH 7.54

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

RECEIVED OCD
2015 OCT 30 P 3:13

October 29, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 5100

RE: 2015 3rd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1381 psig and the average flows were 125 gpm for WDW-1, 158 gpm for WDW-2 and 133 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2015 to September 30, 2015. We have disposed a total of 1,317,417 barrels of fluid into the three wells during the third quarter of 2015. The volume per well is:

- 396,103 barrels into WDW-1
- 501,110 barrels into WDW-2
- 420,204 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/3rd quarter/2015-10-29 3rd QTR Inj. Rpt. for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2015 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	36,750,997
Jul-15	1,392	1,400	1,267	128	131	114	622	866	331	4,389	4,491	3,909	136,059	36,887,056
Aug-15	1,389	1,400	1,152	126	128	97	495	858	134	4,320	4,389	3,326	133,695	37,020,751
Sep-15	1,381	1,400	1,100	123	127	84	598	762	59	4,217	4,354	2,880	126,349	37,147,100
WDW-2													**Previous Quarter**	23,766,527
Jul-15	1,391	1,400	1,269	149	278	79	252	314	208	5,109	9,531	2,709	158,379	23,924,906
Aug-15	1,392	1,400	1,156	202	293	146	250	379	217	6,926	10,046	5,006	214,764	24,139,670
Sep-15	1,369	1,400	1,110	124	260	59	263	387	226	4,251	8,914	2,023	127,967	24,267,637
WDW-3													**Previous Quarter**	13,909,125
Jul-15	1,373	1,390	1,265	124	134	75	680	881	500	4,251	4,594	2,571	131,781	14,040,906
Aug-15	1,382	1,390	1,157	119	132	24	849	970	527	4,080	4,526	823	126,544	14,167,450
Sep-15	1,362	1,390	1,113	157	297	86	780	909	539	5,383	10,183	2,949	161,879	14,329,329
													Total Injected fluids:	75,744,066

T:\Injection Wells\Reports C-115 and Quarterly\2015\3rd quarter\
3rd 2015 qtrly rpt data
Injection fluids

10/15/20152:19 PM

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Navajo Refining Company, L.L.C.

2015 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/6/15	7/13/15	7/20/15	7/27/15	8/3/15	8/10/15	8/14/15	8/24/15	9/1/15	9/8/15	9/14/15	9/21/15	9/30/15
WDW -1[1]	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	150	155	235	150*	170	220	253	130**	230	240	254	170***	240

Comments: * Removed 145 gal. ** Removed 180 gal. *** Removed 100 gal.

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

Page 4025 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 10, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1507D99

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/31/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1507D99**
Date: **9/10/2015**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	8/11/2015	R28710
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	1.4	1.0		mg/L	1	8/7/2015	R28710
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9967	0			1	8/5/2015 3:14:00 PM	R27979
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	42	5.0	*	mg/L	50	7/31/2015 2:33:11 PM	R27901
Chloride	330	25		mg/L	50	7/31/2015 2:33:11 PM	R27901
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Bromide	1.2	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	7/31/2015 2:20:46 PM	R27901
Sulfate	2200	25		mg/L	50	7/31/2015 2:33:11 PM	R27901
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5900	0.010		µmhos/cm	1	8/6/2015 4:51:43 PM	R28029
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	392.7	20.00		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
Total Alkalinity (as CaCO3)	392.7	20.00		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3580	20.0	*	mg/L	1	8/5/2015 7:28:00 PM	20581
CORROSIVITY						Analyst: **SUB**	
pH	8.31	0.100		pH Units	1	8/5/2015	R28710
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	8/13/2015	R28710
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.17	1.68	H	pH units	1	8/6/2015 4:51:43 PM	R28029
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	8/4/2015 2:15:41 PM	20588
MERCURY, TCLP						Analyst: **JLF**	
Mercury	0.078	0.020		mg/L	20	8/6/2015 1:58:10 PM	20636
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Barium	ND	100		mg/L	1	8/6/2015 9:36:29 AM	20620
Cadmium	ND	1.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Chromium	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Lead	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Selenium	ND	1.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Silver	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	1.2	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Antimony	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Arsenic	0.029	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Barium	ND	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Beryllium	ND	0.0030		mg/L	1	8/6/2015 9:44:36 AM	20620
Cadmium	ND	0.0020		mg/L	1	8/6/2015 9:44:36 AM	20620
Calcium	52	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Chromium	ND	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Cobalt	0.0085	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Copper	0.017	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Iron	0.89	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Lead	ND	0.0050		mg/L	1	8/6/2015 9:44:36 AM	20620
Magnesium	17	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Manganese	0.10	0.0020		mg/L	1	8/6/2015 9:44:36 AM	20620
Nickel	0.021	0.010		mg/L	1	8/6/2015 9:44:36 AM	20620
Potassium	77	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Selenium	0.19	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Silver	ND	0.0050		mg/L	1	8/6/2015 9:44:36 AM	20620
Sodium	980	10		mg/L	10	8/10/2015 1:27:17 PM	20675
Thallium	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Vanadium	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Zinc	0.31	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Allyl chloride	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroprene	ND	2.5		µg/L	1	8/11/2015	R28710
Cyclohexane	ND	2.5		µg/L	1	8/11/2015	R28710
Diethyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Diisopropyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Epichlorohydrin	ND	25		µg/L	1	8/11/2015	R28710
Ethyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl methacrylate	ND	2.5		µg/L	1	8/11/2015	R28710
Ethyl tert-butyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Freon-113	ND	2.5		µg/L	1	8/11/2015	R28710
Isobutanol	ND	2.5		µg/L	1	8/11/2015	R28710
Isopropyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
Methacrylonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl ethyl ketone	24	12		µg/L	1	8/11/2015	R28710
Methyl isobutyl ketone	ND	12		µg/L	1	8/11/2015	R28710
Methyl methacrylate	ND	2.5		µg/L	1	8/11/2015	R28710
Methylcyclohexane	ND	5.0		µg/L	1	8/11/2015	R28710
n-Amyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
n-Hexane	ND	2.5		µg/L	1	8/11/2015	R28710
Nitrobenzene	ND	25		µg/L	1	8/11/2015	R28710
Pentachloroethane	ND	25		µg/L	1	8/11/2015	R28710
p-isopropyltoluene	ND	2.5		µg/L	1	8/11/2015	R28710
Propionitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Tetrahydrofuran	ND	2.5		µg/L	1	8/11/2015	R28710
Benzene	ND	2.5		µg/L	1	8/11/2015	R28710
Toluene	ND	2.5		µg/L	1	8/11/2015	R28710
Ethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	1	8/11/2015	R28710
1,2,4-Trimethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,3,5-Trimethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	1	8/11/2015	R28710
Naphthalene	3.4	2.5		µg/L	1	8/11/2015	R28710
Acetone	890	12		µg/L	1	8/11/2015	R28710
Bromobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Bromodichloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
Bromoform	ND	2.5		µg/L	1	8/11/2015	R28710
Bromomethane	ND	2.5		µg/L	1	8/11/2015	R28710
Carbon disulfide	ND	2.5		µg/L	1	8/11/2015	R28710
Carbon Tetrachloride	ND	2.5		µg/L	1	8/11/2015	R28710
Chlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroform	ND	2.5		µg/L	1	8/11/2015	R28710
Chloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
2-Chlorotoluene	ND	2.5		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
4-Chlorotoluene	ND	2.5		µg/L	1	8/11/2015	R28710
cis-1,2-DCE	ND	2.5		µg/L	1	8/11/2015	R28710
cis-1,3-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dibromo-3-chloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
Dibromochloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
Dibromomethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,3-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,4-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Dichlorodifluoromethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloroethene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
1,3-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
2,2-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
Hexachlorobutadiene	ND	2.5		µg/L	1	8/11/2015	R28710
2-Hexanone	ND	2.5		µg/L	1	8/11/2015	R28710
Isopropylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Methylene Chloride	ND	12		µg/L	1	8/11/2015	R28710
n-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
n-Propylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
sec-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Styrene	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Tetrachloroethene (PCE)	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,2-DCE	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,3-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,3-Trichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,4-Trichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,1-Trichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,2-Trichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Trichloroethene (TCE)	ND	2.5		µg/L	1	8/11/2015	R28710
Trichlorofluoromethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,3-Trichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
Vinyl chloride	ND	2.5		µg/L	1	8/11/2015	R28710
mp-Xylenes	ND	5.0		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
o-Xylene	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Amyl methyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Butyl alcohol	ND	2.5		µg/L	1	8/11/2015	R28710
Acrolein	ND	2.5		µg/L	1	8/11/2015	R28710
Acrylonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Bromochloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Iodomethane	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,4-Dichloro-2-butene	ND	2.5		µg/L	1	8/11/2015	R28710
Vinyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
1,4-Dioxane	ND	100		µg/L	1	8/11/2015	R28710
Surr: 1,2-Dichlorobenzene-d4	94.0	70-130		%REC	1	8/11/2015	R28710
Surr: 4-Bromofluorobenzene	96.0	70-130		%REC	1	8/11/2015	R28710
Surr: Toluene-d8	100	70-130		%REC	1	8/11/2015	R28710
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	8/12/2015	R28710
Atrazine	ND	5.0		µg/L	1	8/12/2015	R28710
Benzaldehyde	ND	5.0		µg/L	1	8/12/2015	R28710
Caprolactam	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	8/12/2015	R28710
Acetophenone	ND	5.0		µg/L	1	8/12/2015	R28710
1-Methylnaphthalene	7.1	5.0		µg/L	1	8/12/2015	R28710
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dimethylphenol	6.7	5.0		µg/L	1	8/12/2015	R28710
2,4-Dinitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dinitrotoluene	ND	5.0		µg/L	1	8/12/2015	R28710
2,6-Dinitrotoluene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Chloronaphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Chlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2-Methylnaphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710
2-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
2-Nitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	8/12/2015	R28710
3-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chloroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	8/12/2015	R28710
4-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4-Nitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
Acenaphthene	ND	5.0		µg/L	1	8/12/2015	R28710
Acenaphthylene	ND	5.0		µg/L	1	8/12/2015	R28710
Anthracene	ND	5.0		µg/L	1	8/12/2015	R28710
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	8/12/2015	R28710
Benz(a)anthracene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(a)pyrene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(b)fluoranthene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(k)fluoranthene	ND	1.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Butyl benzyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Carbazole	ND	5.0		µg/L	1	8/12/2015	R28710
Chrysene	ND	1.0		µg/L	1	8/12/2015	R28710
Dibenz(a,h)anthracene	ND	1.0		µg/L	1	8/12/2015	R28710
Dibenzofuran	5.7	5.0		µg/L	1	8/12/2015	R28710
Diethyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Dimethyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Di-n-butyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Di-n-octyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Fluoranthene	ND	5.0		µg/L	1	8/12/2015	R28710
Fluorene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorobenzene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorobutadiene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachloroethane	ND	5.0		µg/L	1	8/12/2015	R28710
Indeno(1,2,3-cd)pyrene	ND	1.0		µg/L	1	8/12/2015	R28710
Isophorone	ND	5.0		µg/L	1	8/12/2015	R28710
Naphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
Nitrobenzene	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	8/12/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Pentachlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
Phenanthrene	ND	5.0		µg/L	1	8/12/2015	R28710
Phenol	5.0	5.0		µg/L	1	8/12/2015	R28710
Pyrene	ND	5.0		µg/L	1	8/12/2015	R28710
o-Toluidine	ND	5.0		µg/L	1	8/12/2015	R28710
Pyridine	ND	5.0		µg/L	1	8/12/2015	R28710
1,2,4,5-Tetrachlorobenzene	ND	0		µg/L	1	8/12/2015	R28710
Surr: 2,4,6-Tribromophenol	111	10-123		%REC	1	8/12/2015	R28710
Surr: 2-Fluorobiphenyl	84.4	19-130		%REC	1	8/12/2015	R28710
Surr: 2-Fluorophenol	85.2	21-120		%REC	1	8/12/2015	R28710
Surr: Nitrobenzene-d5	84.0	25-130		%REC	1	8/12/2015	R28710
Surr: Phenol-d5	66.4	10-130		%REC	1	8/12/2015	R28710
Surr: Terphenyl-d14	51.6	21-141		%REC	1	8/12/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Duc to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002
Matrix: TRIP BLANK
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Allyl chloride	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroprene	ND	0.50		µg/L	1	8/11/2015	R28710
Cyclohexane	ND	0.50		µg/L	1	8/11/2015	R28710
Diethyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Diisopropyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Epichlorohydrin	ND	5.0		µg/L	1	8/11/2015	R28710
Ethyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Ethyl methacrylate	ND	0.50		µg/L	1	8/11/2015	R28710
Ethyl tert-butyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Freon-113	ND	0.50		µg/L	1	8/11/2015	R28710
Isobutanol	ND	0.50		µg/L	1	8/11/2015	R28710
Isopropyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Methacrylonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl ethyl ketone	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl isobutyl ketone	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl methacrylate	ND	0.50		µg/L	1	8/11/2015	R28710
Methylcyclohexane	ND	1.0		µg/L	1	8/11/2015	R28710
n-Amyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
n-Hexane	ND	0.50		µg/L	1	8/11/2015	R28710
Nitrobenzene	ND	5.0		µg/L	1	8/11/2015	R28710
Pentachloroethane	ND	5.0		µg/L	1	8/11/2015	R28710
p-isopropyltoluene	ND	0.50		µg/L	1	8/11/2015	R28710
Propionitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Tetrahydrofuran	ND	0.50		µg/L	1	8/11/2015	R28710
Benzene	ND	0.50		µg/L	1	8/11/2015	R28710
Toluene	ND	0.50		µg/L	1	8/11/2015	R28710
Ethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	8/11/2015	R28710
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	8/11/2015	R28710
Naphthalene	ND	0.50		µg/L	1	8/11/2015	R28710
Acetone	ND	2.5		µg/L	1	8/11/2015	R28710
Bromobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Bromodichloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
Bromoform	ND	0.50		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002
Matrix: TRIP BLANK
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	8/11/2015	R28710
Carbon disulfide	ND	0.50		µg/L	1	8/11/2015	R28710
Carbon Tetrachloride	ND	0.50		µg/L	1	8/11/2015	R28710
Chlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroform	ND	0.50		µg/L	1	8/11/2015	R28710
Chloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
2-Chlorotoluene	ND	0.50		µg/L	1	8/11/2015	R28710
4-Chlorotoluene	ND	0.50		µg/L	1	8/11/2015	R28710
cis-1,2-DCE	ND	0.50		µg/L	1	8/11/2015	R28710
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
Dibromochloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
Dibromomethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,3-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,4-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Dichlorodifluoromethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloroethene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
1,3-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
2,2-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
Hexachlorobutadiene	ND	0.50		µg/L	1	8/11/2015	R28710
2-Hexanone	ND	0.50		µg/L	1	8/11/2015	R28710
Isopropylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Methylene Chloride	ND	2.5		µg/L	1	8/11/2015	R28710
n-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
n-Propylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
sec-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Styrene	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,2-DCE	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002 **Matrix:** TRIP BLANK **Received Date:** 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,1-Trichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,2-Trichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Trichloroethene (TCE)	ND	0.50		µg/L	1	8/11/2015	R28710
Trichlorofluoromethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,2,3-Trichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
Vinyl chloride	ND	0.50		µg/L	1	8/11/2015	R28710
mp-Xylenes	ND	1.0		µg/L	1	8/11/2015	R28710
o-Xylene	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Amyl methyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Butyl alcohol	ND	0.50		µg/L	1	8/11/2015	R28710
Acrolein	ND	0.50		µg/L	1	8/11/2015	R28710
Acrylonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Bromochloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Iodomethane	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	8/11/2015	R28710
Vinyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
1,4-Dioxane	ND	20		µg/L	1	8/11/2015	R28710
Surr: 1,2-Dichlorobenzene-d4	95.6	70-130		%REC	1	8/11/2015	R28710
Surr: 4-Bromofluorobenzene	95.2	70-130		%REC	1	8/11/2015	R28710
Surr: Toluene-d8	93.6	70-130		%REC	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R27901**	RunNo: **27901**
Prep Date:	Analysis Date: **7/31/2015**	SeqNo: **839136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R27901**	RunNo: **27901**
Prep Date:	Analysis Date: **7/31/2015**	SeqNo: **839137** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.8	0.50	5.000	0	95.8	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	95.9	90	110			
Bromide	2.5	0.10	2.500	0	98.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.3	90	110			
Sulfate	9.8	0.50	10.00	0	97.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	0.50								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	5.0								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Methylcyclohexane	ND	0.50								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	0.50								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	0.50								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	0.50								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.6	0	10.00	0	96.3	80	120			
Toluene	9.7	0	10.00	0	97.3	80	120			
Ethylbenzene	9.7	0	10.00	0	97.3	80	120			
Chlorobenzene	9.5	0	10.00	0	95.2	80	120			
1,1-Dichloroethene	9.6	0	10.00	0	95.5	80	120			
Tetrachloroethene (PCE)	9.0	0	10.00	0	89.9	80	120			
Trichloroethene (TCE)	9.4	0	10.00	0	93.6	80	120			
o-Xylene	10	0	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870225** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	0.50								
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870225** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Carbazole	ND	5.0								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	2.0								
o-Toluidine	ND	5.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870226** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.0	0	5.000	0	99.8	49	134			
2-Chlorophenol	4.8	0	5.000	0	95.4	50	131			
4-Chloro-3-methylphenol	5.4	0	5.000	0	109	42	139			
4-Nitrophenol	5.6	0	5.000	0	111	19	137			
Acenaphthene	5.2	0	5.000	0	103	36	122			
Bis(2-ethylhexyl)phthalate	5.6	0	5.000	0	112	43	142			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870226** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodi-n-propylamine	5.3	0	5.000	0	106	46	140			
Pentachlorophenol	5.9	0	5.000	0	118	22	138			
Phenol	4.7	0	5.000	0	94.6	45	134			
Pyrene	4.9	0	5.000	0	98.0	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**1507d99-001adup**	SampType: **DUP**		TestCode: **SM2510B: Specific Conductance**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **R28029**		RunNo: **28029**					
Prep Date:		Analysis Date: **8/6/2015**		SeqNo: **843890**		Units: **µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	5900	0.010						0.354	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20588**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **PBW**	Batch ID: **20588**	RunNo: **27941**							
Prep Date: **8/4/2015**	Analysis Date: **8/4/2015**	SeqNo: **840615**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-20588**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**							
Client ID: **LCSW**	Batch ID: **20588**	RunNo: **27941**							
Prep Date: **8/4/2015**	Analysis Date: **8/4/2015**	SeqNo: **840616**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-20636**	SampType: **MBLK**			TestCode: **MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID: **20636**			RunNo: **28011**					
Prep Date:	**8/6/2015**	Analysis Date: **8/6/2015**			SeqNo: **843195**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-20636**	SampType: **LCS**			TestCode: **MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID: **20636**			RunNo: **28011**					
Prep Date:	**8/6/2015**	Analysis Date: **8/6/2015**			SeqNo: **843196**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	111	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20620**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842847** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-20620**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842848** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	95.8	80	120			
Barium	ND	100	0.5000	0	98.8	80	120			
Cadmium	ND	1.0	0.5000	0	96.2	80	120			
Chromium	ND	5.0	0.5000	0	98.4	80	120			
Lead	ND	5.0	0.5000	0	97.5	80	120			
Selenium	ND	1.0	0.5000	0	97.8	80	120			
Silver	ND	5.0	0.1000	0	97.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20620**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842849** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-20620**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842850** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.47	0.020	0.5000	0	94.7	80	120			
Antimony	0.49	0.050	0.5000	0	98.3	80	120			
Arsenic	0.49	0.020	0.5000	0	98.5	80	120			
Barium	0.50	0.020	0.5000	0	100	80	120			
Beryllium	0.50	0.0030	0.5000	0	101	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.7	80	120			
Chromium	0.50	0.0060	0.5000	0	100	80	120			
Copper	0.51	0.0060	0.5000	0	103	80	120			
Iron	0.51	0.050	0.5000	0	102	80	120			
Lead	0.50	0.0050	0.5000	0	99.7	80	120			
Manganese	0.50	0.0020	0.5000	0	101	80	120			
Nickel	0.51	0.010	0.5000	0	101	80	120			
Selenium	0.49	0.050	0.5000	0	97.5	80	120			
Silver	0.098	0.0050	0.1000	0	98.2	80	120			
Thallium	0.50	0.050	0.5000	0	99.1	80	120			
Vanadium	0.50	0.050	0.5000	0	100	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-20620** SampType: **LCS** TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW** Batch ID: **20620** RunNo: **27997**
Prep Date: **8/5/2015** Analysis Date: **8/6/2015** SeqNo: **842850** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.49	0.020	0.5000	0	97.2	80	120			

Sample ID **1507D99-001BMS** SampType: **MS** TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **20620** RunNo: **27997**
Prep Date: **8/5/2015** Analysis Date: **8/6/2015** SeqNo: **842864** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.7	0.020	0.5000	1.205	107	75	125			
Antimony	0.44	0.050	0.5000	0	88.8	75	125			
Arsenic	0.49	0.020	0.5000	0.02853	92.4	75	125			
Barium	0.43	0.020	0.5000	0.006150	85.7	75	125			
Beryllium	0.44	0.0030	0.5000	0	87.6	75	125			
Cadmium	0.44	0.0020	0.5000	0	87.4	75	125			
Chromium	0.42	0.0060	0.5000	0.003330	84.3	75	125			
Cobalt	0.43	0.0060	0.5000	0.008460	84.7	75	125			
Copper	0.49	0.0060	0.5000	0.01740	93.8	75	125			
Iron	1.3	0.050	0.5000	0.8854	92.2	75	125			
Lead	0.43	0.0050	0.5000	0	85.8	75	125			
Manganese	0.53	0.0020	0.5000	0.1014	84.8	75	125			
Nickel	0.45	0.010	0.5000	0.02121	85.8	75	125			
Selenium	0.66	0.050	0.5000	0.1944	92.2	75	125			
Silver	0.086	0.0050	0.1000	0	85.9	75	125			
Thallium	0.44	0.050	0.5000	0	88.4	75	125			
Vanadium	0.46	0.050	0.5000	0.01240	89.4	75	125			
Zinc	0.77	0.020	0.5000	0.3098	92.1	75	125			

Sample ID **1507D99-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **20620** RunNo: **27997**
Prep Date: **8/5/2015** Analysis Date: **8/6/2015** SeqNo: **842865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.7	0.020	0.5000	1.205	96.2	75	125	3.27	20	
Antimony	0.42	0.050	0.5000	0	84.7	75	125	4.66	20	
Arsenic	0.47	0.020	0.5000	0.02853	88.6	75	125	4.01	20	
Barium	0.42	0.020	0.5000	0.006150	82.9	75	125	3.32	20	
Beryllium	0.43	0.0030	0.5000	0	85.0	75	125	3.04	20	
Cadmium	0.43	0.0020	0.5000	0	85.0	75	125	2.73	20	
Chromium	0.41	0.0060	0.5000	0.003330	82.1	75	125	2.67	20	
Cobalt	0.42	0.0060	0.5000	0.008460	82.7	75	125	2.33	20	
Copper	0.47	0.0060	0.5000	0.01740	90.7	75	125	3.26	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507D99-001BMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	1.3	0.050	0.5000	0.8854	83.8	75	125	3.16	20	
Lead	0.42	0.0050	0.5000	0	83.6	75	125	2.58	20	
Manganese	0.51	0.0020	0.5000	0.1014	81.7	75	125	2.98	20	
Nickel	0.44	0.010	0.5000	0.02121	82.8	75	125	3.38	20	
Selenium	0.64	0.050	0.5000	0.1944	88.6	75	125	2.79	20	
Silver	0.083	0.0050	0.1000	0	83.2	75	125	3.16	20	
Thallium	0.44	0.050	0.5000	0	88.0	75	125	0.497	20	
Vanadium	0.44	0.050	0.5000	0.01240	86.5	75	125	3.22	20	
Zinc	0.74	0.020	0.5000	0.3098	87.0	75	125	3.34	20	

Sample ID **MB-20675**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **20675**	RunNo: **28076**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **845664** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID **LCS-20675**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **20675**	RunNo: **28076**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **845665** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	50	1.0	50.00	0	100	80	120			
Potassium	48	1.0	50.00	0	95.7	80	120			
Sodium	49	1.0	50.00	0	98.7	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507d99-001adup**	SampType: **DUP**			TestCode: **SM4500-H+B: pH**						
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R28029**			RunNo: **28029**						
Prep Date:	Analysis Date: **8/6/2015**			SeqNo: **843901**		Units: **pH units**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.15	1.68								H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/13/2015**	SeqNo: **870230**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/13/2015**	SeqNo: **870231**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.478		0.5000	0	95.6	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **870233**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **870234**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.22		0.2000	0	110	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843850**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843851**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.64	20.00	80.00	0	98.3	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843874**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843875**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.72	20.00	80.00	0	99.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507D99-001ADUP**	SampType: **DUP**			TestCode: **Specific Gravity**					
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R27979**			RunNo: **27979**					
Prep Date:	Analysis Date: **8/5/2015**			SeqNo: **841885**		Units:			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9985	0						0.180	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20581**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **20581**	RunNo: **27984**
Prep Date: **8/4/2015**	Analysis Date: **8/5/2015**	SeqNo: **842184** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-20581**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **20581**	RunNo: **27984**
Prep Date: **8/4/2015**	Analysis Date: **8/5/2015**	SeqNo: **842185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1507D99 RcptNo: 1

Received by/date: SA 07/31/15

Logged By: Lindsay Mangin 7/31/2015 8:00:00 AM

Completed By: Lindsay Mangin 7/31/2015 9:58:04 AM

Reviewed By: IO 07/31/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2, 2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? no
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks.

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standar ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:
Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1507D99	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attachec list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-845 Method 1311
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
7/30/15	0855	Liquid	Trip Blank	2	Neat	-002		X					
7/30/15	0855	Liquid	Temperature Blank	1	Neat	—							

Analysis Request

Date:	Time:	Relinquished by	Received by	Date	Time
7/30/2015	10:30	Elizabeth Salsberry	[illegible]	07/31/15	0800
Date:	Time:	Relinquished by:	Received by	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Comb and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	7/30/2015 @ 8:50 am
End Date and Time	7/30/2015 @ 9:01 am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp:75.2 °F Humidity: 69% Wind Direction: North Wind Speed: 10.0 mi Over all Condition:Partly Cloudy

Date and Time:

Field Temp. 111.4 F Field pH 7.90

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, July 21, 2015 10:52 AM
To: Denton, Scott (Scott.Denton@HollyFrontier.com)
Cc: Griswold, Jim, EMNRD
Subject: 2015 2nd Quarter Injection Report for WDW-1, WDW-2 and WDW-3 July 15, 2015

Mr. Denton:

The New Mexico Oil Conservation Division (OCD) received the above subject environmental laboratory analytical data report(s) for the quarter of April through June 2015.

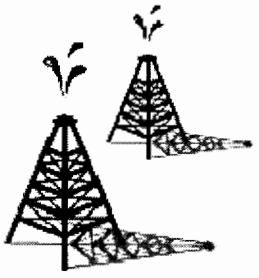
Carl noticed the following:

1) During Data Quality Objective evaluation of received samples from the refinery the lab detected bubbles in all 3 VOC sample containers.
2) There was a metals preservative issue.
3) The sample containment temperature upon delivery was 6.9 °C instead of 4 °C.

OCD requires that the operator comply with USEPA Quality Assurance/Quality Control and Data Quality Objectives when sampling, handling, and shipping environmental samples to the laboratory for analyses.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
O: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US
Web: http://www.emnrd.state.nm.us/ocd/
"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental



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HOLLYFRONTIER

RECEIVED OCD
2015 JUL 17 P 2:59

July 15, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 9944 5666

RE: 2015 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1377 psig and the average flows were 127 gpm for WDW-1, 116 gpm for WDW-2 and 125 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2015 to June 30, 2015. We have disposed a total of 1,150,921 barrels of fluid into the three wells during the second quarter of 2015. The volume per well is:

- 397,034 barrels into WDW-1
- 364,011 barrels into WDW-2
- 389,876 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/2nd quarter/2015-7-15 2nd QTR Inj. Rpt. for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2015 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	36,354,894
Apr-15	1,350	1,400	1,075	121	132	85	426	845	225	4,149	4,526	2,914	124,457	36,479,351
May-15	1,393	1,400	1,273	130	132	116	298	793	173	4,457	4,526	3,977	138,167	36,617,518
Jun-15	1,398	1,400	1,375	130	132	127	446	864	230	4,457	4,526	4,354	133,710	36,751,228
WDW-2													**Previous Quarter**	23,265,417
Apr-15	1,365	1,400	1,245	112	122	76	280	717	241	3,840	4,183	2,606	115,200	23,380,617
May-15	1,389	1,400	1,194	117	121	61	248	274	225	4,011	4,149	2,091	124,341	23,504,958
Jun-15	1,400	1,400	1,391	121	183	105	249	266	239	4,149	6,274	3,600	124,470	23,629,428
WDW-3													**Previous Quarter**	13,488,921
Apr-15	1,364	1,390	1,300	126	138	106	593	1,026	464	4,320	4,731	3,634	129,600	13,618,521
May-15	1,359	1,390	1,098	121	137	4	526	919	259	4,149	4,697	137	128,619	13,747,140
Jun-15	1,379	1,390	1,149	128	137	20	685	931	307	4,389	4,697	686	131,657	13,878,797
													Total Injected fluids:	74,259,453

T:\Injection Wells\Reports C-115 and Quarterly\2015\2nd quarter\
2nd 2015 qtrly rpt data
Injection fluids

7/13/20152:56 PM

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Navajo Refining Company, L.L.C.

2015 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/1/15	4/7/15	4/14/15	4/22/15	4/30/15	5/4/15	5/11/15	5/19/15	5/29/15	6/1/15	6/8/15	6/15/15	6/22/15	6/29/15
WDW -1[1]	145	145	145	145	145	145	100**	75**	100	100	100	100	100	100
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	255	225*	225	225	225	255	290	150***	160	160	160	245	260	285
					Comments:									

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

T:\Injection Wells\Reports C-115 and Quarterly\2015\2nd quarter\
2nd 2015 qtrly rpt data
WAMS Tanks

7/13/20152:56 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 16, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1505504

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/12/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1505504**
Date: **6/16/2015**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	11	0.15	1.0	*	mg/L	10	5/12/2015 9:30:50 PM	R26148
Chloride	550	2.2	50		mg/L	100	5/12/2015 9:43:14 PM	R26148
Nitrogen, Nitrite (As N)	0.32	0.10	1.0	J	mg/L	10	5/12/2015 9:30:50 PM	R26148
Bromide	2.2	0.26	1.0		mg/L	10	5/12/2015 9:30:50 PM	R26148
Nitrogen, Nitrate (As N)	0.80	0.064	1.0	J	mg/L	10	5/12/2015 9:30:50 PM	R26148
Phosphorus, Orthophosphate (As P)	ND	0.75	5.0		mg/L	10	5/12/2015 9:30:50 PM	R26148
Sulfate	2600	8.2	50		mg/L	100	5/12/2015 9:43:14 PM	R26148
EPA METHOD 7470: MERCURY							Analyst: **MED**	
Mercury	ND	0.000059	0.00020		mg/L	1	5/14/2015 2:31:19 PM	19224
MERCURY, TCLP							Analyst: **MED**	
Mercury	0.0012	0.00075	0.020	J	mg/L	1	5/27/2015 3:12:30 PM	19406
EPA METHOD 6010B: TCLP METALS							Analyst: **ELS**	
Arsenic	0.049	0.011	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Barium	0.051	0.00060	100	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Cadmium	ND	0.00090	1.0		mg/L	1	5/27/2015 10:03:57 AM	19377
Chromium	0.016	0.0014	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Lead	0.0015	0.0013	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Selenium	0.13	0.019	1.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Silver	ND	0.0013	5.0		mg/L	1	5/27/2015 10:03:57 AM	19377
EPA 6010B: TOTAL METALS							Analyst: **ELS**	
Aluminum	0.48	0.0038	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
Antimony	ND	0.015	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Arsenic	0.042	0.018	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
Barium	0.010	0.00098	0.020	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Beryllium	ND	0.00046	0.0030		mg/L	1	5/27/2015 9:51:20 AM	19377
Cadmium	ND	0.00071	0.0020		mg/L	1	5/27/2015 9:51:20 AM	19377
Calcium	51	0.063	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Chromium	ND	0.0015	0.0060		mg/L	1	5/27/2015 9:51:20 AM	19377
Cobalt	0.0026	0.0021	0.0060	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Copper	0.0051	0.0039	0.0060	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Iron	0.33	0.0079	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Lead	ND	0.0023	0.0050		mg/L	1	5/27/2015 9:51:20 AM	19377
Magnesium	19	0.062	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Manganese	0.10	0.0012	0.0020		mg/L	1	5/27/2015 9:51:20 AM	19377
Nickel	0.011	0.0060	0.010		mg/L	1	5/27/2015 9:51:20 AM	19377
Potassium	62	0.13	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Selenium	0.13	0.017	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 6010B: TOTAL METALS							Analyst: **ELS**	
Silver	ND	0.0013	0.0050		mg/L	1	5/27/2015 9:51:20 AM	19377
Sodium	1400	10	20		mg/L	20	5/27/2015 10:17:24 AM	19377
Thallium	ND	0.010	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Vanadium	0.0078	0.0018	0.050	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Zinc	0.030	0.0020	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Acetonitrile	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Allyl chloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroprene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Cyclohexane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Diethyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Diisopropyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Epichlorohydrin	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Ethyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Ethyl methacrylate	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Ethyl tert-butyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Freon-113	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Isobutanol	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Isopropyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methacrylonitrile	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methyl ethyl ketone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl isobutyl ketone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl methacrylate	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methylcyclohexane	ND	1.0	1.0		µg/L	1	5/22/2015	R26752
n-Amyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
n-Hexane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Nitrobenzene	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Pentachloroethane	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
p-isopropyltoluene	0.83	0.50	0.50		µg/L	1	5/22/2015	R26752
Propionitrile	7.3	2.5	2.5		µg/L	1	5/22/2015	R26752
Tetrahydrofuran	1.3	0.50	0.50		µg/L	1	5/22/2015	R26752
Benzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Toluene	0.66	0.50	0.50		µg/L	1	5/22/2015	R26752
Ethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methyl tert-butyl ether (MTBE)	ND	10	10		µg/L	1	5/22/2015	R26752
1,2,4-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3,5-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichloroethane (EDC)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,2-Dibromoethane (EDB)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Naphthalene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Acetone	10	2.5	2.5		µg/L	1	5/22/2015	R26752
Bromobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromodichloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromoform	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Carbon disulfide	1.0	0.50	0.50		µg/L	1	5/22/2015	R26752
Carbon Tetrachloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroform	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
4-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
cis-1,2-DCE	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
cis-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dibromo-3-chloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dibromochloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dibromomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,4-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dichlorodifluoromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloroethene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Hexachlorobutadiene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Hexanone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Isopropylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methylene Chloride	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
n-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
n-Propylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
sec-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Styrene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,1,1,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,2,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Tetrachloroethene (PCE)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,2-DCE	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,3-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,4-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,1-Trichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,2-Trichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Trichloroethene (TCE)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Trichlorofluoromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,3-Trichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Vinyl chloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
mp-Xylenes	ND	1.0	1.0		µg/L	1	5/22/2015	R26752
o-Xylene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Amyl methyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Butyl alcohol	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Acrolein	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Acrylonitrile	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromochloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Chloroethyl vinyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Iodomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,4-Dichloro-2-butene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Vinyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,4-Dioxane	ND	20	20		µg/L	1	5/22/2015	R26752
Surr: 1,2-Dichlorobenzene-d4	111		70-130		%REC	1	5/22/2015	R26752
Surr: 4-Bromofluorobenzene	106	0	70-130		%REC	1	5/22/2015	R26752
Surr: Toluene-d8	104	0	70-130		%REC	1	5/22/2015	R26752
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
1,1-Biphenyl	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Atrazine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Benzaldehyde	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Caprolactam	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
N-Nitroso-di-n-butylamine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Acetophenone	ND	10	10		µg/L	1	5/21/2015	R26752
1-Methylnaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2,3,4,6-Tetrachlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4,5-Trichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4,6-Trichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
2,4-Dichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dimethylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dinitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dinitrotoluene	ND	10	10		µg/L	1	5/21/2015	R26752
2,6-Dinitrotoluene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Chloronaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Chlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2-Methylnaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Methylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
2-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
2-Nitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
3,3´-Dichlorobenzidine	ND	10	10		µg/L	1	5/21/2015	R26752
3-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4,6-Dinitro-2-methylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
4-Bromophenyl phenyl ether	ND	10	10		µg/L	1	5/21/2015	R26752
4-Chloro-3-methylphenol	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
4-Chloroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4-Chlorophenyl phenyl ether	ND	10	10		µg/L	1	5/21/2015	R26752
4-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4-Nitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
Acenaphthene	ND	10	10		µg/L	1	5/21/2015	R26752
Acenaphthylene	ND	10	10		µg/L	1	5/21/2015	R26752
Anthracene	ND	10	10		µg/L	1	5/21/2015	R26752
Benzo(g,h,i)perylene	ND	10	10		µg/L	1	5/21/2015	R26752
Benz(a)anthracene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(a)pyrene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(b)fluoranthene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(k)fluoranthene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Bis(2-chloroethoxy)methane	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-chloroethyl)ether	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-chloroisopropyl)ether	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-ethylhexyl)phthalate	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Butyl benzyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Carbazole	ND	10	10		µg/L	1	5/21/2015	R26752
Chrysene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Dibenz(a,h)anthracene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Dibenzofuran	ND	10	10		µg/L	1	5/21/2015	R26752
Diethyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Dimethyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
Di-n-butyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Di-n-octyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Fluoranthene	ND	10	10		µg/L	1	5/21/2015	R26752
Fluorene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachlorobenzene	ND	1.0	1.0		µg/L	1	5/21/2015	R26752
Hexachlorobutadiene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachlorocyclopentadiene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachloroethane	ND	10	10		µg/L	1	5/21/2015	R26752
Indeno(1,2,3-cd)pyrene	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Isophorone	ND	10	10		µg/L	1	5/21/2015	R26752
Naphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
Nitrobenzene	ND	10	10		µg/L	1	5/21/2015	R26752
N-Nitrosodi-n-propylamine	ND	10	10		µg/L	1	5/21/2015	R26752
N-Nitrosodiphenylamine	ND	2.0	2.0		µg/L	1	5/21/2015	R26752
Pentachlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
Phenanthrene	ND	10	10		µg/L	1	5/21/2015	R26752
Phenol	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pyrene	ND	10	10		µg/L	1	5/21/2015	R26752
o-Toluidine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pyridine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
1,2,4,5-Tetrachlorobenzene	ND	10	10		µg/L	1	5/21/2015	R26752
Surr: 2,4,6-Tribromophenol	111	0	10-123		%REC	1	5/21/2015	R26752
Surr: 2-Fluorobiphenyl	90.0	0	19-130		%REC	1	5/21/2015	R26752
Surr: 2-Fluorophenol	74.4	0	21-120		%REC	1	5/21/2015	R26752
Surr: Nitrobenzene-d5	80.4	0	25-130		%REC	1	5/21/2015	R26752
Surr: Phenol-d5	64.0	0	10-130		%REC	1	5/21/2015	R26752
Surr: Terphenyl-d14	74.8	0	21-141		%REC	1	5/21/2015	R26752
CORROSIVITY							Analyst: **SUB**	
pH	7.99				pH Units	1	5/19/2015	R26752
IGNITABILITY METHOD 1010							Analyst: **SUB**	
Ignitability	>200	0	0		°F	1	5/22/2015	R26752
CYANIDE, REACTIVE							Analyst: **SUB**	
Cyanide, Reactive	ND	1.00	1.00		mg/L	1	5/22/2015	R26752
SULFIDE, REACTIVE							Analyst: **SUB**	
Reactive Sulfide	ND	1.0	1.0		mg/L	1	5/21/2015	R26752
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	6600	0.010	0.010		µmhos/c	1	5/12/2015 4:15:42 PM	R26154

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM4500-H+B: PH							Analyst: **JRR**	
pH	7.95	0.100	1.68	H	pH units	1	5/12/2015 4:15:42 PM	R26154
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	313.4	0.9399	20.00		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
Total Alkalinity (as CaCO3)	313.4	0.9399	20.00		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
SPECIFIC GRAVITY							Analyst: **JRR**	
Specific Gravity	0.9990	0	0			1	5/18/2015 11:44:00 AM	R26252
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JML**	
Total Dissolved Solids	4260	145	200	*	mg/L	1	5/15/2015 5:40:00 PM	19225

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1505504-002
Matrix: TRIP BLANK
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Acetonitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Allyl chloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroprene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Cyclohexane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Diethyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Diisopropyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Epichlorohydrin	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Ethyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Ethyl methacrylate	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Ethyl tert-butyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Freon-113	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Isobutanol	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Isopropyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methacrylonitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Methyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methyl ethyl ketone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Methyl isobutyl ketone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Methyl methacrylate	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Methylcyclohexane	ND	1.0	1.0		µg/L	1	5/21/2015	R26752
n-Amyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
n-Hexane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Nitrobenzene	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pentachloroethane	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
p-isopropyltoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Propionitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Tetrahydrofuran	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Benzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Toluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Ethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methyl tert-butyl ether (MTBE)	ND	10	0.50		µg/L	1	5/21/2015	R26752
1,2,4-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3,5-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichloroethane (EDC)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dibromoethane (EDB)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Naphthalene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Acetone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Bromobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Bromodichloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Bromoform	ND	0.50	0.50		µg/L	1	5/21/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Rccovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1505504-002
Matrix: TRIP BLANK
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Bromomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Carbon disulfide	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Carbon Tetrachloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroform	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
4-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
cis-1,2-DCE	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
cis-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dibromo-3-chloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dibromochloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dibromomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,4-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dichlorodifluoromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloroethene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Hexachlorobutadiene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Hexanone	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Isopropylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methylene Chloride	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
n-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
n-Propylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
sec-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Styrene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,1,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,2,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Tetrachloroethene (PCE)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,2-DCE	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2,3-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1505504-002
Matrix: TRIP BLANK
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,1-Trichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,2-Trichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Trichloroethene (TCE)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Trichlorofluoromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2,3-Trichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Vinyl chloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
mp-Xylenes	ND	1.0	0.50		µg/L	1	5/21/2015	R26752
o-Xylene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Amyl methyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Butyl alcohol	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Acrolein	ND	2.5	10		µg/L	1	5/21/2015	R26752
Acrylonitrile	ND	2.5	10		µg/L	1	5/21/2015	R26752
Bromochloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Chloroethyl vinyl ether	ND	0.50	1.0		µg/L	1	5/21/2015	R26752
Iodomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,4-Dichloro-2-butene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Vinyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,4-Dioxane	ND	20	20		µg/L	1	5/21/2015	R26752
Surr: 1,2-Dichlorobenzene-d4	105		70-130		%REC	1	5/21/2015	R26752
Surr: 4-Bromofluorobenzene	101	0	70-130		%REC	1	5/21/2015	R26752
Surr: Toluene-d8	102	0	70-130		%REC	1	5/21/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R26148**	RunNo: **26148**
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775809** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R26148**	RunNo: **26148**
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775815** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.55	0.10	0.5000	0	110	90	110			
Chloride	4.8	0.50	5.000	0	96.6	90	110			
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	102	90	110			
Bromide	2.5	0.10	2.500	0	99.3	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	102	90	110			
Phosphorus, Orthophosphate (As P	5.1	0.50	5.000	0	102	90	110			
Sulfate	10	0.50	10.00	0	99.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797217** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Ethyl methacrylate	ND	0.50								
Isobutanol	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Propionitrile	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797217** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50								
2-Hexanone	ND	0.50								
Methylene Chloride	ND	2.5								
Styrene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797218** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.4		10.00	0	93.8	80	120			
Toluene	9.9		10.00	0	99.0	80	120			
Ethylbenzene	10		10.00	0	99.9	80	120			
Chlorobenzene	9.8		10.00	0	97.9	80	120			
1,1-Dichloroethene	9.7		10.00	0	96.9	80	120			
Tetrachloroethene (PCE)	11		10.00	0	106	80	120			
Trichloroethene (TCE)	10		10.00	0	101	80	120			
o-Xylene	10		10.00	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2,3,4,6-Tetrachlorophenol	ND	0.50								
2,4,5-Trichlorophenol	ND	0.50								
2,4,6-Trichlorophenol	ND	0.50								
2,4-Dichlorophenol	ND	0.50								
2,4-Dimethylphenol	ND	0.50								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
2-Chloronaphthalene	ND	0.50								
2-Chlorophenol	ND	0.50								
2-Methylnaphthalene	ND	0.50								
2-Methylphenol	ND	0.50								
2-Nitroaniline	ND	0.50								
2-Nitrophenol	ND	0.50								
3,3´-Dichlorobenzidine	ND	0.50								
3-Nitroaniline	ND	0.50								
4,6-Dinitro-2-methylphenol	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.50								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
4-Chlorophenyl phenyl ether	ND	0.50								
4-Nitroaniline	ND	0.50								
4-Nitrophenol	ND	0.50								
Acenaphthene	ND	0.50								
Acenaphthylene	ND	0.50								
Anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								
Benzo(k)fluoranthene	ND	0.50								
Bis(2-chloroethoxy)methane	ND	0.50								
Bis(2-chloroethyl)ether	ND	0.50								
Bis(2-chloroisopropyl)ether	ND	0.50								
Bis(2-ethylhexyl)phthalate	ND	0.50								
Butyl benzyl phthalate	ND	0.50								
Carbazole	ND	0.50								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Dibenzofuran	ND	0.50								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.50								
Di-n-butyl phthalate	ND	0.50								
Di-n-octyl phthalate	ND	0.50								
Fluoranthene	ND	0.50								
Fluorene	ND	0.50								
Hexachlorobenzene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
Hexachlorocyclopentadiene	ND	0.50								
Hexachloroethane	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Isophorone	ND	0.50								
Naphthalene	ND	0.50								
Nitrobenzene	ND	0.50								
N-Nitrosodi-n-propylamine	ND	0.50								
N-Nitrosodiphenylamine	ND	0.50								
Pentachlorophenol	ND	0.50								
Phenanthrene	ND	0.50								
Phenol	ND	0.50								
Pyrene	ND	0.50								
Pyridine	ND	0.50								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797223** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.6		5.000	0	93.0	49	145			
2-Chlorophenol	4.8		5.000	0	96.2	50	131			
4-Chloro-3-methylphenol	5.4		5.000	0	108	42	139			
4-Nitrophenol	5.3		5.000	0	106	19	137			
Acenaphthene	4.8		5.000	0	96.6	36	131			
Bis(2-ethylhexyl)phthalate	5.6		5.000	0	113	43	148			
N-Nitrosodi-n-propylamine	6.1		5.000	0	122	46	135			
Pentachlorophenol	5.1		5.000	0	101	22	138			
Phenol	4.4		5.000	0	88.8	45	134			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**LCS-R26752**	SampType:	**LCS**	TestCode:	**EPA 8270C: Semivolatiles/Mod**					
Client ID:	**LCSW**	Batch ID:	**R26752**	RunNo:	**26752**					
Prep Date:		Analysis Date:	**5/21/2015**	SeqNo:	**797223**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pyrene	5.4		5.000	0	109	45	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19224**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777328** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-19224**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

Sample ID **LCSD-19224**	SampType: **LCSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSS02**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	101	80	120	0.438	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19406**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **19406**	RunNo: **26436**							
Prep Date: **5/27/2015**	Analysis Date: **5/27/2015**	SeqNo: **785575**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-19406**	SampType: **LCS**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSW**	Batch ID: **19406**	RunNo: **26436**							
Prep Date: **5/27/2015**	Analysis Date: **5/27/2015**	SeqNo: **785576**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.020	0.005000	0	95.3	80	120			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19377**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785370** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-19377**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785371** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	5.0	0.5000	0	98.7	80	120			J
Barium	0.47	100	0.5000	0	94.3	80	120			J
Cadmium	0.48	1.0	0.5000	0	96.3	80	120			J
Chromium	0.47	5.0	0.5000	0	94.2	80	120			J
Lead	0.46	5.0	0.5000	0	92.7	80	120			J
Selenium	0.48	1.0	0.5000	0	95.9	80	120			J
Silver	0.099	5.0	0.1000	0	98.7	80	120			J

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19377** SampType: **MBLK** TestCode: **EPA 6010B: Total Metals**

Client ID: **PBW** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785351** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	0.031	0.050								J
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	0.0083	0.050								J
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-19377** SampType: **LCS** TestCode: **EPA 6010B: Total Metals**

Client ID: **LCSW** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785352** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	101	80	120			
Antimony	0.49	0.050	0.5000	0	97.9	80	120			
Arsenic	0.49	0.020	0.5000	0	98.7	80	120			
Barium	0.47	0.020	0.5000	0	94.3	80	120			
Beryllium	0.49	0.0030	0.5000	0	97.9	80	120			
Cadmium	0.48	0.0020	0.5000	0	96.3	80	120			
Calcium	48	1.0	50.00	0	96.6	80	120			
Chromium	0.47	0.0060	0.5000	0	94.2	80	120			
Cobalt	0.46	0.0060	0.5000	0	92.4	80	120			
Copper	0.48	0.0060	0.5000	0	95.6	80	120			
Iron	0.47	0.050	0.5000	0	94.1	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-19377** SampType: **LCS** TestCode: **EPA 6010B: Total Metals**

Client ID: **LCSW** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785352** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.46	0.0050	0.5000	0	92.7	80	120			
Magnesium	48	1.0	50.00	0	96.9	80	120			
Manganese	0.47	0.0020	0.5000	0	93.6	80	120			
Nickel	0.47	0.010	0.5000	0	93.1	80	120			
Potassium	46	1.0	50.00	0	93.0	80	120			
Selenium	0.48	0.050	0.5000	0	95.9	80	120			
Silver	0.099	0.0050	0.1000	0	98.7	80	120			
Sodium	48	1.0	50.00	0	96.1	80	120			
Thallium	0.49	0.050	0.5000	0	97.0	80	120			
Vanadium	0.49	0.050	0.5000	0	98.0	80	120			
Zinc	0.47	0.020	0.5000	0	93.5	80	120			

Sample ID **1505504-001BMS** SampType: **MS** TestCode: **EPA 6010B: Total Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785354** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.020	0.5000	0.4834	114	75	125			
Antimony	0.51	0.050	0.5000	0	103	75	125			
Arsenic	0.57	0.020	0.5000	0.04239	105	75	125			
Barium	0.50	0.020	0.5000	0.01049	97.1	75	125			
Beryllium	0.49	0.0030	0.5000	0	98.5	75	125			
Cadmium	0.51	0.0020	0.5000	0	102	75	125			
Calcium	100	1.0	50.00	51.14	97.3	75	125			
Chromium	0.48	0.0060	0.5000	0	95.4	75	125			
Cobalt	0.48	0.0060	0.5000	0.002620	96.1	75	125			
Copper	0.55	0.0060	0.5000	0.005100	110	75	125			
Iron	0.80	0.050	0.5000	0.3329	92.5	75	125			
Lead	0.48	0.0050	0.5000	0	95.9	75	125			
Magnesium	70	1.0	50.00	19.14	101	75	125			
Manganese	0.58	0.0020	0.5000	0.1030	96.0	75	125			
Nickel	0.49	0.010	0.5000	0.01120	95.5	75	125			
Selenium	0.66	0.050	0.5000	0.1334	105	75	125			
Silver	0.10	0.0050	0.1000	0	104	75	125			
Thallium	0.51	0.050	0.5000	0	101	75	125			
Vanadium	0.51	0.050	0.5000	0.007830	101	75	125			
Zinc	0.52	0.020	0.5000	0.03044	98.1	75	125			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **1505504-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.020	0.5000	0.4834	123	75	125	4.31	20	
Antimony	0.53	0.050	0.5000	0	106	75	125	3.03	20	
Arsenic	0.58	0.020	0.5000	0.04239	108	75	125	2.76	20	
Barium	0.51	0.020	0.5000	0.01049	100	75	125	3.03	20	
Beryllium	0.50	0.0030	0.5000	0	101	75	125	2.04	20	
Cadmium	0.52	0.0020	0.5000	0	105	75	125	2.76	20	
Chromium	0.49	0.0060	0.5000	0	97.8	75	125	2.49	20	
Cobalt	0.50	0.0060	0.5000	0.002620	98.6	75	125	2.48	20	
Copper	0.57	0.0060	0.5000	0.005100	113	75	125	3.29	20	
Iron	0.83	0.050	0.5000	0.3329	99.1	75	125	4.06	20	
Lead	0.49	0.0050	0.5000	0	98.1	75	125	2.26	20	
Magnesium	71	1.0	50.00	19.14	104	75	125	1.82	20	
Manganese	0.60	0.0020	0.5000	0.1030	99.9	75	125	3.33	20	
Nickel	0.50	0.010	0.5000	0.01120	98.0	75	125	2.50	20	
Selenium	0.67	0.050	0.5000	0.1334	106	75	125	1.30	20	
Silver	0.11	0.0050	0.1000	0	108	75	125	3.31	20	
Thallium	0.53	0.050	0.5000	0	107	75	125	4.89	20	
Vanadium	0.53	0.050	0.5000	0.007830	104	75	125	3.13	20	
Zinc	0.53	0.020	0.5000	0.03044	101	75	125	2.60	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797254**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797255**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.486		0.5000	0	97.2	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797257**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.10								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797258**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R26154**	RunNo: **26154**							
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775904**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	4.120	20.00								J

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R26154**	RunNo: **26154**							
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775905**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	87.40	20.00	80.00	0	109	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19225**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **19225**	RunNo: **26231**
Prep Date: **5/14/2015**	Analysis Date: **5/15/2015**	SeqNo: **778508** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-19225**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **19225**	RunNo: **26231**
Prep Date: **5/14/2015**	Analysis Date: **5/15/2015**	SeqNo: **778509** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1505504 RcptNo: 1

Received by/date: CS 05/12/15

Logged By: Ashley Gallegos 5/12/2015 8:56:00 AM

Completed By: Ashley Gallegos 5/12/2015 12:36:44 PM

Reviewed By: 05/12/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☑	NA ☐
	Approved by client.		
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and CNG) properly preserved?	Yes ☑	No ☑ CS 05/12/15	
9. Was preservative added to bottles?	Yes ☑	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☑	No VOA Vials ☐
11. Were any sample containers received broken? CS 05/12/15	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2 / 2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? yes
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

For metals analysis, added 1ml HNO3 to -001B for acceptable pH. Held in Login for 24 hours. CS 05/12

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks: Sample -001D (all 3 vials) and -002A (2 of 2) have bubbles. CS 05/12,

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	6.9	Good	Not Present			

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Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☒ Standar ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☒ Yes ☐ No

Sample Temperature: 6.9°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1505604	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond. Fl, Cation/anion bal., Br, Eh/4D	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
5-11-15	0820	Liquid	Trip Blank	2	Neat	-002		X					
5-11-15	0820	Liquid	Temperature Blank	1	Neat								

Date:	Time:	Relinquished by:	Received by:	Date	Time
5-11-15	1000	Elizabeth Salsberry	Celina Sanchez	05/12/15	0856
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras

Client approved temp. Spoke with Micki. CS 05/12/15

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	7/9/2015 @ 08:57am
End Date and Time	7/9/2015 @ 09:08am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp:78.8 °F Humidity: 47% Wind Direction: NNE Wind Speed: 10.4 mph Overall Condition: clear
Date and Time:

Field Temp. 45.3 Field pH : 7.62

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER

January 22, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 1200 0000 1832 3280

RE: 2014 4th Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for all three wells was 1345 psig and the average flows were 111 gpm for WDW-1, 113 gpm for WDW-2 and 128 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from October 1, 2014 to December 31, 2014. We have disposed a total of 1,088,093 barrels of fluid into the three wells during the fourth quarter of 2014. The volume per well is:

- 350,826 barrels into WDW-1
- 360,020 barrels into WDW-2
- 377,247 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/4th quarter/2015-1-22 4th QTR Inj Rpt for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2014 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	35,589,080
Oct-14	1,341	1,350	1,310	93	125	67	360	569	203	3,189	4,286	2,297	99,503	35,688,583
Nov-14	1,356	1,375	1,300	122	128	112	305	380	193	4,183	4,389	3,840	125,348	35,813,931
Dec-14	1,346	1,380	1,244	118	269	94	285	402	156	4,046	9,223	3,223	125,975	35,939,906
WDW-2													**Previous Quarter**	22,558,499
Oct-14	1,341	1,350	1,306	119	126	110	298	366	256	4,080	4,320	3,771	127,175	22,685,674
Nov-14	1,353	1,375	1,300	115	123	105	515	1,617	253	3,943	4,217	3,600	118,739	22,804,413
Dec-14	1,347	1,380	1,255	107	117	83	808	1,492	256	3,669	4,011	2,846	114,106	22,918,519
WDW-3													**Previous Quarter**	12,735,189
Oct-14	1,341	1,350	1,063	122	144	0	784	938	331	4,183	4,937	0	129,877	12,865,066
Nov-14	1,342	1,375	1,205	124	139	54	847	1,002	676	4,251	4,766	1,851	127,146	12,992,212
Dec-14	1,340	1,373	1,258	138	127	82	706	799	616	4,731	4,354	2,811	120,224	13,112,436
													Total Injected fluids:	71,970,861

Page 4097 of 5828

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Navajo Refining Company, L.L.C.

2014 FOURTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/8/14	10/13/14	10/21/14	10/27/02	11/4/14	11/10/14	11/17/14	11/24/14	12/1/14	12/9/14	12/15/14	12/22/14	12/29/14	
WDW -1[1]	145	145	145	145	145	145	145	145	145	145	145	145	145	
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100	
WDW-3[1]	145	145	145	145	145	145	145	200	200	200	200	200	200	
				Comments:										

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 09, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1411288

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/7/2014 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued December 08, 2014

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1411288**
Date: **12/9/2014**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Fluoride	5.3	0.50	*	mg/L	5	11/7/2014 11:52:12 PM	R22427
Chloride	330	25		mg/L	50	11/19/2014 12:14:33 AM	R22629
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Bromide	0.68	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Nitrogen, Nitrate (As N)	1.3	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	11/7/2014 11:52:12 PM	R22427
Sulfate	1300	25		mg/L	50	11/19/2014 12:14:33 AM	R22629
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	11/13/2014 11:05:18 AM	16357
MERCURY, TCLP						Analyst: **MMD**	
Mercury	ND	0.020		mg/L	1	11/13/2014 2:54:22 PM	16358
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	0.20		mg/L	1	11/12/2014 11:08:39 AM	16345
Barium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Cadmium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Chromium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Lead	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Selenium	ND	0.20		mg/L	1	11/12/2014 11:08:39 AM	16345
Silver	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	0.48	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Antimony	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Arsenic	0.050	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Barium	ND	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Beryllium	ND	0.0030		mg/L	1	11/12/2014 11:06:42 AM	16345
Cadmium	ND	0.0020		mg/L	1	11/12/2014 11:06:42 AM	16345
Calcium	50	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Chromium	ND	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Cobalt	ND	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Copper	0.0092	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Iron	0.86	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Lead	ND	0.0050		mg/L	1	11/12/2014 11:06:42 AM	16345
Magnesium	17	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Manganese	0.10	0.0020		mg/L	1	11/12/2014 11:06:42 AM	16345
Nickel	0.010	0.010		mg/L	1	11/12/2014 11:06:42 AM	16345
Potassium	22	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Selenium	0.058	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	11/12/2014 11:06:42 AM	16345
Sodium	ND	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Thallium	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Vanadium	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Zinc	0.049	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Allyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroprene	ND	0.500		µg/L	1	11/13/2014	R22819
Cyclohexane	ND	0.500		µg/L	1	11/13/2014	R22819
Diethyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Diisopropyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Epichlorohydrin	ND	5.00		µg/L	1	11/13/2014	R22819
Ethyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl tert-butyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Freon-113	ND	0.500		µg/L	1	11/13/2014	R22819
Isobutanol	ND	50.0		µg/L	1	11/13/2014	R22819
Isopropyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methacrylonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl ethyl ketone	2.82	2.50		µg/L	1	11/13/2014	R22819
Methyl isobutyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Methylcyclohexane	ND	1.00		µg/L	1	11/13/2014	R22819
n-Amyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
n-Hexane	ND	0.500		µg/L	1	11/13/2014	R22819
Nitrobenzene	ND	5.00		µg/L	1	11/13/2014	R22819
Pentachloroethane	ND	5.00		µg/L	1	11/13/2014	R22819
p-isopropyltoluene	ND	0.500		µg/L	1	11/13/2014	R22819
Propionitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrahydrofuran	ND	0.500		µg/L	1	11/13/2014	R22819
Benzene	ND	0.500		µg/L	1	11/13/2014	R22819
Toluene	ND	0.500		µg/L	1	11/13/2014	R22819
Ethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl tert-butyl ether (MTBE)	ND	10.0		µg/L	1	11/13/2014	R22819
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3,5-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloroethane (EDC)	ND	0.500		µg/L	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.500		µg/L	1	11/13/2014	R22819
Naphthalene	ND	0.500		µg/L	1	11/13/2014	R22819
Acetone	47.2	2.50		µg/L	1	11/13/2014	R22819
Bromobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Bromodichloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Bromoform	ND	0.500		µg/L	1	11/13/2014	R22819
Bromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon disulfide	0.930	0.500		µg/L	1	11/13/2014	R22819
Carbon Tetrachloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroform	ND	0.500		µg/L	1	11/13/2014	R22819
Chloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
4-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromo-3-chloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Dichlorodifluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
2,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
Hexachlorobutadiene	ND	0.500		µg/L	1	11/13/2014	R22819
2-Hexanone	ND	0.500		µg/L	1	11/13/2014	R22819
Isopropylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methylene Chloride	ND	2.50		µg/L	1	11/13/2014	R22819
n-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
n-Propylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
sec-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Styrene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,1,1,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrachloroethene (PCE)	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,4-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Trichloroethene (TCE)	ND	0.500		µg/L	1	11/13/2014	R22819
Trichlorofluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Xylenes, Total	ND	1.00		µg/L	1	11/13/2014	R22819
mp-Xylenes	ND	1.00		µg/L	1	11/13/2014	R22819
o-Xylene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Amyl methyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butyl alcohol	46.8	0.500		µg/L	1	11/13/2014	R22819
Acrolein	ND	0.500		µg/L	1	11/13/2014	R22819
Acrylonitrile	ND	10.0		µg/L	1	11/13/2014	R22819
Bromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chloroethyl vinyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Iodomethane	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,4-Dichloro-2-butene	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dioxane	ND	20.0		µg/L	1	11/13/2014	R22819
Surr: 1,2-Dichlorobenzene-d4	108	70-130		%REC	1	11/13/2014	R22819
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	11/13/2014	R22819
Surr: Toluene-d8	99.2	70-130		%REC	1	11/13/2014	R22819
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	11/14/2014	R22918
Atrazine	ND	5.0		µg/L	1	11/14/2014	R22918
Benzaldehyde	ND	5.0		µg/L	1	11/14/2014	R22918
Caprolactam	ND	5.0		µg/L	1	11/14/2014	R22918
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	11/14/2014	R22918
Acetophenone	ND	10		µg/L	1	11/14/2014	R22918
1-Methylnaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4,5-Trichlorophenol	ND	10		µg/L	1	11/14/2014	R22918

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
2,4,6-Trichlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dichlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dimethylphenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dinitrophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dinitrotoluene	ND	10		µg/L	1	11/14/2014	R22918
2,6-Dinitrotoluene	ND	10		µg/L	1	11/14/2014	R22918
2-Chloronaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2-Chlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2-Methylnaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2-Methylphenol	ND	10		µg/L	1	11/14/2014	R22918
2-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
2-Nitrophenol	ND	10		µg/L	1	11/14/2014	R22918
3,3'-Dichlorobenzidine	ND	10		µg/L	1	11/14/2014	R22918
3-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	11/14/2014	R22918
4-Bromophenyl phenyl ether	ND	10		µg/L	1	11/14/2014	R22918
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	11/14/2014	R22918
4-Chloroaniline	ND	10		µg/L	1	11/14/2014	R22918
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	11/14/2014	R22918
4-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
4-Nitrophenol	ND	10		µg/L	1	11/14/2014	R22918
Acenaphthene	ND	10		µg/L	1	11/14/2014	R22918
Acenaphthylene	ND	10		µg/L	1	11/14/2014	R22918
Anthracene	ND	10		µg/L	1	11/14/2014	R22918
Benzo(g,h,i)perylene	ND	10		µg/L	1	11/14/2014	R22918
Benz(a)anthracene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(a)pyrene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(b)fluoranthene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(k)fluoranthene	ND	0.10		µg/L	1	11/14/2014	R22918
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-chloroethyl)ether	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	11/14/2014	R22918
Butyl benzyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Carbazole	ND	10		µg/L	1	11/14/2014	R22918
Chrysene	ND	0.10		µg/L	1	11/14/2014	R22918
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	11/14/2014	R22918
Dibenzofuran	ND	10		µg/L	1	11/14/2014	R22918
Diethyl phthalate	ND	10		µg/L	1	11/14/2014	R22918

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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Dimethyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Di-n-butyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Di-n-octyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Fluoranthene	ND	10		µg/L	1	11/14/2014	R22918
Fluorene	ND	10		µg/L	1	11/14/2014	R22918
Hexachlorobenzene	ND	1.0		µg/L	1	11/14/2014	R22918
Hexachlorobutadiene	ND	10		µg/L	1	11/14/2014	R22918
Hexachlorocyclopentadiene	ND	10		µg/L	1	11/14/2014	R22918
Hexachloroethane	ND	10		µg/L	1	11/14/2014	R22918
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	11/14/2014	R22918
Isophorone	ND	10		µg/L	1	11/14/2014	R22918
Naphthalene	ND	10		µg/L	1	11/14/2014	R22918
Nitrobenzene	ND	10		µg/L	1	11/14/2014	R22918
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	11/14/2014	R22918
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	11/14/2014	R22918
Pentachlorophenol	ND	10		µg/L	1	11/14/2014	R22918
Phenanthrene	ND	10		µg/L	1	11/14/2014	R22918
Phenol	ND	5.0		µg/L	1	11/14/2014	R22918
Pyrene	ND	10		µg/L	1	11/14/2014	R22918
o-Toluidine	ND	5.0		µg/L	1	11/14/2014	R22918
Pyridine	ND	5.0		µg/L	1	11/14/2014	R22918
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	11/14/2014	R22918
Surr: 2,4,6-Tribromophenol	131	10-123	S	%REC	1	11/14/2014	R22918
Surr: 2-Fluorobiphenyl	88.8	19-130		%REC	1	11/14/2014	R22918
Surr: 2-Fluorophenol	82.4	21-110		%REC	1	11/14/2014	R22918
Surr: Nitrobenzene-d5	86.4	25-130		%REC	1	11/14/2014	R22918
Surr: Phenol-d5	90.8	10-125		%REC	1	11/14/2014	R22918
Surr: Terphenyl-d14	35.6	33-141		%REC	1	11/14/2014	R22918
CORROSIVITY							Analyst: **SUB**
pH	7.51			pH Units	1	11/13/2014	R22918
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	11/18/2014	R22918
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	11/18/2014	R22918
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	11/21/2014	R22918
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date: 11/6/2014 10:30:00 AM
Lab ID: 1411288-001 **Matrix:** AQUEOUS **Received Date:** 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3500	0.010		µmhos/cm	1	11/11/2014 1:35:05 PM	R22485
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	320	20		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
Total Alkalinity (as CaCO3)	320	20		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.001	0			1	11/20/2014 2:11:00 PM	R22669
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2380	100	*	mg/L	1	11/12/2014 1:18:00 PM	16340

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Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002
Matrix: TRIP BLANK
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Allyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroprene	ND	0.500		µg/L	1	11/13/2014	R22819
Cyclohexane	ND	0.500		µg/L	1	11/13/2014	R22819
Diethyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Diisopropyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Epichlorohydrin	ND	5.00		µg/L	1	11/13/2014	R22819
Ethyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl tert-butyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Freon-113	ND	0.500		µg/L	1	11/13/2014	R22819
Isobutanol	ND	50.0		µg/L	1	11/13/2014	R22819
Isopropyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methacrylonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl ethyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl isobutyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Methylcyclohexane	ND	1.00		µg/L	1	11/13/2014	R22819
n-Amyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
n-Hexane	ND	0.500		µg/L	1	11/13/2014	R22819
Nitrobenzene	ND	5.00		µg/L	1	11/13/2014	R22819
Pentachloroethane	ND	5.00		µg/L	1	11/13/2014	R22819
p-isopropyltoluene	ND	0.500		µg/L	1	11/13/2014	R22819
Propionitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrahydrofuran	ND	0.500		µg/L	1	11/13/2014	R22819
Benzene	ND	0.500		µg/L	1	11/13/2014	R22819
Toluene	ND	0.500		µg/L	1	11/13/2014	R22819
Ethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl tert-butyl ether (MTBE)	ND	10.0		µg/L	1	11/13/2014	R22819
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3,5-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloroethane (EDC)	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromoethane (EDB)	ND	0.500		µg/L	1	11/13/2014	R22819
Naphthalene	ND	0.500		µg/L	1	11/13/2014	R22819
Acetone	5.30	2.50		µg/L	1	11/13/2014	R22819
Bromobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Bromodichloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Bromoform	ND	0.500		µg/L	1	11/13/2014	R22819

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002
Matrix: TRIP BLANK
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon disulfide	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon Tetrachloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroform	ND	0.500		µg/L	1	11/13/2014	R22819
Chloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
4-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromo-3-chloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Dichlorodifluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
2,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
Hexachlorobutadiene	ND	0.500		µg/L	1	11/13/2014	R22819
2-Hexanone	ND	0.500		µg/L	1	11/13/2014	R22819
Isopropylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methylene Chloride	ND	2.50		µg/L	1	11/13/2014	R22819
n-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
n-Propylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
sec-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Styrene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrachloroethene (PCE)	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002 **Matrix:** TRIP BLANK **Received Date:** 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Trichloroethene (TCE)	ND	0.500		µg/L	1	11/13/2014	R22819
Trichlorofluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Xylenes, Total	ND	1.00		µg/L	1	11/13/2014	R22819
mp-Xylenes	ND	1.00		µg/L	1	11/13/2014	R22819
o-Xylene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Amyl methyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butyl alcohol	ND	0.500		µg/L	1	11/13/2014	R22819
Acrolein	ND	0.500		µg/L	1	11/13/2014	R22819
Acrylonitrile	ND	10.0		µg/L	1	11/13/2014	R22819
Bromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chloroethyl vinyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Iodomethane	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,4-Dichloro-2-butene	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dioxane	ND	20.0		µg/L	1	11/13/2014	R22819
Surr: 1,2-Dichlorobenzene-d4	102	70-130		%REC	1	11/13/2014	R22819
Surr: 4-Bromofluorobenzene	94.4	70-130		%REC	1	11/13/2014	R22819
Surr: Toluene-d8	96.4	70-130		%REC	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661019** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661020** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	93.8	66.6	112			
Nitrogen, Nitrite (As N)	0.90	0.10	1.000	0	90.2	67.5	109			
Bromide	2.3	0.10	2.500	0	92.8	82.8	103			
Nitrogen, Nitrate (As N)	2.3	0.10	2.500	0	93.3	84	109			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	91.7	68.8	109			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661041** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661042** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	96.6	66.6	112			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.0	67.5	109			
Bromide	2.4	0.10	2.500	0	96.4	82.8	103			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.1	84	109			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.8	68.8	109			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R22629**	RunNo: **22629**							
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **667493**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R22629**	RunNo: **22629**							
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **667494**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.7	90	110			
Sulfate	9.5	0.50	10.00	0	95.2	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.500								
Allyl chloride	ND	0.500								
Chloroprene	ND	0.500								
Cyclohexane	ND	0.500								
Diethyl ether	ND	0.500								
Diisopropyl ether	ND	0.500								
Epichlorohydrin	ND	0.500								
Ethyl acetate	ND	0.500								
Ethyl methacrylate	ND	0.500								
Ethyl tert-butyl ether	ND	0.500								
Freon-113	ND	0.500								
Isobutanol	ND	0.500								
Isopropyl acetate	ND	0.500								
Methacrylonitrile	ND	0.500								
Methyl acetate	ND	0.500								
Methyl ethyl ketone	ND	2.50								
Methyl isobutyl ketone	ND	2.50								
Methyl methacrylate	ND	0.500								
Methylcyclohexane	ND	0.500								
n-Amyl acetate	ND	0.500								
n-Hexane	ND	0.500								
Nitrobenzene	ND	0.500								
Pentachloroethane	ND	0.500								
p-isopropyltoluene	ND	0.500								
Propionitrile	ND	0.500								
Tetrahydrofuran	ND	0.500								
Benzene	ND	0.500								
Toluene	ND	0.500								
Ethylbenzene	ND	0.500								
Methyl tert-butyl ether (MTBE)	ND	0.500								
1,2,4-Trimethylbenzene	ND	0.500								
1,3,5-Trimethylbenzene	ND	0.500								
1,2-Dichloroethane (EDC)	ND	0.500								
1,2-Dibromoethane (EDB)	ND	0.500								
Naphthalene	ND	0.500								
Acetone	ND	2.50								
Bromobenzene	ND	0.500								
Bromodichloromethane	ND	0.500								
Bromoform	ND	0.500								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.500								
Carbon disulfide	ND	0.500								
Carbon Tetrachloride	ND	0.500								
Chlorobenzene	ND	0.500								
Chloroethane	ND	0.500								
Chloroform	ND	0.500								
Chloromethane	ND	0.500								
2-Chlorotoluene	ND	0.500								
4-Chlorotoluene	ND	0.500								
cis-1,2-DCE	ND	0.500								
cis-1,3-Dichloropropene	ND	0.500								
1,2-Dibromo-3-chloropropane	ND	0.500								
Dibromochloromethane	ND	0.500								
Dibromomethane	ND	0.500								
1,2-Dichlorobenzene	ND	0.500								
1,3-Dichlorobenzene	ND	0.500								
1,4-Dichlorobenzene	ND	0.500								
Dichlorodifluoromethane	ND	0.500								
1,1-Dichloroethane	ND	0.500								
1,1-Dichloroethene	ND	0.500								
1,2-Dichloropropane	ND	0.500								
1,3-Dichloropropane	ND	0.500								
2,2-Dichloropropane	ND	0.500								
1,1-Dichloropropene	ND	0.500								
Hexachlorobutadiene	ND	0.500								
2-Hexanone	ND	0.500								
Isopropylbenzene	ND	0.500								
Methylene Chloride	ND	2.50								
n-Butylbenzene	ND	0.500								
n-Propylbenzene	ND	0.500								
sec-Butylbenzene	ND	0.500								
Styrene	ND	0.500								
tert-Butylbenzene	ND	0.500								
1,1,1,2-Tetrachloroethane	ND	0.500								
1,1,2,2-Tetrachloroethane	ND	0.500								
Tetrachloroethene (PCE)	ND	0.500								
trans-1,2-DCE	ND	0.500								
trans-1,3-Dichloropropene	ND	0.500								
1,2,3-Trichlorobenzene	ND	0.500								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.500								
1,1,1-Trichloroethane	ND	0.500								
1,1,2-Trichloroethane	ND	0.500								
Trichloroethene (TCE)	ND	0.500								
Trichlorofluoromethane	ND	0.500								
1,2,3-Trichloropropane	ND	0.500								
Vinyl chloride	ND	0.500								
Xylenes, Total	ND	1.00								
mp-Xylenes	ND	1.00								
o-Xylene	ND	0.500								
tert-Amyl methyl ether	ND	0.500								
tert-Butyl alcohol	ND	0.500								
Acrolein	ND	0.500								
Acrylonitrile	ND	0.500								
Bromochloromethane	ND	0.500								
2-Chloroethyl vinyl ether	ND	0.500								
Iodomethane	ND	0.500								
trans-1,4-Dichloro-2-butene	ND	0.500								
Vinyl acetate	ND	0.500								
1,4-Dioxane	ND	0.500								
Surr: 1,2-Dichloroethane-d4	0		10.00		0	70	130			S
Surr: 4-Bromofluorobenzene	0		10.00		0	70	130			S
Surr: Toluene-d8	0		10.00		0	70	130			S

Sample ID **LCS-R22819**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673563** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.77		10.00	0	97.7	80	120			
Toluene	10.0		10.00	0	100	80	120			
Ethylbenzene	10.0		10.00	0	100	80	120			
Chlorobenzene	9.99		10.00	0	99.9	80	120			
1,1-Dichloroethene	9.57		10.00	0	95.7	80	120			
Trichloroethene (TCE)	9.91		10.00	0	99.1	80	120			
o-Xylene	10.6		10.00	0	106	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/14/2014**	SeqNo: **676667** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetophenone	ND	10								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/14/2014**	SeqNo: **676667** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	10								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	10								
1,2,4,5-Tetrachlorobenzene	ND	10								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/14/2014**	SeqNo: **676668** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.4		5.000	0	108	49	134			
2-Chlorophenol	4.8		5.000	0	96.4	50	131			
4-Chloro-3-methylphenol	5.8		5.000	0	115	42	139			
4-Nitrophenol	3.9		5.000	0	78.4	19	137			
Acenaphthene	5.3		5.000	0	105	36	122			
Bis(2-ethylhexyl)phthalate	6.0		5.000	0	120	43	142			
N-Nitrosodi-n-propylamine	5.1		5.000	0	102	46	135			
Pentachlorophenol	4.8		5.000	0	95.2	22	138			
Phenol	4.4		5.000	0	88.0	45	134			
Pyrene	5.9		5.000	0	117	45	138			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**MB-16357**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**16357**	RunNo:	**22512**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664165**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-16357**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**16357**	RunNo:	**22512**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664166**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.5	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16358**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **16358**	RunNo: **22521**
Prep Date: **11/12/2014**	Analysis Date: **11/13/2014**	SeqNo: **664178** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-16358**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **16358**	RunNo: **22521**
Prep Date: **11/12/2014**	Analysis Date: **11/13/2014**	SeqNo: **664179** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16345**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663247** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-16345**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663248** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	103	80	120			
Barium	ND	100	0.5000	0	98.9	80	120			
Cadmium	ND	1.0	0.5000	0	99.2	80	120			
Chromium	ND	5.0	0.5000	0	98.1	80	120			
Lead	ND	5.0	0.5000	0	95.2	80	120			
Selenium	ND	1.0	0.5000	0	97.9	80	120			
Silver	ND	5.0	0.1000	0	99.9	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-16345	SampType:	MBLK	TestCode:	EPA 6010B: Total Metals		
Client ID:	PBW	Batch ID:	16345	RunNo:	22489		
Prep Date:	11/11/2014	Analysis Date:	11/12/2014	SeqNo:	663203	Units:	mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID	LCS-16345	SampType:	LCS	TestCode:	EPA 6010B: Total Metals		
Client ID:	LCSW	Batch ID:	16345	RunNo:	22489		
Prep Date:	11/11/2014	Analysis Date:	11/12/2014	SeqNo:	663204	Units:	mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	103	80	120			
Antimony	0.50	0.050	0.5000	0	99.3	80	120			
Arsenic	0.52	0.020	0.5000	0	103	80	120			
Barium	0.49	0.020	0.5000	0	98.9	80	120			
Beryllium	0.52	0.0030	0.5000	0	104	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.2	80	120			
Calcium	51	1.0	50.00	0	102	80	120			
Chromium	0.49	0.0060	0.5000	0	98.1	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.9	80	120			
Copper	0.50	0.0060	0.5000	0	100	80	120			
Iron	0.49	0.050	0.5000	0	98.8	80	120			
Lead	0.48	0.0050	0.5000	0	95.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-16345**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663204** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	50	1.0	50.00	0	100	80	120			
Manganese	0.49	0.0020	0.5000	0	97.2	80	120			
Nickel	0.48	0.010	0.5000	0	95.5	80	120			
Potassium	47	1.0	50.00	0	94.6	80	120			
Selenium	0.49	0.050	0.5000	0	97.9	80	120			
Silver	0.10	0.0050	0.1000	0	99.9	80	120			
Thallium	0.48	0.050	0.5000	0	96.1	80	120			
Vanadium	0.52	0.050	0.5000	0	104	80	120			
Zinc	0.49	0.020	0.5000	0	98.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **677093** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **677094** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.532		0.5000	0	106	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**							
Prep Date:	Analysis Date: **11/21/2014**	SeqNo: **677096**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**							
Prep Date:	Analysis Date: **11/21/2014**	SeqNo: **677097**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663098**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663099**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	99.3	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663121**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663122**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	99.5	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **1411288-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R22669** RunNo: **22669**

Prep Date: Analysis Date: **11/20/2014** SeqNo: **668670** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.0500	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16340**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **16340**	RunNo: **22490**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663255** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-16340**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **16340**	RunNo: **22490**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663256** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1411288 RcptNo: 1

Received by/date: 11/07/14
Logged By: Ashley Gallegos 11/7/2014 9:20:00 AM
Completed By: Ashley Gallegos 11/7/2014 11:25:06 AM
Reviewed By: CS 11/07/14

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☑ No ☑ No VOA Vials ☐ my 11/07/14
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 3 2 (<2 or >12 unless noted)
Adjusted? No
Checked by: my

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks: All VOA's including trip blank have bubbles. my 11/07/14

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Chain of Custody Record

Client: Navajo Refining Co.	☐ Standar ☐ Rush
	Project Name: Quarterly WDW-1, 2, & 3 Inj Well
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Dan Crawford
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler:
	On Ice: X Yes ☐ No
	Sample Temperature: 1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1411283	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
11/6/14	~~9:00~~ 10:30am	Liquid	Trip Blank	2	Neat	-002		X					
11/6/14	~~9:00~~ 10:30am	Liquid	Temperature Blank	1	Neat								

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/6/14	10:30am	Elizabeth Salsberry		11/07/14	0920
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.
pH: 7.30
temp of sample: 44.4°C
Temp: 54°F windspeed 8.1mp
humidity: 43% conditi
wind direction: NNE Cl

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Sampler's Name	Aaron Strange
Sampler's Affiliation	Navajo Refining Co. LLC
Start Date and Time	11/6/2014 @ 10:30
End Date and Time	11/6/2014 @ 10:30

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sample:	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east) ☑ P-856 sample point (third from east)
☐ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

Container	Size	Material	# of Containers	Preservatives: None	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp: 54 humidity:43% wind direction:NNE Wind speed: 8.1 mph condition: clear

Date and Time:

Field Temp. 44.4 C Field pH 7.30

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standar ☐ **Rush**

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:
Dan Crawford

Sampler:

On Ice: ☐ Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4		X						X
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
11/6/14	~~9:00~~ 10:30am	Liquid	Trip Blank	2	Neat			X					
11/6/14	~~9:00~~ 10:30am	Liquid	Temperature Blank	1	Neat								

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/6/14	10:30am	Elizabeth Salsberry			
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.
pH: 7.30
temp of sample: 44.4°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HOLLYFRONTIER

October 27, 2014

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7007 3020 0000 3028 9359

RE: 2014 3rd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1260 psig and the average flows were 105 gpm for WDW-1, 98 gpm for WDW-2 and 106 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2014 to September 30, 2014. We have disposed a total of 976,643 barrels of fluid into the three wells during the third quarter of 2014. The volume per well is:

- 423,882 barrels into WDW-1
- 143,954 barrels into WDW-2
- 408,807 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/3rd quarter/2014-10-27 3rd QTR Inj Rpt for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2014 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	35,238,254
Jul-14	1,241	1,275	970	153	393	140	722	819	179	5,246	13,474	4,800	163,199	35,401,453
Aug-14	1,235	1,275	996	138	144	112	550	769	79	4,731	4,937	3,840	146,646	35,548,099
Sep-14	1,305	1,350	1,273	111	143	76	110	361	0	3,806	4,903	2,606	114,037	35,662,136
WDW-2													**Previous Quarter**	22,198,479
Jul-14	1,241	1,275	983	35	37	11	573	943	265	1,200	1,269	377	37,182	22,235,661
Aug-14	1,235	1,275	1,011	33	37	10	320	402	271	1,131	1,269	343	34,872	22,270,533
Sep-14	1,303	1,350	1,265	70	129	33	285	304	268	2,400	4,423	1,131	71,900	22,342,432
WDW-3													**Previous Quarter**	12,357,942
Jul-14	1,238	1,275	987	128	140	15	914	1,023	260	4,389	4,800	514	136,278	12,494,220
Aug-14	1,239	1,275	1,012	123	137	13	811	935	308	4,217	4,697	446	130,920	12,625,140
Sep-14	1,301	1,350	1,143	138	150	80	782	976	560	4,731	5,143	2,743	141,609	12,766,749
													Total Injected fluids:	70,771,318

T:\Injection Wells\Reports C-115 and Quarterly\2014\3rd quarter\
3rd 2014 qtrly rpt data
Injection fluids

10/24/20142:11 PM

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Navajo Refining Company, L.L.C.

2014 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/1/14	7/7/14	7/14/14	7/22/14	7/28/14	8/4/14	8/11/14	8/18/14	8/26/14	9/3/14	9/8/14	9/15/14	9/22/14	9/29/14
WDW -1[1]	150	145	145	145	145	145	145	145	145	145	145	145	145	145
WDW-2[1]	130	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	145	145	145	145	145	145	145	145	145	145	145	145	145	145
Comments: WDW-2 Minor surface tubing leak identified and repaired week of 7/7.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 09, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1409594

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/12/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1409594**
Date: **10/9/2014**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Fluoride	7.0	2.0	*	mg/L	20	9/13/2014 4:23:10 AM	R21201
Chloride	350	10		mg/L	20	9/13/2014 4:23:10 AM	R21201
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Bromide	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	9/13/2014 4:23:10 AM	R21201
Sulfate	2500	50		mg/L	100	9/19/2014 12:23:58 AM	R21321
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	9/18/2014 1:55:03 PM	15362
MERCURY, TCLP						Analyst: **JLF**	
Mercury	ND	0.020		mg/L	1	9/23/2014 11:17:20 AM	15428
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Barium	ND	100		mg/L	1	9/20/2014 10:20:57 AM	15405
Cadmium	ND	1.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Chromium	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Lead	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Selenium	ND	1.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Silver	ND	5.0		mg/L	1	9/25/2014 12:34:33 PM	15405
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	0.18	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Antimony	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Arsenic	0.061	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Barium	0.022	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Beryllium	ND	0.0030		mg/L	1	9/20/2014 9:40:32 AM	15405
Cadmium	ND	0.0020		mg/L	1	9/20/2014 9:40:32 AM	15405
Calcium	80	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Chromium	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Cobalt	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Copper	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Iron	0.50	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Lead	ND	0.0050		mg/L	1	9/20/2014 9:40:32 AM	15405
Magnesium	28	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Manganese	0.21	0.0020		mg/L	1	9/20/2014 9:40:32 AM	15405
Nickel	0.012	0.010		mg/L	1	9/20/2014 9:40:32 AM	15405
Potassium	58	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Selenium	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	9/23/2014 1:35:48 PM	15405
Thallium	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Titanium	ND	0.0050		mg/L	1	9/20/2014 9:40:32 AM	15405
Silica	9.8	1.1		mg/L	1	9/20/2014 9:40:32 AM	15405
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	73	0.50		µg/L	1	9/24/2014	R21755
Allyl chloride	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroprene	ND	0.50		µg/L	1	9/24/2014	R21755
Cyclohexane	ND	0.50		µg/L	1	9/24/2014	R21755
Diethyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Diisopropyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Epichlorohydrin	ND	5.0		µg/L	1	9/24/2014	R21755
Ethyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Ethyl methacrylate	ND	0.50		µg/L	1	9/24/2014	R21755
Ethyl tert-butyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Freon-113	ND	0.50		µg/L	1	9/24/2014	R21755
Isobutanol	ND	50		µg/L	1	9/24/2014	R21755
Isopropyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Methacrylonitrile	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl ethyl ketone	ND	2.5		µg/L	1	9/24/2014	R21755
Methyl isobutyl ketone	ND	2.5		µg/L	1	9/24/2014	R21755
Methyl methacrylate	ND	0.50		µg/L	1	9/24/2014	R21755
Methylcyclohexane	ND	1.0		µg/L	1	9/24/2014	R21755
n-Amyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
n-Hexane	ND	0.50		µg/L	1	9/24/2014	R21755
Nitrobenzene	ND	5.0		µg/L	1	9/24/2014	R21755
Pentachloroethane	ND	5.0		µg/L	1	9/24/2014	R21755
p-isopropyltoluene	ND	0.50		µg/L	1	9/24/2014	R21755
Propionitrile	0.97	0.50		µg/L	1	9/24/2014	R21755
Tetrahydrofuran	ND	0.50		µg/L	1	9/24/2014	R21755
Benzene	ND	0.50		µg/L	1	9/24/2014	R21755
Toluene	ND	0.50		µg/L	1	9/24/2014	R21755
Ethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	9/24/2014	R21755
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	9/24/2014	R21755

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Naphthalene	ND	0.50		µg/L	1	9/24/2014	R21755
Acetone	18	2.5		µg/L	1	9/24/2014	R21755
Bromobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Bromodichloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
Bromoform	ND	0.50		µg/L	1	9/24/2014	R21755
Bromomethane	ND	0.50		µg/L	1	9/24/2014	R21755
Carbon disulfide	0.56	0.50		µg/L	1	9/24/2014	R21755
Carbon Tetrachloride	ND	0.50		µg/L	1	9/24/2014	R21755
Chlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroform	ND	0.50		µg/L	1	9/24/2014	R21755
Chloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
2-Chlorotoluene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Chlorotoluene	ND	0.50		µg/L	1	9/24/2014	R21755
cis-1,2-DCE	ND	0.50		µg/L	1	9/24/2014	R21755
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
Dibromochloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
Dibromomethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,3-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,4-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Dichlorodifluoromethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloroethene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
1,3-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
2,2-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
Hexachlorobutadiene	ND	0.50		µg/L	1	9/24/2014	R21755
2-Hexanone	ND	0.50		µg/L	1	9/24/2014	R21755
Isopropylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Isopropyltoluene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Methyl-2-pentanone	ND	0.50		µg/L	1	9/24/2014	R21755
Methylene Chloride	ND	2.5		µg/L	1	9/24/2014	R21755
n-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
n-Propylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
sec-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Styrene	ND	0.50		µg/L	1	9/24/2014	R21755

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
tert-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,2-DCE	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,1-Trichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,2-Trichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Trichloroethene (TCE)	ND	0.50		µg/L	1	9/24/2014	R21755
Trichlorofluoromethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,3-Trichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
Vinyl chloride	ND	0.50		µg/L	1	9/24/2014	R21755
Xylenes, Total	ND	1.0		µg/L	1	9/24/2014	R21755
mp-Xylenes	ND	1.0		µg/L	1	9/24/2014	R21755
o-Xylene	ND	0.50		µg/L	1	9/24/2014	R21755
tert-Amyl methyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
tert-Butyl alcohol	23	0.50		µg/L	1	9/24/2014	R21755
Acrolein	ND	0.50		µg/L	1	9/24/2014	R21755
Acrylonitrile	ND	10		µg/L	1	9/24/2014	R21755
Bromochloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Iodomethane	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	9/24/2014	R21755
Vinyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
1,4-Dioxane	ND	20		µg/L	1	9/24/2014	R21755
Surr: 1,2-Dichloroethane-d4	110	70-130		%REC	1	9/24/2014	R21755
Surr: 4-Bromofluorobenzene	99.6	70-130		%REC	1	9/24/2014	R21755
Surr: Toluene-d8	104	70-130		%REC	1	9/24/2014	R21755
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	9/23/2014	R21755
Atrazine	ND	5.0		µg/L	1	9/23/2014	R21755
Benzaldehyde	ND	5.0		µg/L	1	9/23/2014	R21755
Caprolactam	ND	5.0		µg/L	1	9/23/2014	R21755
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	9/23/2014	R21755
Acetophenone	ND	10		µg/L	1	9/23/2014	R21755
1-Methylnaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	9/23/2014	R21755

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
2,4,5-Trichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4,6-Trichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dimethylphenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dinitrophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dinitrotoluene	ND	10		µg/L	1	9/23/2014	R21755
2,6-Dinitrotoluene	ND	10		µg/L	1	9/23/2014	R21755
2-Chloronaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2-Chlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2-Methylnaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2-Methylphenol	ND	10		µg/L	1	9/23/2014	R21755
2-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
2-Nitrophenol	ND	10		µg/L	1	9/23/2014	R21755
3,3'-Dichlorobenzidine	ND	10		µg/L	1	9/23/2014	R21755
3-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	9/23/2014	R21755
4-Bromophenyl phenyl ether	ND	10		µg/L	1	9/23/2014	R21755
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/23/2014	R21755
4-Chloroaniline	ND	10		µg/L	1	9/23/2014	R21755
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	9/23/2014	R21755
4-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
4-Nitrophenol	ND	10		µg/L	1	9/23/2014	R21755
Acenaphthene	ND	10		µg/L	1	9/23/2014	R21755
Acenaphthylene	ND	10		µg/L	1	9/23/2014	R21755
Anthracene	ND	10		µg/L	1	9/23/2014	R21755
Benzo(g,h,i)perylene	ND	10		µg/L	1	9/23/2014	R21755
Benz(a)anthracene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(a)pyrene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(b)fluoranthene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(k)fluoranthene	ND	0.10		µg/L	1	9/23/2014	R21755
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-chloroethyl)ether	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/23/2014	R21755
Butyl benzyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Carbazole	ND	10		µg/L	1	9/23/2014	R21755
Chrysene	ND	0.10		µg/L	1	9/23/2014	R21755
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	9/23/2014	R21755
Dibenzofuran	ND	10		µg/L	1	9/23/2014	R21755

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Diethyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Dimethyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Di-n-butyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Di-n-octyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Fluoranthene	ND	10		µg/L	1	9/23/2014	R21755
Fluorene	ND	10		µg/L	1	9/23/2014	R21755
Hexachlorobenzene	ND	1.0		µg/L	1	9/23/2014	R21755
Hexachlorobutadiene	ND	10		µg/L	1	9/23/2014	R21755
Hexachlorocyclopentadiene	ND	10		µg/L	1	9/23/2014	R21755
Hexachloroethane	ND	10		µg/L	1	9/23/2014	R21755
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	9/23/2014	R21755
Isophorone	ND	10		µg/L	1	9/23/2014	R21755
Naphthalene	ND	10		µg/L	1	9/23/2014	R21755
Nitrobenzene	ND	10		µg/L	1	9/23/2014	R21755
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	9/23/2014	R21755
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	9/23/2014	R21755
Pentachlorophenol	ND	10		µg/L	1	9/23/2014	R21755
Phenanthrene	ND	10		µg/L	1	9/23/2014	R21755
Phenol	ND	5.0		µg/L	1	9/23/2014	R21755
Pyrene	ND	10		µg/L	1	9/23/2014	R21755
o-Toluidine	ND	5.0		µg/L	1	9/23/2014	R21755
Pyridine	ND	5.0		µg/L	1	9/23/2014	R21755
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	9/23/2014	R21755
Surr: 2,4,6-Tribromophenol	80.2	10-123		%REC	1	9/23/2014	R21755
Surr: 2-Fluorobiphenyl	100	19-130		%REC	1	9/23/2014	R21755
Surr: 2-Fluorophenol	77.0	21-110		%REC	1	9/23/2014	R21755
Surr: Nitrobenzene-d5	91.2	25-130		%REC	1	9/23/2014	R21755
Surr: Phenol-d5	94.4	10-125		%REC	1	9/23/2014	R21755
Surr: Terphenyl-d14	39.9	33-141		%REC	1	9/23/2014	R21755
CORROSIVITY							Analyst: **SUB**
pH	6.61			pH Units	1	9/18/2014	R21755
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	9/24/2014	R21755
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	9/25/2014	R21755
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	9/30/2014	R21755

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5400	0.010		µmhos/cm	1	9/19/2014 8:48:13 PM	R21338
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	120	20		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
Total Alkalinity (as CaCO3)	120	20		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
SPECIFIC GRAVITY						Analyst: **SRM**	
Specific Gravity	1.001	0			1	9/23/2014 4:39:00 PM	R21384
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4700	20.0	*	mg/L	1	9/17/2014 10:23:00 AM	15289

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617354** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.9	0.50	5.000	0	97.9	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	97.0	90	110			
Bromide	2.4	0.10	2.500	0	96.4	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	103	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617410** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617411** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	103	90	110			
Chloride	4.7	0.50	5.000	0	94.7	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.9	90	110			
Bromide	2.4	0.10	2.500	0	96.7	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617411** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.1	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.5	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21321**	RunNo: **21321**
Prep Date:	Analysis Date: **9/18/2014**	SeqNo: **622134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21321**	RunNo: **21321**
Prep Date:	Analysis Date: **9/18/2014**	SeqNo: **622135** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.6	0.50	10.00	0	96.2	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	0.50								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	50								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Methylcyclohexane	ND	1.0								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	5.0								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	0.50								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	10								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
4-Isopropyltoluene	ND	0.50								
4-Methyl-2-pentanone	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
Xylenes, Total	ND	1.0								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	10								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	20								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638769** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.9		10.00	0	99.2	80	120			
Toluene	10		10.00	0	102	80	120			
Ethylbenzene	10		10.00	0	99.6	80	120			
Chlorobenzene	9.9		10.00	0	99.3	80	120			
1,1-Dichloroethene	9.2		10.00	0	91.9	80	120			
Tetrachloroethene (PCE)	9.8		10.00	0	98.4	80	120			
Trichloroethene (TCE)	9.5		10.00	0	95.2	80	120			
o-Xylene	10		10.00	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638842** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	10								
Atrazine	ND	10								
Caprolactam	ND	10								
N-Nitroso-di-n-butylamine	ND	10								
Acetophenone	ND	10								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638842** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	10								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	10								
o-Toluidine	ND	10								
Pyridine	ND	10								
1,2,4,5-Tetrachlorobenzene	ND	10								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638843** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	3.1		5.000	0	61.2	49	134			
2-Chlorophenol	3.4		5.000	0	67.6	50	131			
4-Chloro-3-methylphenol	3.3		5.000	0	66.4	42	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638843** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Nitrophenol	2.6		5.000	0	53.0	19	137			
Acenaphthene	4.0		5.000	0	79.6	36	122			
Bis(2-ethylhexyl)phthalate	3.9		5.000	0	78.2	43	142			
N-Nitrosodi-n-propylamine	4.1		5.000	0	82.0	46	135			
Pentachlorophenol	2.5		5.000	0	49.6	22	138			
Phenol	3.7		5.000	0	73.4	45	134			
Pyrene	3.6		5.000	0	73.0	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-15362	SampType:	MBLK		TestCode:	EPA Method 7470: Mercury				
Client ID:	PBW	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621116	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-15362	SampType:	LCS		TestCode:	EPA Method 7470: Mercury				
Client ID:	LCSW	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621117	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	105	80	120			

Sample ID	1409594-001BMS	SampType:	MS		TestCode:	EPA Method 7470: Mercury				
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621119	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	100	75	125			

Sample ID	1409594-001BMSD	SampType:	MSD		TestCode:	EPA Method 7470: Mercury				
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621120	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	101	75	125	0.392	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15428**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **15428**	RunNo: **21367**							
Prep Date: **9/22/2014**	Analysis Date: **9/23/2014**	SeqNo: **623963**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-15428**	SampType: **LCS**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSW**	Batch ID: **15428**	RunNo: **21367**							
Prep Date: **9/22/2014**	Analysis Date: **9/23/2014**	SeqNo: **623964**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.4	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **626611** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **626612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	106	80	120			
Barium	ND	100	0.5000	0	101	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	100	80	120			
Lead	ND	5.0	0.5000	0	98.6	80	120			
Selenium	ND	1.0	0.5000	0	104	80	120			

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **626633** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	5.0								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **626634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	5.0	0.1000	0	104	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409594

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622303** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Thallium	ND	0.050								
Titanium	ND	0.0050								
Silica	ND	1.1								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.57	0.020	0.5000	0	114	80	120			
Antimony	0.50	0.050	0.5000	0	100	80	120			
Arsenic	0.53	0.020	0.5000	0	106	80	120			
Barium	0.50	0.020	0.5000	0	101	80	120			
Beryllium	0.53	0.0030	0.5000	0	106	80	120			
Cadmium	0.51	0.0020	0.5000	0	102	80	120			
Calcium	52	1.0	50.00	0	105	80	120			
Chromium	0.50	0.0060	0.5000	0	100	80	120			
Cobalt	0.49	0.0060	0.5000	0	97.9	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.51	0.050	0.5000	0	101	80	120			
Lead	0.49	0.0050	0.5000	0	98.6	80	120			
Magnesium	52	1.0	50.00	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.50	0.0020	0.5000	0	100	80	120			
Nickel	0.49	0.010	0.5000	0	98.7	80	120			
Potassium	49	1.0	50.00	0	98.1	80	120			
Selenium	0.52	0.050	0.5000	0	104	80	120			
Thallium	0.49	0.050	0.5000	0	97.7	80	120			
Titanium	0.52	0.0050	0.5000	0	104	80	120			
Silica	5.6	1.1	5.350	0	104	80	120			

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **624518** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.0050								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **624519** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.10	0.0050	0.1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/25/2014**	SeqNo: **639462** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/25/2014**	SeqNo: **639463** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.487		0.5000	0	97.4	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**MB-R21755**	SampType:	**MBLK**	TestCode:	**SULFIDE, Reactive**				
Client ID:	**PBW**	Batch ID:	**R21755**	RunNo:	**21755**				
Prep Date:		Analysis Date:	**9/30/2014**	SeqNo:	**639465**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID	**LCS-R21755**	SampType:	**LCS**	TestCode:	**SULFIDE, Reactive**				
Client ID:	**LCSW**	Batch ID:	**R21755**	RunNo:	**21755**				
Prep Date:		Analysis Date:	**9/30/2014**	SeqNo:	**639466**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.16		0.2000	0	80.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622910**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622911**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	99.6	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622914**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622915**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	81	20	80.00	0	102	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**1409594-001ADUP**	SampType:	**DUP**	TestCode:	**Specific Gravity**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**R21384**	RunNo:	**21384**					
Prep Date:		Analysis Date:	**9/23/2014**	SeqNo:	**624495**	Units:				

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.000	0						0.110	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15289**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **15289**	RunNo: **21253**
Prep Date: **9/15/2014**	Analysis Date: **9/17/2014**	SeqNo: **619558** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-15289**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **15289**	RunNo: **21253**
Prep Date: **9/15/2014**	Analysis Date: **9/17/2014**	SeqNo: **619559** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1409594 RcptNo: 1

Received by/date: 09/12/14

Logged By: Lindsay Mangin 9/12/2014 9:45:00 AM

Completed By: Lindsay Mangin 9/12/2014 10:09:46 AM

Reviewed By: 09/12/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 2 (2) (<2 or >12 unless noted)

Adjusted? no

Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain of Custody Record

Client: Navajo Refining Co.	☐ Standar ☐ Rush
	Project Name:
Mailing Address: P.O. Box 159 Artesia,	Quarterly WDW-1, 2, & 3 Inj Well
NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager:
QA/QC Package:	Dan Crawford
☐ Standard ☐ Level 4 (Full Validation)	Sampler: Steven URBAN
☐ Other _____	On Ice: ☑ Yes ☐ No
☐ EDD (Type) _____	Sample Temperature: 2.5 + 0.2 = 2.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1409592	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
~~9/11/14~~	~~9:30~~	Liquid	Trip Blank	~~2~~	~~Neat~~	-002	CS 09/12/14	X					
9/11/14	9:30	Liquid	Temperature Blank	1	Neat	-							

Date:	Time:	Relinquished by:	Received by:	Date	Time
9-11-14	10:08	Steven URBAN		09/12/14	0945
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.

The trip blank sample was not recieved.
—CS 09/12/14

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Page 4164 of 5828

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Steven Urban
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	9/11/2014 @ 9:58
End Date and Time	9/11/2014 @ 10:08

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east) ☐ P-856 sample point (third from east)
☐ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): 6/11/2014 08:51 Tmp. 72.0, Humidity 68%, Wind Dir. SE, Wind Speed 8.1 mph, Conditions Overcast
Date and Time:

Field Temp. 113 °F Field pH 6.48

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

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HOLLYFRONTIER.

July 30, 2014

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7007 3020 0000 3028 8413

RE: 2014 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1180 psig and the average flows were 134 gpm for WDW-1, 132 gpm for WDW-2 and 111 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS) although minor above ground tubing leaks at two of the wells were identified and repaired. The quarterly effluent analyses indicated parameters are within limits.

This report covers the period from April 1, 2014 to June 30, 2014. We have disposed a total of 1,179,825 barrels of fluid into the three wells during the second quarter of 2014. The volume per well is:

- 421,136 barrels into WDW-1
- 412,743 barrels into WDW-2
- 345,946 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): D Crawford, R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/2nd quarter/2014-07-31 2nd QTR Inj Rpt for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2014 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	34,814,372
Apr-14	1,198	1,226	1,138	136	140	129	335	483	202	4,663	4,800	4,423	140,351	34,954,723
May-14	1,173	1,250	947	133	147	115	508	874	189	4,560	5,040	3,943	141,827	35,096,550
Jun-14	1,194	1,261	972	135	144	121	746	993	232	4,629	4,937	4,149	138,958	35,235,507
WDW-2													**Previous Quarter**	22,054,526
Apr-14	1,192	1,226	1,109	211	347	109	477	630	241	7,234	11,897	3,737	216,878	22,271,404
May-14	1,163	1,248	958	98	121	34	662	1,251	198	3,360	4,149	1,166	103,840	22,375,244
Jun-14	1,206	1,265	1,155	89	116	32	537	1,018	146	3,051	3,977	1,097	92,025	22,467,269
WDW-3													**Previous Quarter**	11,949,135
Apr-14	1,176	1,225	1,100	119	133	96	462	698	268	4,080	4,560	3,291	122,621	12,071,756
May-14	1,139	1,250	961	100	140	11	519	999	226	3,429	4,800	377	106,412	12,178,167
Jun-14	1,184	1,248	989	114	133	27	572	876	267	3,909	4,560	926	116,913	12,295,081
													Total Injected fluids:	69,997,857

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Navajo Refining Company, L.L.C.

2014 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/7/14	4/14/14	4/22/14	4/28/14	5/5/14	5/16/14	5/23/14	5/29/14	6/2/14	6/9/14	6/17/14	6/25/14		
WDW -1[1]	145	145	145	145	145	140	140	135	130	125	100	100		
WDW-2[1]	150	150	150	150	150	145	145	145	145	145	145	130		
WDW-3[1]	145	145	145	145	145	145	145	145	145	145	145	145		
Comments: 6/9/14 small tubing leak at WDW-1 reported and repaired. 6/17/14 a second tubing leak at WDW-1 was reported and repaired. 6/25/14 small tubing leak at WDW-2 reported and repaired.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

N:\Injection Wells\Reports C-115 and Quarterly\2014\2nd quarter\
2nd 2014 qtrly rpt data
WAMS Tanks

7/30/20148:43 AM

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Aaron Strange
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	6/19/2014 @ 09:25
End Date and Time	6/19/2014 @ 09:35

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Parts / Sample Intervals	One

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): 6/19/2014 09:35 Tmp. 77.0, Humidity 61%, Wind Dir. N, Wind Speed 10.4 mph, Conditions Clear
Date and Time:

Field Temp. 116.6°F Field pH 7.37

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 17, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: WDW-1, 2, & 3 Qtrly Inj Well OrderNo.: 1406935

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/19/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

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Case Narrative

WO#: **1406935**
Date: **7/17/2014**

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	28	2.0	*	mg/L	20	6/19/2014 5:43:17 PM	R19410
Chloride	290	10		mg/L	20	6/19/2014 5:43:17 PM	R19410
Nitrogen, Nitrite (As N)	1.5	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Bromide	0.72	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	6/19/2014 5:30:53 PM	R19410
Sulfate	2600	50		mg/L	100	7/7/2014 4:18:15 PM	R19725
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	6/26/2014 9:07:50 AM	13883
MERCURY, TCLP						Analyst: **MMD**	
Mercury	ND	0.020		mg/L	1	7/8/2014 12:50:03 PM	14082
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Barium	ND	100		mg/L	1	7/8/2014 12:02:28 PM	14080
Cadmium	ND	1.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Chromium	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Lead	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Selenium	ND	1.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Silver	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	1.2	0.020		mg/L	1	7/11/2014 10:29:51 AM	14172
Antimony	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Arsenic	0.027	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
Barium	ND	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
Beryllium	ND	0.0030		mg/L	1	7/7/2014 12:25:17 PM	14075
Cadmium	ND	0.0020		mg/L	1	7/7/2014 12:25:17 PM	14075
Calcium	27	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Chromium	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Cobalt	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Copper	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Iron	0.21	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Lead	ND	0.0050		mg/L	1	7/7/2014 12:25:17 PM	14075
Magnesium	9.2	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Manganese	0.032	0.0020		mg/L	1	7/7/2014 12:25:17 PM	14075
Nickel	ND	0.010		mg/L	1	7/7/2014 12:25:17 PM	14075
Potassium	69	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Selenium	0.069	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	7/7/2014 12:25:17 PM	14075
Sodium	1200	20		mg/L	20	7/7/2014 12:31:46 PM	14075
Thallium	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Vanadium	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Zinc	ND	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Ethyl tert-butyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Acetonitrile	ND	0.50		µg/L	1	6/26/2014	R19890
Allyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroprene	ND	0.50		µg/L	1	6/26/2014	R19890
Cyclohexane	ND	2.5		µg/L	1	6/26/2014	R19890
Diethyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Diisopropyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Epichlorohydrin	ND	5.0		µg/L	1	6/26/2014	R19890
Ethyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Ethyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Freon-113	ND	0.50		µg/L	1	6/26/2014	R19890
Isobutanol	ND	50		µg/L	1	6/26/2014	R19890
Isopropyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methacrylonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl ethyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl isobutyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Methylcyclohexane	ND	1.0		µg/L	1	6/26/2014	R19890
n-Amyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
n-Hexane	ND	0.50		µg/L	1	6/26/2014	R19890
Nitrobenzene	ND	5.0		µg/L	1	6/26/2014	R19890
Pentachloroethane	ND	5.0		µg/L	1	6/26/2014	R19890
p-isopropyltoluene	ND	0.50		µg/L	1	6/26/2014	R19890
Propionitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Tetrahydrofuran	ND	0.50		µg/L	1	6/26/2014	R19890
Benzene	0.64	0.50		µg/L	1	6/26/2014	R19890
Toluene	ND	0.50		µg/L	1	6/26/2014	R19890
Ethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	6/26/2014	R19890
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	6/26/2014	R19890
Naphthalene	ND	0.50		µg/L	1	6/26/2014	R19890
Acetone	15	2.5		µg/L	1	6/26/2014	R19890
Bromobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Bromodichloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Bromoform	ND	0.50		µg/L	1	6/26/2014	R19890
Bromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon disulfide	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon Tetrachloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroform	ND	0.50		µg/L	1	6/26/2014	R19890
Chloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
4-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Dichlorodifluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
2,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
Hexachlorobutadiene	ND	0.50		µg/L	1	6/26/2014	R19890
2-Hexanone	ND	0.50		µg/L	1	6/26/2014	R19890
Isopropylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methylene Chloride	ND	2.5		µg/L	1	6/26/2014	R19890
n-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
n-Propylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
sec-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Styrene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/26/2014	R19890
Trichlorofluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
mp-Xylenes	ND	1.0		µg/L	1	6/26/2014	R19890
o-Xylene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Amyl methyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butyl alcohol	ND	10		µg/L	1	6/26/2014	R19890
Acrolein	ND	2.5		µg/L	1	6/26/2014	R19890
Acrylonitrile	ND	10		µg/L	1	6/26/2014	R19890
Bromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	6/26/2014	R19890
Iodomethane	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dioxane	ND	20		µg/L	1	6/26/2014	R19890
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	6/26/2014	R19890
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	6/26/2014	R19890
Surr: Toluene-d8	101	70-130		%REC	1	6/26/2014	R19890
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	0.10		µg/L	1	6/26/2014	R19935
Atrazine	ND	0.10		µg/L	1	6/26/2014	R19935
Benzaldehyde	ND	0.10		µg/L	1	6/26/2014	R19935
Caprolactam	ND	0.10		µg/L	1	6/26/2014	R19935
N-Nitroso-di-n-butylamine	ND	0.10		µg/L	1	6/26/2014	R19935
Acetophenone	ND	10		µg/L	1	6/26/2014	R19935
1-Methylnaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4,5-Trichlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4,6-Trichlorophenol	ND	10		µg/L	1	6/26/2014	R19935

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
2,4-Dichlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dimethylphenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dinitrophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dinitrotoluene	ND	10		µg/L	1	6/26/2014	R19935
2,6-Dinitrotoluene	ND	10		µg/L	1	6/26/2014	R19935
2-Chloronaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2-Chlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2-Methylnaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2-Methylphenol	ND	10		µg/L	1	6/26/2014	R19935
2-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
2-Nitrophenol	ND	10		µg/L	1	6/26/2014	R19935
3,3'-Dichlorobenzidine	ND	10		µg/L	1	6/26/2014	R19935
3-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	6/26/2014	R19935
4-Bromophenyl phenyl ether	ND	10		µg/L	1	6/26/2014	R19935
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/26/2014	R19935
4-Chloroaniline	ND	10		µg/L	1	6/26/2014	R19935
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	6/26/2014	R19935
4-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
4-Nitrophenol	ND	10		µg/L	1	6/26/2014	R19935
Acenaphthene	ND	10		µg/L	1	6/26/2014	R19935
Acenaphthylene	ND	10		µg/L	1	6/26/2014	R19935
Anthracene	ND	10		µg/L	1	6/26/2014	R19935
Benzo(g,h,i)perylene	ND	10		µg/L	1	6/26/2014	R19935
Benz(a)anthracene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(a)pyrene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(b)fluoranthene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(k)fluoranthene	ND	0.10		µg/L	1	6/26/2014	R19935
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-chloroethyl)ether	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/26/2014	R19935
Butyl benzyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Carbazole	ND	10		µg/L	1	6/26/2014	R19935
Chrysene	ND	0.10		µg/L	1	6/26/2014	R19935
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	6/26/2014	R19935
Dibenzofuran	ND	10		µg/L	1	6/26/2014	R19935
Diethyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Dimethyl phthalate	ND	10		µg/L	1	6/26/2014	R19935

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Di-n-butyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Di-n-octyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Fluoranthene	ND	10		µg/L	1	6/26/2014	R19935
Fluorene	ND	10		µg/L	1	6/26/2014	R19935
Hexachlorobenzene	ND	1.0		µg/L	1	6/26/2014	R19935
Hexachlorobutadiene	ND	10		µg/L	1	6/26/2014	R19935
Hexachlorocyclopentadiene	ND	10		µg/L	1	6/26/2014	R19935
Hexachloroethane	ND	10		µg/L	1	6/26/2014	R19935
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	6/26/2014	R19935
Isophorone	ND	10		µg/L	1	6/26/2014	R19935
Naphthalene	ND	10		µg/L	1	6/26/2014	R19935
Nitrobenzene	ND	10		µg/L	1	6/26/2014	R19935
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	6/26/2014	R19935
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	6/26/2014	R19935
Pentachlorophenol	ND	10		µg/L	1	6/26/2014	R19935
Phenanthrene	ND	10		µg/L	1	6/26/2014	R19935
Phenol	ND	5.0		µg/L	1	6/26/2014	R19935
Pyrene	ND	10		µg/L	1	6/26/2014	R19935
o-Toluidine	ND	0.10		µg/L	1	6/26/2014	R19935
Pyridine	ND	0.10		µg/L	1	6/26/2014	R19935
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	6/26/2014	R19935
Surr: 2,4,6-Tribromophenol	101	10-123		%REC	1	6/26/2014	R19935
Surr: 2-Fluorobiphenyl	102	19-130		%REC	1	6/26/2014	R19935
Surr: 2-Fluorophenol	76.2	21-110		%REC	1	6/26/2014	R19935
Surr: Nitrobenzene-d5	91.1	25-130		%REC	1	6/26/2014	R19935
Surr: Phenol-d5	79.3	10-125		%REC	1	6/26/2014	R19935
Surr: Terphenyl-d14	92.2	33-141		%REC	1	6/26/2014	R19935
CORROSIVITY							Analyst: **SUB**
pH	7.90		H	pH Units	1	7/2/2014	R19940
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	7/7/2014	R19940
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	7/2/2014	R19940
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	6/26/2014	R19940
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**
Conductivity	6000	0.010		µmhos/cm	1	6/23/2014 3:26:39 PM	R19484

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.91	1.68	H	pH units	1	6/23/2014 3:26:39 PM	R19484
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	290	20		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
Total Alkalinity (as CaCO3)	290	20		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
SPECIFIC GRAVITY						Analyst: **SRM**	
Specific Gravity	1.003	0			1	6/30/2014 10:37:00 AM	R19574
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4440	40.0	*	mg/L	1	6/23/2014 11:26:00 AM	13798

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2.
RL	Reporting Detection Limit

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: WDW-1, 2, & 3 Qtrly Inj Well
Collection Date:
Lab ID: 1406935-002 **Matrix:** TRIP BLANK **Received Date:** 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl tert-butyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Acetonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Allyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroprene	ND	0.50		µg/L	1	6/26/2014	R19890
Cyclohexane	ND	0.50		µg/L	1	6/26/2014	R19890
Diethyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Diisopropyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Epichlorohydrin	ND	5.0		µg/L	1	6/26/2014	R19890
Ethyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Ethyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Freon-113	ND	0.50		µg/L	1	6/26/2014	R19890
Isobutanol	ND	50		µg/L	1	6/26/2014	R19890
Isopropyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methacrylonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl ethyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl isobutyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Methylcyclohexane	ND	1.0		µg/L	1	6/26/2014	R19890
n-Amyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
n-Hexane	ND	0.50		µg/L	1	6/26/2014	R19890
Nitrobenzene	ND	5.0		µg/L	1	6/26/2014	R19890
Pentachloroethane	ND	5.0		µg/L	1	6/26/2014	R19890
p-isopropyltoluene	ND	0.50		µg/L	1	6/26/2014	R19890
Propionitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Tetrahydrofuran	ND	0.50		µg/L	1	6/26/2014	R19890
Benzene	ND	0.50		µg/L	1	6/26/2014	R19890
Toluene	ND	0.50		µg/L	1	6/26/2014	R19890
Ethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	6/26/2014	R19890
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	6/26/2014	R19890
Naphthalene	ND	0.50		µg/L	1	6/26/2014	R19890
Acetone	ND	2.5		µg/L	1	6/26/2014	R19890
Bromobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Bromodichloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Bromoform	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-002 **Matrix:** TRIP BLANK

Client Sample ID: Trip Blank
Collection Date:
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon disulfide	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon Tetrachloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroform	ND	0.50		µg/L	1	6/26/2014	R19890
Chloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
4-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Dichlorodifluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
2,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
Hexachlorobutadiene	ND	0.50		µg/L	1	6/26/2014	R19890
2-Hexanone	ND	0.50		µg/L	1	6/26/2014	R19890
Isopropylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methylene Chloride	ND	2.5		µg/L	1	6/26/2014	R19890
n-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
n-Propylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
sec-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Styrene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890

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Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: WDW-1, 2, & 3 Qtrly Inj Well
Collection Date:
Lab ID: 1406935-002 **Matrix:** TRIP BLANK **Received Date:** 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/26/2014	R19890
Trichlorofluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
mp-Xylenes	ND	1.0		µg/L	1	6/26/2014	R19890
o-Xylene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Amyl methyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butyl alcohol	ND	0.50		µg/L	1	6/26/2014	R19890
Acrolein	ND	0.50		µg/L	1	6/26/2014	R19890
Acrylonitrile	ND	10		µg/L	1	6/26/2014	R19890
Bromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Iodomethane	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dioxane	ND	20		µg/L	1	6/26/2014	R19890
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	6/26/2014	R19890
Surr: 4-Bromofluorobenzene	102	70-130		%REC	1	6/26/2014	R19890
Surr: Toluene-d8	99.6	70-130		%REC	1	6/26/2014	R19890

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561477** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.4	0.10	1.600	0	90.3	90	110			
Chloride	7.8	0.50	8.000	0	96.9	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	99.5	90	110			
Bromide	7.9	0.10	8.000	0	98.4	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	97.4	90	110			

Sample ID **MB** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561479** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561480** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	94.3	90	110			
Chloride	4.7	0.50	5.000	0	94.8	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.7	90	110			
Bromide	2.4	0.10	2.500	0	96.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.8	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.6	90	110			

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561489** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	95.4	90	110			
Chloride	12	0.50	12.00	0	102	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	90	110			
Bromide	12	0.10	12.00	0	100	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561489**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561501**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.94	0.10	1.000	0	93.7	90	110			
Chloride	4.6	0.50	5.000	0	92.9	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	97.9	90	110			
Bromide	4.8	0.10	5.000	0	96.0	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.7	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.8	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561513**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.10	1.600	0	96.1	90	110			
Chloride	7.8	0.50	8.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)	3.1	0.10	3.200	0	98.3	90	110			
Bromide	7.6	0.10	8.000	0	95.3	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.7	0.50	8.000	0	96.6	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561525**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	97.8	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.8	0.10	4.800	0	101	90	110			
Bromide	12	0.10	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	107	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561529** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561530** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	101	90	110			
Chloride	4.8	0.50	5.000	0	96.1	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	97.0	90	110			
Bromide	2.5	0.10	2.500	0	99.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.0	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561537** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.96	0.10	1.000	0	95.6	90	110			
Chloride	4.7	0.50	5.000	0	93.1	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	98.8	90	110			
Bromide	4.8	0.10	5.000	0	96.5	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.9	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.0	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561549** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.10	1.600	0	96.4	90	110			
Chloride	7.8	0.50	8.000	0	97.5	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	100	90	110			
Bromide	7.8	0.10	8.000	0	98.0	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561549**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			
Phosphorus, Orthophosphate (As P	7.9	0.50	8.000	0	98.2	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561555**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	97.5	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	90	110			
Bromide	12	0.10	12.00	0	99.7	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	107	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572917**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	30	0.50	30.00	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572919**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572920**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.3	0.50	10.00	0	93.5	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572929**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	94.3	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572941**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.2	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572953**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	31	0.50	30.00	0	102	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572968**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	95.2	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572970**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572971**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.5	0.50	10.00	0	95.0	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572980**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.6	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **572992**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	30	0.50	30.00	0	102	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **573004**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	94.7	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **573016**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.9	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19890**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578052** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Ethyl methacrylate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Propionitrile	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
2-Hexanone	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19890**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578052** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methylene Chloride	ND	0.50								
Styrene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	0.50								
o-Xylene	ND	0.50								
Acrolein	ND	10								
Bromochloromethane	ND	0.50								
Iodomethane	ND	0.50								
Vinyl acetate	ND	0.50								

Sample ID **LCS-R19890**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578053** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.6	0.50	10.00	0	95.5	80	120			
Toluene	9.8	0.50	10.00	0	98.2	80	120			
Ethylbenzene	10	0.50	10.00	0	99.9	80	120			
Chlorobenzene	9.8	0.50	10.00	0	97.5	80	120			
1,1-Dichloroethene	9.5	0.50	10.00	0	94.9	80	120			
Tetrachloroethene (PCE)	9.9	0.50	10.00	0	98.9	80	120			
Trichloroethene (TCE)	9.9	0.50	10.00	0	98.8	80	120			
o-Xylene	10	0.50	10.00	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19935**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579511** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	1.0								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	1.0								
Benz(a)anthracene	ND	1.0								
Benzo(a)pyrene	ND	1.0								
Benzo(b)fluoranthene	ND	1.0								
Benzo(k)fluoranthene	ND	1.0								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19935**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579511** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	1.0								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	5.0								
Pyrene	ND	10								

Sample ID **LCS-R19935**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579512** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.3		5.000	0	106	49	134			
2-Chlorophenol	4.4		5.000	0	87.0	50	131			
4-Chloro-3-methylphenol	5.4		5.000	0	108	42	139			
4-Nitrophenol	4.6		5.000	0	92.8	19	137			
Acenaphthene	4.6		5.000	0	93.0	36	122			
Bis(2-ethylhexyl)phthalate	4.9		5.000	0	97.8	43	142			
N-Nitrosodi-n-propylamine	4.5		5.000	0	89.6	46	135			
Pentachlorophenol	4.1		5.000	0	82.6	22	138			
Phenol	6.3		5.000	0	126	45	134			
Pyrene	4.7		5.000	0	93.6	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-13883**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564933** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-13883**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564934** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	92.4	80	120			

Sample ID **1406935-001BMS**	SampType: **MS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564941** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.9	75	125			

Sample ID **1406935-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564944** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.6	75	125	0.263	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14082**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **14082**	RunNo: **19737**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573374** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-14082**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **14082**	RunNo: **19737**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573375** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	100	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14080**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573325** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-14080**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573326** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.9	80	120			
Barium	ND	100	0.5000	0	96.7	80	120			
Cadmium	ND	1.0	0.5000	0	97.9	80	120			
Chromium	ND	5.0	0.5000	0	96.1	80	120			
Lead	ND	5.0	0.5000	0	94.4	80	120			
Selenium	ND	1.0	0.5000	0	97.1	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Sample ID **1406935-001CMS**	SampType: **MS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02968	108	75	125			
Barium	ND	100	0.5000	0.04484	98.2	75	125			
Cadmium	ND	1.0	0.5000	0	103	75	125			
Chromium	ND	5.0	0.5000	0.001840	98.1	75	125			
Lead	ND	5.0	0.5000	0	95.5	75	125			
Selenium	ND	1.0	0.5000	0.09485	103	75	125			
Silver	ND	5.0	0.1000	0	107	75	125			

Sample ID **1406935-001CMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02968	109	75	125	0	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **1406935-001CMSD**	SampType: **MSD**		TestCode: **EPA Method 6010B: TCLP Metals**		
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **14080**		RunNo: **19736**		
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**		SeqNo: **573330**	Units: **mg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.04484	98.1	75	125	0	20	
Cadmium	ND	1.0	0.5000	0	102	75	125	0	20	
Chromium	ND	5.0	0.5000	0.001840	97.8	75	125	0	20	
Lead	ND	5.0	0.5000	0	95.1	75	125	0	20	
Selenium	ND	1.0	0.5000	0.09485	108	75	125	0	20	
Silver	ND	5.0	0.1000	0	107	75	125	0	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14075**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572184** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-14075**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.55	0.050	0.5000	0	110	80	120			
Arsenic	0.55	0.020	0.5000	0	110	80	120			
Barium	0.54	0.020	0.5000	0	109	80	120			
Beryllium	0.57	0.0030	0.5000	0	115	80	120			
Cadmium	0.54	0.0020	0.5000	0	109	80	120			
Calcium	57	1.0	50.00	0	114	80	120			
Chromium	0.54	0.0060	0.5000	0	108	80	120			
Cobalt	0.52	0.0060	0.5000	0	104	80	120			
Copper	0.56	0.0060	0.5000	0	112	80	120			
Iron	0.55	0.050	0.5000	0	110	80	120			
Lead	0.53	0.0050	0.5000	0	107	80	120			
Magnesium	57	1.0	50.00	0	113	80	120			
Manganese	0.54	0.0020	0.5000	0	108	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **LCS-14075**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	0.52	0.010	0.5000	0	105	80	120			
Potassium	54	1.0	50.00	0	109	80	120			
Selenium	0.53	0.050	0.5000	0	106	80	120			
Silver	0.11	0.0050	0.1000	0	112	80	120			
Thallium	0.53	0.050	0.5000	0	106	80	120			
Vanadium	0.57	0.050	0.5000	0	113	80	120			
Zinc	0.53	0.020	0.5000	0	106	80	120			

Sample ID **MB-14172**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **14172**	RunNo: **19829**
Prep Date: **7/10/2014**	Analysis Date: **7/11/2014**	SeqNo: **576105** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								

Sample ID **LCS-14172**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14172**	RunNo: **19829**
Prep Date: **7/10/2014**	Analysis Date: **7/11/2014**	SeqNo: **576106** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.48	0.020	0.5000	0	96.2	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

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WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19940**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **7/2/2014**	SeqNo: **579570** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R19940**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **7/2/2014**	SeqNo: **579571** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.512		0.5000	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19940**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579573** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R19940**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579574** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.20		0.2000	0	100	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

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WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563920**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563921**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	98.7	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563943**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563944**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	100	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID	MB-13798	SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW	Batch ID:	13798		RunNo:	19431				
Prep Date:	6/19/2014	Analysis Date:	6/23/2014		SeqNo:	561986	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-13798	SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW	Batch ID:	13798		RunNo:	19431				
Prep Date:	6/19/2014	Analysis Date:	6/23/2014		SeqNo:	561987	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Sample ID	1406935-001AMS	SampType:	MS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	WDW-1, 2, & 3 Efflu	Batch ID:	13798		RunNo:	19431				
Prep Date:	6/19/2014	Analysis Date:	6/23/2014		SeqNo:	562008	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	6460	40.0	2000	4442	101	80	120			

Sample ID	1406935-001AMSD	SampType:	MSD		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	WDW-1, 2, & 3 Efflu	Batch ID:	13798		RunNo:	19431				
Prep Date:	6/19/2014	Analysis Date:	6/23/2014		SeqNo:	562009	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	6460	40.0	2000	4442	101	80	120	0.124	5	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1406935 RcptNo: 1

Received by/date: AT 06/19/14

Logged By: Anne Thorne 6/19/2014 2:35:00 PM Anne Thorne

Completed By: Anne Thorne 6/19/2014 Anne Thorne

Reviewed By: AT 06/19/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.6	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.	Turn-Around Time: ☐ Standar ☐ **Rush**
	Project Name: WDW-1, 2, & 3 Qtrly Inj Well
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Dan Crawford
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler: Jerry Sosa
	On Ice: X Yes ☐ No
	Sample Temperature: 4/6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No 1406935	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
6/19/14	9:~~00~~ 30	Liquid	Trip Blank	2	Neat	-002		X					
6/19/14	9:~~00~~ 30	Liquid	Temperature Blank	1	Neat								

Date: 6/19/14	Time: 10:00	Relinquished by: Jerry Sosa	Received by:	Date 06/19/14	Time 14:35
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Classification	Analyte name	Method	Units	RL
Volatile organics	Acetone	SW-846 Method 8260C	µg/L	10
Volatile organics	Acetonitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Acrolein	SW-846 Method 8260C	µg/L	
Volatile organics	Allyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Allyl chloride	SW-846 Method 8260C	µg/L	
Volatile organics	t-Amyl ethyl ether (TAEE)	SW-846 Method 8260C	µg/L	
Volatile organics	t-Amyl methyl ether (TAME)	SW-846 Method 8260C	µg/L	
Volatile organics	Benzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Benzyl chloride	SW-846 Method 8260C	µg/L	
Volatile organics	Bis(2-chloroethyl)sulfide	SW-846 Method 8260C	µg/L	
Volatile organics	Bromoacetone	SW-846 Method 8260C	µg/L	
Volatile organics	Bromobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Bromochloromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	Bromodichloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	4-Bromofluorobenzene (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	Bromoform	SW-846 Method 8260C	µg/L	4
Volatile organics	Bromomethane	SW-846 Method 8260C	µg/L	2
Volatile organics	n-Butanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Butanone (MEK)	SW-846 Method 8260C	µg/L	10
Volatile organics	n-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	sec-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	tert-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	t-Butyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Carbon disulfide	SW-846 Method 8260C	µg/L	2
Volatile organics	Carbon tetrachloride	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloral hydrate	SW-846 Method 8260C	µg/L	
Volatile organics	Chlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Chlorobenzene-d5 (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	1-Chlorobutane	SW-846 Method 8260C	µg/L	
Volatile organics	Chlorodibromomethane	SW-846 Method 8260C	µg/L	
Volatile organics	1-Chlorohexane	SW-846 Method 8260C	µg/L	
Volatile organics	Chloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	2-Chloroethanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Chloroethyl vinyl ether	SW-846 Method 8260C	µg/L	
Volatile organics	Chloroform	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloroprene	SW-846 Method 8260C	µg/L	
Volatile organics	4-Chlorotoluene	SW-846 Method 8260C	µg/L	
Volatile organics	Crotonaldehyde	SW-846 Method 8260C	µg/L	
Volatile organics	Cyclohexane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2-Dibromo-3-chloropropane	SW-846 Method 8260C	µg/L	10
Volatile organics	1,2-Dibromoethane	SW-846 Method 8260C	µg/L	2
Volatile organics	Dibromochloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Dibromomethane	SW-846 Method 8260C	µg/L	
Volatile organics	1,2-Dichlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,3-Dichlorobenzene	SW-846 Method 8260C	µg/L	1

Volatile organics	1,4-Dichlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,4-Dichlorobenzene-d4 (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	cis-1,4-Dichloro-2-butene	SW-846 Method 8260C	µg/L	
Volatile organics	trans-1,4-Dichloro-2-butene	SW-846 Method 8260C	µg/L	
Volatile organics	Dichlorodifluoromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1-Dichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloroethane-d4 (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	1,1-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	cis-1,2-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	trans-1,2-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloropropane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,3-Dichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	2,2-Dichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	1,1-Dichloropropene	SW-846 Method 8260C	µg/L	
Volatile organics	1,3-Dichloro-2-propanol	SW-846 Method 8260C	µg/L	
Volatile organics	cis-1,3-Dichloropropene	SW-846 Method 8260C	µg/L	1
Volatile organics	trans-1,3-Dichloropropene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2,3,4-Depoxybutane	SW-846 Method 8260C	µg/L	
Volatile organics	Diethyl ether	SW-846 Method 8260C	µg/L	
Volatile organics	Diisopropyl either (DIPE)	SW-846 Method 8260C	µg/L	
Volatile organics	1,4-Difluorobenzene (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	1,4-Dioxane	SW-846 Method 8260C	µg/L	130
Volatile organics	Epichlorohydrin	SW-846 Method 8260C	µg/L	
Volatile organics	Ethanol	SW-846 Method 8260C	µg/L	
Volatile organics	Ethyl acetate	SW-846 Method 8260C	µg/L	
Volatile organics	Ethylbenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Ethylene oxide	SW-846 Method 8260C	µg/L	
Volatile organics	Ethyl methacrylate	SW-846 Method 8260C	µg/L	
Volatile organics	Fluorobenzene (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	Freon 113	SW-846 Method 8260C	µg/L	5
Volatile organics	Ethyl tert-butyl ether (ETBE)	SW-846 Method 8260C	µg/L	
Volatile organics	Hexachlorobutadiene	SW-846 Method 8260C	µg/L	
Volatile organics	Hexachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	2-Hexanone	SW-846 Method 8260C	µg/L	5
Volatile organics	Iodomethane	SW-846 Method 8260C	µg/L	
Volatile organics	Isobutyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Isopropylbenzene	SW-846 Method 8260C	µg/L	2
Volatile organics	p-Isopropyltoluene	SW-846 Method 8260C	µg/L	
Volatile organics	Malononitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Methacrylonitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Methanol	SW-846 Method 8260C	µg/L	
Volatile organics	Methyl acetate	SW-846 Method 8260C	µg/L	5
Volatile organics	Methylcyclohexane	SW-846 Method 8260C	µg/L	5
Volatile organics	Methyl acrylate	SW-846 Method 8260C	µg/L	
Volatile organics	Methylene chloride	SW-846 Method 8260C	µg/L	2
Volatile organics	Methyl methacrylate	SW-846 Method 8260C	µg/L	

Volatile organics	4-Methyl-2-pentanone (MIBK)	SW-846 Method 8260C	µg/L	5
Volatile organics	Methyl tert-butyl ether (MTBE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Naphthalene	SW-846 Method 8260C	µg/L	
Volatile organics	Nitrobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	2-Nitropropane	SW-846 Method 8260C	µg/L	
Volatile organics	N-Nitroso-di-n-butylamine	SW-846 Method 8260C	µg/L	
Volatile organics	Paraldehyde	SW-846 Method 8260C	µg/L	
Volatile organics	Pentachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	Pentafluorobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	2-Pentanone	SW-846 Method 8260C	µg/L	
Volatile organics	2-Picoline	SW-846 Method 8260C	µg/L	
Volatile organics	1-Propanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Propanol	SW-846 Method 8260C	µg/L	
Volatile organics	Propargyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	beta-Propiolactone	SW-846 Method 8260C	µg/L	
Volatile organics	Propionitrile	SW-846 Method 8260C	µg/L	
Volatile organics	n-Propylamine	SW-846 Method 8260C	µg/L	
Volatile organics	n-Propylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Pyridine	SW-846 Method 8260C	µg/L	
Volatile organics	Styrene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1,1,2-Tetrachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	1,1,2,2-Tetrachloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Tetrachloroethene (PCE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Toluene	SW-846 Method 8260C	µg/L	1
Volatile organics	Toluene-d8 (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	o-Toluidine	SW-846 Method 8260C	µg/L	
Volatile organics	1,2,3-Trichlorobenzene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2,4-Trichlorobenzene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1,1-Trichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,1,2-Trichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Trichloroethene (TCE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Trichlorofluoromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2,3-Trichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	1,2,4-Trimethylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	1,3,5-Trimethylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Vinyl acetate	SW-846 Method 8260C	µg/L	
Volatile organics	Vinyl chloride	SW-846 Method 8260C	µg/L	1
Volatile organics	o-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	m-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	p-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	Xylene, total	SW-846 Method 8260C	µg/L	1

(surr) - Surrogate
(IS) - Internal Standard
Method 8260C Volatile Organic Compounds by Gas Chromatograhy/Mass Spectrometry (GC/MS) (EPA, Revision 3, August 2006)
Constituents with RLs are on the VOC Target Compound List (TCL) (SOMO 1.1)

Classification	Analyte name	Method	Units	RL
Semivolatile organics	1,1'-Biphenyl	SW-864 Method 8270B	µg/L	1
Semivolatile organics	1,2,4,5-Tetrachlorobenzene	SW-864 Method 8270B	µg/L	2
Semivolatile organics	2-Chloronaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Chlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Methylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2-Nitrophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,3,4,6-Tetrachlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dichlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dimethylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dinitrophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2,4-Dinitrotoluene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4,5-Trichlorophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2,4,6-Trichlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,6-Dinitrotoluene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	3-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	3,3'-Dichlrobenzidine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Bromophenyl-phenylether	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chloro-3-methylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chloroaniline	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chlorophenyl-phenyl ether	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	4-Nitrophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	4,6-Dinitro-2-methylphenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Acetophenone	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Acenaphthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Acenaphthylene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Atrazine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzaldehyde	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(a)anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(a)pyrene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(b)fluoranthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(g,h,i)perylene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(k)fluoranthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	bis(2-Chloroethoxy)-methane	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Chloroethyl) ether	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Chloroisopropyl) ether	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Ethylhexyl)phthalate	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Butylbenzylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Carbazole	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Caprolactam	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Chrysene	SW-864 Method 8270B	µg/L	0.1
Semivolatile organics	Di-n-butylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Di-n-octylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Dibenz(a,h)anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Dibenzofuran	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Diethylphthalate	SW-864 Method 8270B	µg/L	5

Semivolatile organics	Dimethylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Fluroanthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Fluorene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Hexachlorobenzene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Hexachlorobutadiene	SW-864 Method 8270B	µg/L	1
Semivolatile organics	Hexachlorocyclopentadiene	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Hexachloroethane	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Indeno(1,2,3-cd)peryline	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Isophorone	SW-864 Method 8270B	µg/L	5
Semivolatile organics	1-Methylnaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Methylnaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	N-Nitroso-di-n-propylamine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	N-Nitrosodiphenylamine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Napthtalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Nitrobenzene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Pentachlorophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Phenanthrene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Phenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Pyrene	SW-864 Method 8270B	µg/L	5

Target Compound List 1.5 for SVOCs by SW-846 Method 8270

Classification	Analyte name[1]	Method	Units	RL
Inorganics	Mercury	SW-846 Method 7470		
Inorganics	Arsenic	SW-846 Method 6010		
Inorganics	Silver	SW-846 Method 6010		
Inorganics	Aluminum	SW-846 Method 6010		
Inorganics	Barium	SW-846 Method 6010		
Inorganics	Beryllium	SW-846 Method 6010		
Inorganics	Calcium	SW-846 Method 6010		
Inorganics	Cadmium	SW-846 Method 6010		
Inorganics	Cobalt	SW-846 Method 6010		
Inorganics	Chromium	SW-846 Method 6010		
Inorganics	Copper	SW-846 Method 6010		
Inorganics	Iron	SW-846 Method 6010		
Inorganics	Mercury	SW-846 Method 6010		
Inorganics	Potassium	SW-846 Method 6010		
Inorganics	Magnesium	SW-846 Method 6010		
Inorganics	Manganese	SW-846 Method 6010		
Inorganics	Sodium	SW-846 Method 6010		
Inorganics	Nickel	SW-846 Method 6010		
Inorganics	Lead	SW-846 Method 6010		
Inorganics	Antimony	SW-846 Method 6010		
Inorganics	Selenium	SW-846 Method 6010		
Inorganics	Thallium	SW-846 Method 6010		
Inorganics	Vanadium	SW-846 Method 6010		
Inorganics	Zinc	SW-846 Method 6010		

** dilute elements only if necessary

[1] 23 TAL Metals

REFINING COMPANY, LLC

FAX
(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

FAX
(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

July 30, 2008

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2008 Second Quarterly Injection Report for Navajo Refining WDW-1, WDW-2 and WDW-3

Dear Mr. Chavez,

Enclosed, please find the sampling results for the second quarter of 2008 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on wells WDW-1 and WDW-2 continue to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level have found WDW-3 to have varied more than 5%. WDW-3 has an electronic gauging system that continually reports the fluid levels in a percentage of capacity. We are closely monitoring WDW-3, and a Mechanical Integrity Test (MIT) is scheduled for August 5, 2008. The volumes for these three tanks are reported in the attached table.

This report covers the period from April 1, 2008 to June 30, 2008. We have disposed a total of 38,972,716 barrels of fluid into the three wells as of June 30, 2008. This is broken down as follows: 25,550,339 barrels into WDW-1, 12,357,611 barrels into WDW-2 and 1,064,766 barrels into WDW-3.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Aaron Strange

Aaron Strange
Sr. Environmental Technician

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

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2008 AUG 1 PM 12 31

An Independent Refinery Serving . . .
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2008 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	25,013,505
Apr-08	234	303	115	165	192	135	117	168	75	5,656	6,580	4,619	169,694	25,183,198
May-08	264	322	194	171	186	151	142	222	55	5,872	6,394	5,170	182,018	25,365,217
Jun-08	297	338	231	180	192	158	203	416	29	6,171	6,592	5,403	185,122	25,550,339
WDW-2													**Previous Quarter**	12,126,440
Apr-08	293	400	239	81	123	55	467	500	330	2,774	4,221	1,883	83,219	12,209,659
May-08	314	376	245	70	99	33	411	500	165	2,409	3,400	1,142	74,669	12,284,329
Jun-08	348	394	285	71	92	19	500	500	498	2,443	3,143	660	73,282	12,357,611
WDW-3													**Previous Quarter**	1,049,409
Apr-08	473	588	326	148	228	79	676	915	530	5,086	7,818	2,707	152,578	727,836
May-08	502	622	388	150	179	112	678	901	540	5,131	6,133	3,852	159,072	886,908
Jun-08	559	642	415	173	189	132	761	998	564	5,929	6,497	4,539	177,858	1,064,766
													Total Injected fluids:	38,972,716

Page 4210 of 5828

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Received by OCD: 5/16/2022 2:12:41 PM

2008 SECOND QUARTER WEEKLY WHAMS LEVEL TABLE

	4/2/200	4/11/08	4/17/08	4/25/08	4/30/08	5/8/08	5/14/08	5/21/08	5/30/08	6/5/08	6/11/08	6/17/08	6/27/08
WDW -1[1]	190	190	190	190	190	200	200	200	200	200	200	200	200
WDW-2[1]	160	160	160	160	160	160	160	160	160	160	160	200	200
WDW-3[2]	67%	66%	66%	65%	65%	64%	63%	60%	59%	58%	58%	58%	55%

[1] Graduated tank gauged weekly in the field.

[2] Reading measured directly, and reported as percentage capacity.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

04-Jun-08

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5468
Fax: (505) 746-5421

Re: Injection Well Qrtly. Work Order : **0805558**

Dear Jeff,

ALS Laboratory Group received 2 samples on 5/23/2008 08:40 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 36.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Glenda H. Ramos

Jeffrey L Croston
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Certificate No: T104704231-08-TX

ALS Group USA, Corp.
Part of the **ALS Laboratory Group**
10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338
Phone: (281) 530-5656 Fax: (281) 530-5887
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A Campbell Brothers Limited Company

ALS Laboratory Group

Date: 04-Jun-08

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Work Order: **0805558**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0805558-01	Injection Well	Water		5/22/2008 14:10	5/23/2008 08:40	☐
0805558-02	Trip Blank	Water		5/22/2008 14:10	5/23/2008 08:40	☑

ALS Laboratory Group *Date: 04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Work Order: 0805558

Case Narrative

Batch pH (sample Injection Well) was analyzed outside of the recommended holding time, but was analyzed immediately upon receipt of the laboratory.

Batch 30049 Metals MS/MSD was an unrelated sample.

Batch 29950 Semivolatiles LCS/LCSD RPD recovery was above the control limits for Benzidine (37.1%). Recoveries met method criteria in both LCS/LCSD.

Batch R63837 Volatiles MS/MSD was an unrelated sample.

Batch R64025 Anions MS was an unrelated sample.

ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL - SW 7470A			**SW7470**		Prep Date: **6/3/2008**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	6/4/2008 12:11 PM
ICP METALS, TOTAL - SW6020A			**SW6020**		Prep Date: **6/2/2008**	Analyst: **ALR**
Aluminum	**0.0846**		**0.0100**	**mg/L**	1	6/2/2008 11:43 PM
Arsenic	**0.0474**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Barium	**0.0229**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Beryllium	ND		0.00200	mg/L	1	6/2/2008 11:43 PM
Boron	**0.0839**		**0.0200**	**mg/L**	1	6/2/2008 11:43 PM
Cadmium	ND		0.00200	mg/L	1	6/2/2008 11:43 PM
Calcium	**121**		**0.500**	**mg/L**	1	6/2/2008 11:43 PM
Chromium	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Cobalt	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Copper	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Iron	ND		0.200	mg/L	1	6/2/2008 11:43 PM
Lead	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Magnesium	**41.0**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Manganese	**0.100**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Molybdenum	**0.0505**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Nickel	**0.00601**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Potassium	**3.78**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Selenium	**0.0152**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Silver	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Sodium	**136**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Vanadium	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Zinc	**0.0384**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **5/28/2008**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Methylphenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Nitrophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
3-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
4-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
4-Nitrophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Acenaphthene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Acenaphthylene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Anthracene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Benzidine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Hexachloroethane	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Isophorone	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Naphthalene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Nitrobenzene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Pentachlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Phenanthrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Phenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Pyrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Surr: 2,4,6-Tribromophenol	*69.4*		*42-124*	*%REC*	1	5/31/2008 03:57 PM
Surr: 2-Fluorobiphenyl	*71.2*		*48-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: 2-Fluorophenol	*64.5*		*20-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: 4-Terphenyl-d14	*75.7*		*51-135*	*%REC*	1	5/31/2008 03:57 PM
Surr: Nitrobenzene-d5	*66.4*		*41-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: Phenol-d6	*70.6*		*20-120*	*%REC*	1	5/31/2008 03:57 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
2-Butanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	5/28/2008 04:38 PM
2-Hexanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Acetone	**0.13**		**0.010**	**mg/L**	1	5/28/2008 04:38 PM
Benzene	**0.034**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
Bromodichloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Bromoform	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Bromomethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Carbon disulfide	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	5/28/2008 04:38 PM

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloroform	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Dibromochloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Ethylbenzene	**0.011**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
m,p-Xylene	**0.052**		**0.010**	**mg/L**	1	5/28/2008 04:38 PM
Methylene chloride	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Styrene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Tetrachloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Toluene	**0.039**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Trichloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Vinyl acetate	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Vinyl chloride	ND		0.0020	mg/L	1	5/28/2008 04:38 PM
Xylenes, Total	**0.081**		**0.015**	**mg/L**	1	5/28/2008 04:38 PM
Surr: 1,2-Dichloroethane-d4	*87.7*		*70-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: 4-Bromofluorobenzene	*86.3*		*72-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: Dibromofluoromethane	*87.6*		*71-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: Toluene-d8	*85.8*		*75-125*	*%REC*	1	5/28/2008 04:38 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	5/29/2008
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	5/29/2008
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **PV**
Chloride	**150**		**10.0**	**mg/L**	20	6/2/2008 04:59 PM
Sulfate	**497**		**10.0**	**mg/L**	20	6/2/2008 04:59 PM
Surr: Selenate (surr)	*94.7*		*85-115*	*%REC*	20	6/2/2008 04:59 PM
ALKALINITY			**E310.1**			Analyst: **MAM**
Alkalinity, Bicarbonate (As CaCO3)	**135**		**5.00**	**mg/L**	1	5/28/2008 02:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	5/28/2008 02:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	5/28/2008 02:00 PM
Alkalinity, Total (As CaCO3)	**135**		**5.00**	**mg/L**	1	5/28/2008 02:00 PM
CONDUCTIVITY			**E120.1**			Analyst: **MAM**
Specific Conductance	**1,590**		**1.00**	**µmhos/cm**	1	5/27/2008 03:00 PM
FLASHPOINT-SW1010A			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	5/28/2008 03:00 PM

Qualifiers:

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	7.15	H	0.100	pH units	1	5/23/2008 10:00 AM
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **KKP**
Total Dissolved Solids (Residue, Filterable)	1,240		10.0	mg/L	1	5/27/2008 03:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

Date: *04-Jun-08*

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 11:11 PM**

Client ID: Run ID: **ICPMS02_080602A** SeqNo: **1410011** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.050								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 11:17 PM**
Client ID: Run ID: **ICPMS02_080602A** SeqNo: **1410012** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05531	0.010	0.05	0	111	80-120	0			
Arsenic	0.05086	0.0050	0.05	0	102	80-120	0			
Barium	0.0515	0.0050	0.05	0	103	80-120	0			
Beryllium	0.04961	0.0020	0.05	0	99.2	80-120	0			
Boron	0.51	0.050	0.5	0	102	80-120	0			
Cadmium	0.05043	0.0020	0.05	0	101	80-120	0			
Calcium	5.085	0.50	5	0	102	80-120	0			
Chromium	0.04787	0.0050	0.05	0	95.7	80-120	0			
Cobalt	0.0505	0.0050	0.05	0	101	80-120	0			
Copper	0.04711	0.0050	0.05	0	94.2	80-120	0			
Iron	5.108	0.20	5	0	102	80-120	0			
Lead	0.05004	0.0050	0.05	0	100	80-120	0			
Magnesium	4.979	0.20	5	0	99.6	80-120	0			
Manganese	0.0499	0.0050	0.05	0	99.8	80-120	0			
Molybdenum	0.04938	0.0050	0.05	0	98.8	80-120	0			
Nickel	0.04953	0.0050	0.05	0	99.1	80-120	0			
Potassium	5.014	0.20	5	0	100	80-120	0			
Selenium	0.04986	0.0050	0.05	0	99.7	80-120	0			
Silver	0.04002	0.0050	0.05	0	80	80-120	0			
Sodium	4.943	0.20	5	0	98.9	80-120	0			
Vanadium	0.05043	0.0050	0.05	0	101	80-120	0			
Zinc	0.04926	0.0050	0.05	0	98.5	80-120	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0805606-08CMS** Units: **mg/L** Analysis Date: **6/3/2008 02:20 PM**

Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410745** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06189	0.010	0.05	0.01497	93.8	80-120	0			
Arsenic	0.06337	0.0050	0.05	0.01058	106	80-120	0			
Barium	0.09153	0.0050	0.05	0.03819	107	80-120	0			
Beryllium	0.04985	0.0020	0.05	-0.0001438	100	80-120	0			
Boron	1.165	0.050	0.5	0.6122	111	80-120	0			
Cadmium	0.05037	0.0020	0.05	-0.0004353	102	80-120	0			
Calcium	149.2	0.50	5	143.9	106	80-120	0			O
Chromium	0.04788	0.0050	0.05	0.0002614	95.2	80-120	0			
Cobalt	0.05154	0.0050	0.05	0.002614	97.9	80-120	0			
Copper	0.04456	0.0050	0.05	0.0004179	88.3	80-120	0			
Iron	5.507	0.20	5	0.5342	99.5	80-120	0			
Lead	0.05257	0.0050	0.05	-0.00002332	105	80-120	0			
Magnesium	85.42	0.20	5	80.06	107	80-120	0			O
Manganese	0.2299	0.0050	0.05	0.179	102	80-120	0			
Molybdenum	0.05753	0.0050	0.05	0.005355	104	80-120	0			
Nickel	0.05094	0.0050	0.05	0.002892	96.1	80-120	0			
Potassium	9.248	0.20	5	4.425	96.5	80-120	0			
Selenium	0.05288	0.0050	0.05	0.0005107	105	80-120	0			
Silver	0.04033	0.0050	0.05	-0.0003408	81.3	80-120	0			
Sodium	215.6	0.20	5	209.9	114	80-120	0			EO
Vanadium	0.05326	0.0050	0.05	0.001695	103	80-120	0			
Zinc	0.05312	0.0050	0.05	0.00839	89.5	80-120	0			

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0805606-08CMSD** Units: **mg/L** Analysis Date: **6/3/2008 02:26 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410746** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06039	0.010	0.05	0.01497	90.8	80-120	0.06189	2.45	15	
Arsenic	0.06377	0.0050	0.05	0.01058	106	80-120	0.06337	0.629	15	
Barium	0.09108	0.0050	0.05	0.03819	106	80-120	0.09153	0.493	15	
Beryllium	0.04878	0.0020	0.05	-0.0001438	97.8	80-120	0.04985	2.17	15	
Boron	1.186	0.050	0.5	0.6122	115	80-120	1.165	1.79	15	
Cadmium	0.04962	0.0020	0.05	-0.0004353	100	80-120	0.05037	1.5	15	
Calcium	150.7	0.50	5	143.9	136	80-120	149.2	1	15	SO
Chromium	0.04772	0.0050	0.05	0.0002614	94.9	80-120	0.04788	0.335	15	
Cobalt	0.05164	0.0050	0.05	0.002614	98.1	80-120	0.05154	0.194	15	
Copper	0.04497	0.0050	0.05	0.0004179	89.1	80-120	0.04456	0.916	15	
Iron	5.431	0.20	5	0.5342	97.9	80-120	5.507	1.39	15	
Lead	0.05227	0.0050	0.05	-0.00002332	105	80-120	0.05257	0.572	15	
Magnesium	84.25	0.20	5	80.06	83.8	80-120	85.42	1.38	15	O
Manganese	0.2326	0.0050	0.05	0.179	107	80-120	0.2299	1.17	15	
Molybdenum	0.0565	0.0050	0.05	0.005355	102	80-120	0.05753	1.81	15	
Nickel	0.04908	0.0050	0.05	0.002892	92.4	80-120	0.05094	3.72	15	
Potassium	9.267	0.20	5	4.425	96.8	80-120	9.248	0.205	15	
Selenium	0.05261	0.0050	0.05	0.0005107	104	80-120	0.05288	0.512	15	
Silver	0.04025	0.0050	0.05	-0.0003408	81.2	80-120	0.04033	0.199	15	
Sodium	212.4	0.20	5	209.9	50	80-120	215.6	1.5	15	SEO
Vanadium	0.05363	0.0050	0.05	0.001695	104	80-120	0.05326	0.692	15	
Zinc	0.05195	0.0050	0.05	0.00839	87.1	80-120	0.05312	2.23	15	

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0805606-08CDUP** Units: **mg/L** Analysis Date: **6/3/2008 01:48 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410741** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01681	0.010	0	0	0	0-0	0.01497	11.6	25	
Arsenic	0.01089	0.0050	0	0	0	0-0	0.01058	2.89	25	
Barium	0.0393	0.0050	0	0	0	0-0	0.03819	2.86	25	
Beryllium	ND	0.0020	0	0	0	0-0	-0.0001438	0	25	
Boron	0.6411	0.050	0	0	0	0-0	0.6122	4.61	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.0004353	0	25	
Calcium	147	0.50	0	0	0	0-0	143.9	2.13	25	
Chromium	ND	0.0050	0	0	0	0-0	0.0002614	0	25	
Cobalt	0.002661	0.0050	0	0	0	0-0	0.002614	0	25	J
Copper	ND	0.0050	0	0	0	0-0	0.0004179	0	25	
Iron	0.545	0.20	0	0	0	0-0	0.5342	2	25	
Lead	ND	0.0050	0	0	0	0-0	-0.00002332	0	25	
Magnesium	82.64	0.20	0	0	0	0-0	80.06	3.17	25	
Manganese	0.1849	0.0050	0	0	0	0-0	0.179	3.24	25	
Molybdenum	0.005564	0.0050	0	0	0	0-0	0.005355	3.83	25	
Nickel	0.002742	0.0050	0	0	0	0-0	0.002892	0	25	J
Potassium	4.499	0.20	0	0	0	0-0	4.425	1.66	25	
Selenium	ND	0.0050	0	0	0	0-0	0.0005107	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003408	0	25	
Vanadium	0.001621	0.0050	0	0	0	0-0	0.001695	0	25	J
Zinc	0.004506	0.0050	0	0	0	0-0	0.00839	0	25	J

DUP Sample ID: **0805606-08CDUP** Units: **mg/L** Analysis Date: **6/3/2008 03:07 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410816** Prep Date: **6/2/2008** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	198.8	10	0	0	0	0-0	216.8	8.66	25	

The following samples were analyzed in this batch: 0805558-01B

ND - Not Detected at the Reporting Limit
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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30093** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:55 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411704** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000044	0.00020								J

LCS Sample ID: **GLCSW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:57 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411705** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00452	0.00020	0.005	0	90.4	85-115	0			

LCSD Sample ID: **GLCSDW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:59 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411706** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00438	0.00020	0.005	0	87.6	85-115	0.00452	3.15	20	

MS Sample ID: **0806044-01CMS** Units: **mg/L** Analysis Date: **6/4/2008 12:05 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411709** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00461	0.00020	0.005	-0.000049	93.2	85-115	0			

MSD Sample ID: **0806044-01CMSD** Units: **mg/L** Analysis Date: **6/4/2008 12:07 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411710** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00464	0.00020	0.005	-0.000049	93.8	85-115	0.00461	0.649	20	

DUP Sample ID: **0806044-01CDUP** Units: **mg/L** Analysis Date: **6/4/2008 12:03 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411708** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000049	0	20	

The following samples were analyzed in this batch: 0805558-01B

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

MBLK Sample ID: **SBLKW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 04:45 PM**

Client ID: Run ID: **SV-5_080529C** SeqNo: **1408204** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*66.46*	5.0	*100*	0	*66.5*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*75.49*	5.0	*100*	0	*75.5*	*48-120*	0			
Surr: 2-Fluorophenol	*63.48*	5.0	*100*	0	*63.5*	*20-120*	0			
Surr: 4-Terphenyl-d14	*75.31*	5.0	*100*	0	*75.3*	*51-135*	0			
Surr: Nitrobenzene-d5	*78.24*	5.0	*100*	0	*78.2*	*41-120*	0			
Surr: Phenol-d6	*71.08*	5.0	*100*	0	*71.1*	*20-120*	0			

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E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

LCS Sample ID: **SLCSW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 11:50 AM**

Client ID: Run ID: **SV-5_080529C** SeqNo: **1408202** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.48	5.0	50	0	77	50-120	0			
2,4,5-Trichlorophenol	70.59	5.0	100	0	70.6	50-120	0			
2,4,6-Trichlorophenol	77.31	5.0	100	0	77.3	50-120	0			
2-Methylnaphthalene	39.73	5.0	50	0	79.5	55-120	0			
2-Methylphenol	72.4	5.0	100	0	72.4	50-120	0			
2-Nitroaniline	41.9	5.0	50	0	83.8	55-120	0			
2-Nitrophenol	77.95	5.0	100	0	78	55-120	0			
3&4-Methylphenol	112.7	5.0	150	0	75.1	55-120	0			
3-Nitroaniline	31.41	5.0	50	0	62.8	40-120	0			
4-Nitroaniline	37.07	5.0	50	0	74.1	50-120	0			
4-Nitrophenol	97.1	5.0	100	0	97.1	45-120	0			
Acenaphthene	40.42	5.0	50	0	80.8	55-120	0			
Acenaphthylene	41.2	5.0	50	0	82.4	55-120	0			
Aniline	30.83	5.0	50	0	61.7	30-120	0			
Anthracene	40.67	5.0	50	0	81.3	55-120	0			
Benz(a)anthracene	37.11	5.0	50	0	74.2	55-120	0			
Benzidine	15.02	5.0	50	0	30	10-120	0			
Hexachloroethane	38.38	5.0	50	0	76.8	55-120	0			
Indeno(1,2,3-cd)pyrene	36.31	5.0	50	0	72.6	55-120	0			
Isophorone	41.97	5.0	50	0	83.9	55-120	0			
N-Nitrosodi-n-propylamine	40.43	5.0	50	0	80.9	50-120	0			
N-Nitrosodimethylamine	37.79	5.0	50	0	75.6	45-120	0			
N-Nitrosodiphenylamine	40.24	5.0	50	0	80.5	55-120	0			
Naphthalene	40.25	5.0	50	0	80.5	55-120	0			
Nitrobenzene	39.48	5.0	50	0	79	55-120	0			
Pentachlorophenol	71.77	5.0	100	0	71.8	55-120	0			
Phenanthrene	39.92	5.0	50	0	79.8	55-120	0			
Phenol	77.57	5.0	100	0	77.6	50-120	0			
Pyrene	40.45	5.0	50	0	80.9	55-120	0			
Surr: 2,4,6-Tribromophenol	*72.66*	5.0	*100*	0	*72.7*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*77.75*	5.0	*100*	0	*77.7*	*48-120*	0			
Surr: 2-Fluorophenol	*68.18*	5.0	*100*	0	*68.2*	*20-120*	0			
Surr: 4-Terphenyl-d14	*76.16*	5.0	*100*	0	*76.2*	*51-135*	0			
Surr: Nitrobenzene-d5	*79.91*	5.0	*100*	0	*79.9*	*41-120*	0			
Surr: Phenol-d6	*72.59*	5.0	*100*	0	*72.6*	*20-120*	0			

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E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 12:16 PM**
Client ID: Run ID: **SV-5_080529C** SeqNo: **1408203** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.38	5.0	50	0	76.8	50-120	38.48	0.238	20	
2,4,5-Trichlorophenol	84.21	5.0	100	0	84.2	50-120	70.59	17.6	20	
2,4,6-Trichlorophenol	79.22	5.0	100	0	79.2	50-120	77.31	2.45	20	
2-Methylnaphthalene	40.87	5.0	50	0	81.7	55-120	39.73	2.83	20	
2-Methylphenol	75.67	5.0	100	0	75.7	50-120	72.4	4.42	20	
2-Nitroaniline	42.15	5.0	50	0	84.3	55-120	41.9	0.588	20	
2-Nitrophenol	79.6	5.0	100	0	79.6	55-120	77.95	2.1	20	
3&4-Methylphenol	117.5	5.0	150	0	78.3	55-120	112.7	4.17	20	
3-Nitroaniline	26.62	5.0	50	0	53.2	40-120	31.41	16.5	20	
4-Nitroaniline	36.41	5.0	50	0	72.8	50-120	37.07	1.79	20	
4-Nitrophenol	82.95	5.0	100	0	82.9	45-120	97.1	15.7	20	
Acenaphthene	41.82	5.0	50	0	83.6	55-120	40.42	3.42	20	
Acenaphthylene	41.46	5.0	50	0	82.9	55-120	41.2	0.614	20	
Aniline	31.37	5.0	50	0	62.7	30-120	30.83	1.74	20	
Anthracene	39.59	5.0	50	0	79.2	55-120	40.67	2.7	20	
Benz(a)anthracene	37.02	5.0	50	0	74	55-120	37.11	0.242	20	
Benzidine	10.32	5.0	50	0	20.6	10-120	15.02	37.1	20	R
Hexachloroethane	41.36	5.0	50	0	82.7	55-120	38.38	7.47	20	
Indeno(1,2,3-cd)pyrene	36.71	5.0	50	0	73.4	55-120	36.31	1.08	20	
Isophorone	43.01	5.0	50	0	86	55-120	41.97	2.46	20	
N-Nitrosodi-n-propylamine	41.81	5.0	50	0	83.6	50-120	40.43	3.36	20	
N-Nitrosodimethylamine	39.68	5.0	50	0	79.4	45-120	37.79	4.88	20	
N-Nitrosodiphenylamine	41.17	5.0	50	0	82.3	55-120	40.24	2.29	20	
Naphthalene	40.53	5.0	50	0	81.1	55-120	40.25	0.683	20	
Nitrobenzene	40.12	5.0	50	0	80.2	55-120	39.48	1.61	20	
Pentachlorophenol	75.95	5.0	100	0	76	55-120	71.77	5.66	20	
Phenanthrene	41.64	5.0	50	0	83.3	55-120	39.92	4.21	20	
Phenol	81.2	5.0	100	0	81.2	50-120	77.57	4.58	20	
Pyrene	42.21	5.0	50	0	84.4	55-120	40.45	4.27	20	
Surr: 2,4,6-Tribromophenol	*73.12*	5.0	*100*	0	*73.1*	*42-124*	72.66	*0.63*	*20*	
Surr: 2-Fluorobiphenyl	*77.94*	5.0	*100*	0	*77.9*	*48-120*	77.75	*0.241*	*20*	
Surr: 2-Fluorophenol	*70.82*	5.0	*100*	0	*70.8*	*20-120*	68.18	*3.8*	*20*	
Surr: 4-Terphenyl-d14	*74.56*	5.0	*100*	0	*74.6*	*51-135*	76.16	*2.12*	*20*	
Surr: Nitrobenzene-d5	*77.03*	5.0	*100*	0	*77*	*41-120*	79.91	*3.68*	*20*	
Surr: Phenol-d6	*77.02*	5.0	*100*	0	*77*	*20-120*	72.59	*5.92*	*20*	

The following samples were analyzed in this batch: 0805558-01E

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: R63837 Instrument ID VOA2 Method: SW8260

MBLK Sample ID: VBLKW-052808 Units: µg/L Analysis Date: 5/28/2008 12:10 PM
Client ID: Run ID: VOA2_080528B SeqNo: 1406315 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*43.9*	5.0	*50*	0	*87.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*39.58*	5.0	*50*	0	*79.2*	*72-125*	0			
Surr: Dibromofluoromethane	*44.48*	5.0	*50*	0	*89*	*71-125*	0			
Surr: Toluene-d8	*42.61*	5.0	*50*	0	*85.2*	*75-125*	0			

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63837** Instrument ID **VOA2** Method: **SW8260**

LCS Sample ID: **VLCSW-052808** Units: **µg/L** Analysis Date: **5/28/2008 10:32 AM**
Client ID: Run ID: **VOA2_080528B** SeqNo: **1406314** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.59	5.0	50	0	107	80-120	0			
1,1,2,2-Tetrachloroethane	43.21	5.0	50	0	86.4	72-120	0			
1,1,2-Trichloroethane	45.61	5.0	50	0	91.2	80-120	0			
1,1-Dichloroethane	57.72	5.0	50	0	115	76-120	0			
1,1-Dichloroethene	59.25	5.0	50	0	118	73-124	0			
1,2-Dichloroethane	50.06	5.0	50	0	100	78-120	0			
2-Butanone	105.4	10	100	0	105	58-132	0			
2-Chloroethyl vinyl ether	113.7	10	100	0	114	74-120	0			
2-Hexanone	90.16	10	100	0	90.2	61-130	0			
4-Methyl-2-pentanone	92.78	10	100	0	92.8	65-127	0			
Acetone	112.7	10	100	0	113	59-137	0			
Benzene	49.49	5.0	50	0	99	73-121	0			
Bromodichloromethane	56.85	5.0	50	0	114	80-120	0			
Bromoform	43.63	5.0	50	0	87.3	79-120	0			
Bromomethane	55.41	5.0	50	0	111	66-137	0			
Carbon disulfide	120.7	10	100	0	121	68-141	0			
Carbon tetrachloride	46.35	5.0	50	0	92.7	75-124	0			
Chlorobenzene	45.69	5.0	50	0	91.4	80-120	0			
Chloroethane	56.2	5.0	50	0	112	76-121	0			
Chloroform	51.36	5.0	50	0	103	80-120	0			
Chloromethane	52.26	5.0	50	0	105	67-123	0			
cis-1,3-Dichloropropene	51.11	5.0	50	0	102	80-120	0			
Dibromochloromethane	43.19	5.0	50	0	86.4	80-120	0			
Ethylbenzene	48.15	5.0	50	0	96.3	80-120	0			
m,p-Xylene	95.83	10	100	0	95.8	78-121	0			
Methylene chloride	54.74	10	50	0	109	65-133	0			
Styrene	47.23	5.0	50	0	94.5	80-120	0			
Tetrachloroethene	48.06	5.0	50	0	96.1	79-120	0			
Toluene	46.84	5.0	50	0	93.7	80-120	0			
trans-1,3-Dichloropropene	41.8	5.0	50	0	83.6	80-120	0			
Trichloroethene	54.59	5.0	50	0	109	80-120	0			
Vinyl acetate	116.5	10	100	0	117	67-139	0			
Vinyl chloride	55.86	2.0	50	0	112	70-127	0			
Xylenes, Total	144.1	15	150	0	96.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	*43.38*	5.0	*50*	0	*86.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*42.1*	5.0	*50*	0	*84.2*	*72-125*	0			
Surr: Dibromofluoromethane	*46.28*	5.0	*50*	0	*92.6*	*71-125*	0			
Surr: Toluene-d8	*41.88*	5.0	*50*	0	*83.8*	*75-125*	0			

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63837** Instrument ID **VOA2** Method: **SW8260**

MS Sample ID: **0805601-04AMS** Units: **µg/L** Analysis Date: **5/28/2008 03:25 PM**

Client ID: Run ID: **VOA2_080528B** SeqNo: **1406317** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.89	5.0	50	0	91.8	80-120	0			
1,1,2,2-Tetrachloroethane	47.3	5.0	50	0	94.6	72-120	0			
1,1,2-Trichloroethane	47.41	5.0	50	0	94.8	80-120	0			
1,1-Dichloroethane	44.83	5.0	50	0	89.7	76-120	0			
1,1-Dichloroethene	44.54	5.0	50	0	89.1	73-124	0			
1,2-Dichloroethane	47.57	5.0	50	0	95.1	78-120	0			
2-Butanone	102.3	10	100	0	102	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	108.8	10	100	0	109	61-130	0			
4-Methyl-2-pentanone	111.4	10	100	0	111	65-127	0			
Acetone	106.9	10	100	0	107	59-137	0			
Benzene	47.77	5.0	50	0	95.5	73-121	0			
Bromodichloromethane	49.32	5.0	50	0	98.6	80-120	0			
Bromoform	44.57	5.0	50	0	89.1	79-120	0			
Bromomethane	46.98	5.0	50	0	94	66-137	0			
Carbon disulfide	86.27	10	100	0	86.3	68-141	0			
Carbon tetrachloride	38.35	5.0	50	0	76.7	75-124	0			
Chlorobenzene	43.93	5.0	50	0	87.9	80-120	0			
Chloroethane	43.52	5.0	50	0	87	76-121	0			
Chloroform	47.36	5.0	50	0	94.7	80-120	0			
Chloromethane	44.75	5.0	50	0	89.5	67-123	0			
cis-1,3-Dichloropropene	44.26	5.0	50	0	88.5	80-120	0			
Dibromochloromethane	42.95	5.0	50	0	85.9	80-120	0			
Ethylbenzene	58.52	5.0	50	15.72	85.6	80-120	0			
m,p-Xylene	88.48	10	100	0	88.5	78-121	0			
Methylene chloride	46.9	10	50	0	93.8	65-133	0			
Styrene	45.6	5.0	50	0	91.2	80-120	0			
Tetrachloroethene	41.8	5.0	50	0	83.6	79-120	0			
Toluene	44.02	5.0	50	0	88	80-120	0			
trans-1,3-Dichloropropene	40.8	5.0	50	0	81.6	80-120	0			
Trichloroethene	47.16	5.0	50	0	94.3	80-120	0			
Vinyl acetate	109.4	10	100	0	109	67-139	0			
Vinyl chloride	42.03	2.0	50	0	84.1	70-127	0			
Xylenes, Total	133.6	15	150	0	89	80-120	0			
Surr: 1,2-Dichloroethane-d4	*41.93*	5.0	*50*	0	*83.9*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*42.08*	5.0	*50*	0	*84.2*	*72-125*	0			
Surr: Dibromofluoromethane	*44.57*	5.0	*50*	0	*89.1*	*71-125*	0			
Surr: Toluene-d8	*41*	5.0	*50*	0	*82*	*75-125*	0			

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: R63837 Instrument ID VOA2 Method: SW8260

MSD Sample ID: 0805601-04AMSD Units: µg/L Analysis Date: 5/28/2008 03:49 PM

Client ID: Run ID: VOA2_080528B SeqNo: 1406318 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.03	5.0	50	0	98.1	80-120	45.89	6.62	20	
1,1,2,2-Tetrachloroethane	50.56	5.0	50	0	101	72-120	47.3	6.65	20	
1,1,2-Trichloroethane	49.8	5.0	50	0	99.6	80-120	47.41	4.93	20	
1,1-Dichloroethane	47.18	5.0	50	0	94.4	76-120	44.83	5.1	20	
1,1-Dichloroethene	47.98	5.0	50	0	96	73-124	44.54	7.43	20	
1,2-Dichloroethane	49.81	5.0	50	0	99.6	78-120	47.57	4.62	20	
2-Butanone	106.7	10	100	0	107	58-132	102.3	4.28	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	115.9	10	100	0	116	61-130	108.8	6.33	20	
4-Methyl-2-pentanone	116.8	10	100	0	117	65-127	111.4	4.73	20	
Acetone	109.6	10	100	0	110	59-137	106.9	2.52	20	
Benzene	50.81	5.0	50	0	102	73-121	47.77	6.17	20	
Bromodichloromethane	52.54	5.0	50	0	105	80-120	49.32	6.33	20	
Bromoform	47.3	5.0	50	0	94.6	79-120	44.57	5.96	20	
Bromomethane	50.64	5.0	50	0	101	66-137	46.98	7.51	20	
Carbon disulfide	93.63	10	100	0	93.6	68-141	86.27	8.18	20	
Carbon tetrachloride	41.62	5.0	50	0	83.2	75-124	38.35	8.18	20	
Chlorobenzene	46.42	5.0	50	0	92.8	80-120	43.93	5.51	20	
Chloroethane	46.89	5.0	50	0	93.8	76-121	43.52	7.44	20	
Chloroform	48.94	5.0	50	0	97.9	80-120	47.36	3.27	20	
Chloromethane	48.35	5.0	50	0	96.7	67-123	44.75	7.73	20	
cis-1,3-Dichloropropene	47.47	5.0	50	0	94.9	80-120	44.26	6.99	20	
Dibromochloromethane	45.31	5.0	50	0	90.6	80-120	42.95	5.36	20	
Ethylbenzene	62.77	5.0	50	15.72	94.1	80-120	58.52	7.01	20	
m,p-Xylene	94.53	10	100	0	94.5	78-121	88.48	6.61	20	
Methylene chloride	49.02	10	50	0	98	65-133	46.9	4.41	20	
Styrene	48.13	5.0	50	0	96.3	80-120	45.6	5.4	20	
Tetrachloroethene	44.75	5.0	50	0	89.5	79-120	41.8	6.82	20	
Toluene	46.63	5.0	50	0	93.3	80-120	44.02	5.77	20	
trans-1,3-Dichloropropene	43.88	5.0	50	0	87.8	80-120	40.8	7.28	20	
Trichloroethene	50.02	5.0	50	0	100	80-120	47.16	5.89	20	
Vinyl acetate	115.9	10	100	0	116	67-139	109.4	5.83	20	
Vinyl chloride	45.4	2.0	50	0	90.8	70-127	42.03	7.71	20	
Xylenes, Total	142	15	150	0	94.6	80-120	133.6	6.11	20	
Surr: 1,2-Dichloroethane-d4	*42.81*	5.0	*50*	0	*85.6*	*70-125*	41.93	*2.06*	*20*	
Surr: 4-Bromofluorobenzene	*44.6*	5.0	*50*	0	*89.2*	*72-125*	42.08	*5.81*	*20*	
Surr: Dibromofluoromethane	*46.59*	5.0	*50*	0	*93.2*	*71-125*	44.57	*4.43*	*20*	
Surr: Toluene-d8	*43.46*	5.0	*50*	0	*86.9*	*75-125*	41	*5.83*	*20*	

The following samples were analyzed in this batch: 0805558-01A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63600** Instrument ID **SWetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-052308** Units: **pH units** Analysis Date: **5/23/2008 10:00 AM**
Client ID: Run ID: **SWETCHEM_080523D** SeqNo: **1401952** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.08	0.10	6	0	101	90-110	0			

DUP Sample ID: **0805529-01ADUP** Units: **pH units** Analysis Date: **5/23/2008 10:00 AM**
Client ID: Run ID: **SWETCHEM_080523D** SeqNo: **1401961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	13.17	0.10	0	0	0	0-0	13.14	0.228	20	H

The following samples were analyzed in this batch: 0805558-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63719** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-052708** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403637** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-052708** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403638** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1420	1.0	1413	0	100	80-120	0			

DUP Sample ID: **0805363-01FDUP** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403641** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	3550	1.0	0	0	0	0-0	3570	0.562	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63797** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-052808** Units: **°F** Analysis Date: **5/28/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080528C** SeqNo: **1405214** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID: **0805558-01DDUP** Units: **°F** Analysis Date: **5/28/2008 03:00 PM**
Client ID: **Injection Well** Run ID: **WETCHEM_080528C** SeqNo: **1405217** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch: 0805558-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63808** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-052808** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405421** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-052808** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405422** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1003	5.0	1000	0	100	80-120	0			
Alkalinity, Total (As CaCO3)	1003	5.0	1000	0	100	80-120	0			

DUP Sample ID: **0805543-01FDUP** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405442** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	538	5.0	0	0	0	0-0	530	1.5	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	538	5.0	0	0	0	0-0	530	1.5	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: R63822 Instrument ID Balance1 Method: E160.1 (Dissolve)

MBLK Sample ID: BLANK Units: mg/L Analysis Date: 5/27/2008 03:00 PM
Client ID: Run ID: BALANCE1_080527K SeqNo: 1405748 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	ND	10								

LCS Sample ID: LCS Units: mg/L Analysis Date: 5/27/2008 03:00 PM
Client ID: Run ID: BALANCE1_080527K SeqNo: 1405750 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1004	10	1000	0	100	85-115	0			

DUP Sample ID: 0805531-21BDUP Units: mg/L Analysis Date: 5/27/2008 03:00 PM
Client ID: Run ID: BALANCE1_080527K SeqNo: 1405729 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	5874	10	0	0	0	0-0	5882	0.136	20	

DUP Sample ID: 0805558-01CDUP Units: mg/L Analysis Date: 5/27/2008 03:00 PM
Client ID: Injection Well Run ID: BALANCE1_080527K SeqNo: 1405743 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1232	10	0	0	0	0-0	1238	0.486	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R64025** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 12:00 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410755** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*4.751*	0.10	*5*	0	*95*	*85-115*	0			

LCS Sample ID: **WLCSW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 12:25 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410757** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.8	0.50	20	0	99	90-110	0			
Sulfate	20.2	0.50	20	0	101	90-110	0			
Surr: Selenate (surr)	*4.969*	0.10	*5*	0	*99.4*	*85-115*	0			

MS Sample ID: **0805556-01BMS** Units: **mg/L** Analysis Date: **6/2/2008 03:39 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410766** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	284.1	0.50	10	280.2	38.6	80-120	0			SEO
Sulfate	1394	0.50	10	1422	-279	80-120	0			SEO
Surr: Selenate (surr)	*4.656*	0.10	*5*	0	*93.1*	*85-115*	0			

DUP Sample ID: **0805556-01BDUP** Units: **mg/L** Analysis Date: **6/2/2008 03:14 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410765** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	272.4	0.50	0	0	0	0-0	280.2	2.84	20	E
Sulfate	1384	0.50	0	0	0	0-0	1422	2.7	20	E
Surr: Selenate (surr)	*4.517*	0.10	*5*	0	*90.3*	*85-115*	4.649	*2.88*	*20*	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page ___ of ___

e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Project Manager: | Work Order #: 680555

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Qrtly.	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Injection Well	5/22/08	1410	L	Y	9	X	X	X	X	X	X	X	X	X		
2	Trip Blank																
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Aaron Strange

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☐ Std 10 Wk Days ☐ 7 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
Aaron Strange	5/22/08	1615		10 Day TAT.
Relinquished by:	Date:	Time:	Received by (Laboratory): 5/22/08 0840	
Logged by (Laboratory)	Date:	Time:	Checked by (Laboratory):	

Cooler ID | Cooler Temp:

QC Packages: (Check One Box Below)
- ☑ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other
- ☐ TRRP CheckList
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 5/23/2008 08:40

Work Order Number 0805558 Received by: RNG

Checklist completed by [signature] Signature 5/23/08 Date Reviewed by [initials] Initials 5/27/08 Date

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ✓	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✓	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✓
Chain of custody present?	Yes ✓	No	
Chain of custody signed when relinquished and received?	Yes ✓	No	
Chain of custody agrees with sample labels?	Yes ✓	No	
Samples in proper container/bottle?	Yes ✓	No	
Sample containers intact?	Yes ✓	No	
Sufficient sample volume for indicated test?	Yes ✓	No	
All samples received within holding time?	Yes ✓	No	
Container/Temp Blank temperature in compliance?	Yes ✓	No	
Temperature(s)/Thermometer(s):	2.9c	002	
Cooler(s)/Kit(s):	2369		
Water - VOA vials have zero headspace?	Yes ✓	No	No VOA vials submitted
Water - pH acceptable upon receipt?	Yes ✓	No	N/A

Adjusted? Checked by

Login Notes:

Client contacted: Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action

D800250

ALS e-Lab Analytical
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

CUSTODY

Date: 5/27/08 Time

Name:

Company: Navajo Re

SEAL

1615

Seal Broken By:

Date:

ALS Laboratory Group

Date: 29-May-08

Client: ALS Laboratory Group
Project: 0805558
Work Order: **0805504**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0805504-01	0805558-01F	Water		5/22/2008 14:10	5/28/2008 09:40	☐

ALS Laboratory Group

Date: *29-May-08*

Client: ALS Laboratory Group
Project: 0805558
Sample ID: 0805558-01F
Collection Date: 5/22/2008 02:10 PM
Work Order: 0805504
Lab ID: 0805504-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **DB**
Cyanide, Reactive	ND		40.0	mg/Kg	1	5/29/2008
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **DB**
Sulfide, Reactive	ND		40.0	mg/Kg	1	5/29/2008

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Client: ALS Laboratory Group
Work Order: 0805504
Project: 0805558

Date: *29-May-08*

QC BATCH REPORT

Batch ID: **R59003** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID: **WBLKS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977280** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: **WLCSS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977281** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	220.2	40	250	0	88.1	75-125	0			

LCSD Sample ID: **WLCSDS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977290** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	220.2	40	250	0	88.1	75-125	220.2	0	35	

MS Sample ID: **0805504-01A MS** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: **0805558-01F** Run ID: **WETCHEM_080529E** SeqNo: **977283** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	264.2	40	250	0	106	50-150	0			

MSD Sample ID: **0805504-01A MSD** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: **0805558-01F** Run ID: **WETCHEM_080529E** SeqNo: **977284** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	264.2	40	250	0	106	50-150	264.2	0	35	

The following samples were analyzed in this batch: 0805504-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: ALS Laboratory Group
Work Order: 0805504
Project: 0805558

QC BATCH REPORT

Batch ID: **R59004** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID: **WBLKS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529F** SeqNo: **977295** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0805504-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

0805504

Subcontractor:
e-Lab Analytical, Inc.
3352 128th Ave.
Holland, MI 49424
TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Date: 23-May-08
COC ID: 6398
Due Date 04-Jun-08

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	0805558	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jeff.croston@alsenviro.com	eMail CC	glenda.ramos@alsenviro.com	J

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
0805558-01F (Injection Well)	Water	5/22/2008 14:10	(1) 1LPNEAT	X	X								

Comments:

Please analyze for Reactive Cyanide & Reactive Sulfide.

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
					Std
Relinquished by:	Date/Time 5.27.08	Received by:	Date/Time 5/28/08 0940		

ALS Laboratory Group

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 5/28/2008 09:40

Work Order Number 0805504 Received by: AJK

Checklist completed by _____ 5/28/08 Reviewed by _____ 5/28/08
Signature Date Initials Date

Matrix: Water Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.0°C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

UPS Next Day Air Saver

WEIGHT 49 | DIMENSIONAL WEIGHT | LARGE PACKAGE | SHIPPER RELEASE 1P

Saver

The shipper authorizes UPS to act as forwarding agent for export control and customs purposes. The shipper certifies that these commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to U.S. law is prohibited.

SHIPMENT FROM

UPS ACCOUNT NO. 698174

REFERENCE NUMBER
SUB CONTRACT

RICHARD SANCHEZ TELEPHONE 281-530-5656

ALS LABORATORY GROUP

1450 STANCLIFF RD STE # 210

HOUSTON TX 77099

DELIVERY TO

RECEIVING TELEPHONE 616-399-6070

ALS LABORATORY GROUP

3352 128TH AVE

HOLLAND MI 49424

(URC 1.72 5/2007)
0201952502609 1/07

United Parcel Service, Louisville, KY

MI 495 9-04

UPS Next Day Air Saver 1P

1Z 698 174 23 1005 3901

TRACKING NUMBER

SHIPMENT ID NUMBER 6981 7478 BCW

3352 128TH AVE

HOLLAND MI 49424

P: S: I:

M220-RDL

1500

1Z 698 174 23 1005 3901

1256391 SS3004 US 04959 May 28 08:06:53 2008 HIP 7.0.1 INT4420

HEAVY

49 lbs.
FedEx M-1578
119686 3/00 WCS

HEAVY

49 lbs.
FedEx M-1578
119685 3/00 WCS

e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

QUALITY • INTEGRITY • SERVICE

CUSTODY SEAL

Date: 5-27-08 Time: 1640
Name: RICHARD SANCHEZ
Company: ALS

Seal Broken By:

Date: 5/28/08

08055504

REFINING COMPANY, LLC

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 ENV/PURCH/MKTG
(505) 746-5421 ENGINEERING

January 18, 2008

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 Fourth Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

While generating this report an error was found and corrected on the 2007 third quarter monthly injection pressures, rates and volumes spread sheet. Please see the enclosed corrected spread sheet.

Also enclosed, please find the sampling results for the fourth quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2007 to December 31, 2007. We have disposed a total of 36,349,675 barrels of fluid into the two wells as of December 31, 2007. This is broken down as follows: 24,507,561 barrels into WDW-1 and 11,842,114 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Aaron Strange

Aaron Strange
Sr. Environmental Technician

Encl.

cc: DGM
File: REF:ART: 4 A 02 D

RECEIVED
2008 JUN 23 PM 2 01

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													Previous Quarter	23,700,982
Oct-07	273	316	1	281	304	162	96	194	18	9,624	10,435	5,543	298,355	23,999,337
Nov-07	293	386	87	242	280	64	206	333	29	8,297	9,597	2,184	257,219	24,256,556
Dec-07	395	468	368	236	264	146	193	272	113	8,097	9,036	5,000	251,005	24,507,561
WDW-2													Previous Quarter	11,362,072
Oct-07	339	406	30	133	160	0	477	500	168	4,546	5,469	0	140,915	11,502,987
Nov-07	347	401	121	144	176	36	486	500	303	4,925	6,038	1,237	152,676	11,655,663
Dec-07	410	443	367	175	187	153	455	500	310	6,015	6,428	5,242	186,452	11,842,114
													Total Injected fluids:	36,349,675

H:\jeff\Working folder\OCD\Injection well\2007\
4TH qtrly rpt
Injection fluids

1/15/20083:42 PM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 THIRD QUARTER WEEKLY WHAMS LEVEL TABLE

	10/2/07	10/9/07	10/15/07	10/23/07	10/30/07	11/6/07	11/12/07	11/20/07	11/27/07	12/3/07	12/11/07	12/18/07	12/25/07
WDW -1[1]	200	200	200	200	200	200	200	200	190	190	190	190	190
WDW-2[1]	160	160	160	160	160	160	160	160	160	160	160	160	160
WDW-3[2]	*	*	*	*	*	*	*	*	*	*	240	240	240

[1] Graduated 200 gallon tank.

[2] 300 gallon tank, filled the week of 12/10/07, no fluids were injected as of 12/31/07.

Page 4250 of 5828

November 30, 2007

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Well Quarterly

Work Order : **0711312**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 1 sample on 11/14/2007 09:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 35.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Rebecca L. Hunt

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: November 30, 2007

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312

LELAP Certificate #03087

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Dat	Date Received	Hold
0711312-01	Inj. Well	Water		11/13/2007 09:15	11/14/2007 09:20	☐

e-Lab Analytical, Inc. *Date: November 30, 2007*

Client: Navajo Refining Company LELAP Certificate #03087
Project: Injection Well Quarterly **Case Narrative**
Work Order: 0711312

Metals (sample Inj. Well) could not be reported at a lower dilution for all elements due the nature of the sample.

Batch 26751 Metals MS/MSD was an unrelated sample.

Batch 26771 Semivolatiles LCS/LCSD RPD recovery was above the control limits for Benzidine (23.7%). Recoveries met method criteria in both LCS/LCSD.

Batch R57123 Volatiles MS/MSD was an unrelated sample.

Batch R57038 Anions MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Inj. Well
Collection Date: 11/13/2007 9:15:00 AM

Work Order: 0711312
Lab ID: 0711312-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **11/24/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	11/25/2007 6:38:10 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **11/15/2007**	Analyst: **ALR**
Aluminum	**1.85**		**0.100**	**mg/L**	10	11/19/2007 8:55:00 PM
Arsenic	**0.147**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Barium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Beryllium	ND		0.00200	mg/L	1	11/19/2007 9:01:00 PM
Boron	**0.241**		**0.0200**	**mg/L**	1	11/19/2007 9:01:00 PM
Cadmium	ND		0.0200	mg/L	10	11/17/2007 12:10:00 AM
Calcium	**119**		**5.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Chromium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Cobalt	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Copper	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Iron	**4.17**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Lead	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Magnesium	**43.3**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Manganese	**0.117**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Molybdenum	**0.144**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Nickel	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Potassium	**27.4**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Selenium	**0.452**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Silver	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Sodium	**1,200**		**2.00**	**mg/L**	10	11/19/2007 8:55:00 PM
Vanadium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Zinc	**0.190**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **11/16/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Methylphenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Nitrophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
3-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
4-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
4-Nitrophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Acenaphthene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Acenaphthylene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
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e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Anthracene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Benzidine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Hexachloroethane	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Isophorone	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Naphthalene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Nitrobenzene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Pentachlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Phenanthrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Phenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Pyrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Surr: 2,4,6-Tribromophenol	*86.1*		*42-124*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 2-Fluorobiphenyl	*63.6*		*48-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 2-Fluorophenol	*64.9*		*20-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 4-Terphenyl-d14	*71.0*		*51-135*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: Nitrobenzene-d5	*65.9*		*41-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: Phenol-d6	*69.3*		*20-120*	*%REC*	1	11/19/2007 5:17:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
2-Butanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
2-Hexanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Acetone	**0.042**		**0.010**	**mg/L**	1	11/21/2007 5:00:00 PM
Benzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromodichloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromoform	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromomethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Carbon disulfide	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM

Qualifiers:
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* - Value exceeds Maximum Contaminant Level
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E - Value above quantitation range
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e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloroform	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Dibromochloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Ethylbenzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
m,p-Xylene	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Methylene chloride	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Styrene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Tetrachloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Toluene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Trichloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Vinyl acetate	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Vinyl chloride	ND		0.0020	mg/L	1	11/21/2007 5:00:00 PM
Xylenes, Total	ND		0.015	mg/L	1	11/21/2007 5:00:00 PM
Surr: 1,2-Dichloroethane-d4	*87.0*		*70-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: 4-Bromofluorobenzene	*92.8*		*72-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: Dibromofluoromethane	*102*		*71-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: Toluene-d8	*102*		*75-125*	*%REC*	1	11/21/2007 5:00:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	11/16/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	11/16/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **RPM**
Chloride	**889**		**50.0**	**mg/L**	100	11/20/2007 7:10:00 PM
Sulfate	**1,650**		**50.0**	**mg/L**	100	11/20/2007 7:10:00 PM
Surr: Selenate (surr)	*113*		*85-115*	*%REC*	100	11/20/2007 7:10:00 PM
ALKALINITY			**E310.1**			Analyst: **DM**
Alkalinity, Bicarbonate (As CaCO3)	**334**		**5.00**	**mg/L**	1	11/19/2007 4:00:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	11/19/2007 4:00:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	11/19/2007 4:00:00 PM
Alkalinity, Total (As CaCO3)	**334**		**5.00**	**mg/L**	1	11/19/2007 4:00:00 PM
CONDUCTIVITY			**E120.1**			Analyst: **DM**
Specific Conductance	**5,980**		**1.00**	**µmhos/cm**	1	11/16/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	11/15/2007

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			E150.1			Analyst: **MAM**
pH	7.37	H	0.100	pH units	1	11/14/2007
TOTAL DISSOLVED SOLIDS			E160.1			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	4,300		10.0	mg/L	1	11/15/2007 3:00:00 PM

Qualifiers:

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e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

Date: *Nov 30 2007*

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID **MBLKW2-111507** Units: **mg/L** Analysis Date: **11/16/07 23:57**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264730** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	0.0003037	0.0020								J
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	0.0002719	0.0050								J
Copper	ND	0.0050								
Iron	0.05465	0.20								J
Lead	0.000386	0.0050								J
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	0.0004153	0.0050								J
Potassium	0.04252	0.20								J
Selenium	ND	0.0050								
Silver	ND	0.0050								
Vanadium	0.0006997	0.0050								J
Zinc	ND	0.0050								

MBLK Sample ID **MBLKW2-111507** Units: **mg/L** Analysis Date: **11/19/07 17:19**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265810** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.0003468	0.0020								J
Boron	ND	0.020								
Sodium	ND	0.20								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID **MLCSW2-111507** Units: **mg/L** Analysis Date: **11/17/07 0:04**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264732** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04957	0.0050	0.05	0	99.1	80-120	0			
Barium	0.05136	0.0050	0.05	0	103	80-120	0			
Cadmium	0.05239	0.0020	0.05	0	105	80-120	0			
Calcium	5.456	0.50	5	0	109	80-120	0			
Chromium	0.05098	0.0050	0.05	0	102	80-120	0			
Cobalt	0.0535	0.0050	0.05	0	107	80-120	0			
Copper	0.05107	0.0050	0.05	0	102	80-120	0			
Iron	5.187	0.20	5	0	104	80-120	0			
Lead	0.05153	0.0050	0.05	0	103	80-120	0			
Magnesium	5.225	0.20	5	0	104	80-120	0			
Manganese	0.05052	0.0050	0.05	0	101	80-120	0			
Molybdenum	0.05028	0.0050	0.05	0	101	80-120	0			
Nickel	0.05157	0.0050	0.05	0	103	80-120	0			
Potassium	5.175	0.20	5	0	104	80-120	0			
Selenium	0.05426	0.0050	0.05	0	109	80-120	0			
Silver	0.04955	0.0050	0.05	0	99.1	80-120	0			
Vanadium	0.05257	0.0050	0.05	0	105	80-120	0			
Zinc	0.05273	0.0050	0.05	0	105	80-120	0			

LCS Sample ID **MLCSW2-111507** Units: **mg/L** Analysis Date: **11/19/07 17:26**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265811** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.05013	0.0020	0.05	0	100	80-120	0			
Boron	0.5145	0.020	0.5	0	103	80-120	0			
Sodium	4.668	0.20	5	0	93.4	80-120	0			

ND - Not Detected at the Reporting Limit
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O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID **0711313-06EMS** Units: **mg/L** Analysis Date: **11/17/07 3:00**
Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264759** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06728	0.0050	0.05	0.01503	104	80-120	0			
Barium	0.1102	0.0050	0.05	0.06018	100	80-120	0			
Beryllium	0.05128	0.0020	0.05	0.0006468	101	80-120	0			
Boron	0.8142	0.020	0.5	0.2942	104	80-120	0			
Cadmium	0.04984	0.0020	0.05	0.0003068	99.1	80-120	0			
Calcium	149.3	0.50	5	148.6	14	80-120	0			SO
Chromium	0.045	0.0050	0.05	0.0002828	89.4	80-120	0			
Cobalt	0.05518	0.0050	0.05	0.007226	95.9	80-120	0			
Copper	0.04599	0.0050	0.05	0.0007485	90.5	80-120	0			
Iron	5.172	0.20	5	0.6444	90.6	80-120	0			
Lead	0.04957	0.0050	0.05	0.0003491	98.4	80-120	0			
Magnesium	31.26	0.20	5	28.38	57.6	80-120	0			SO
Manganese	2.072	0.0050	0.05	2.124	-104	80-120	0			SEO
Molybdenum	0.05029	0.0050	0.05	0.002178	96.2	80-120	0			
Nickel	0.0611	0.0050	0.05	0.01618	89.8	80-120	0			
Potassium	21.17	0.20	5	17.18	79.8	80-120	0			S
Selenium	0.05263	0.0050	0.05	0.001845	102	80-120	0			
Silver	0.04467	0.0050	0.05	0.0003217	88.7	80-120	0			
Sodium	139	0.20	5	141.8	-56	80-120	0			SO
Vanadium	0.06015	0.0050	0.05	0.01373	92.8	80-120	0			
Zinc	0.05148	0.0050	0.05	0.002264	98.4	80-120	0			

MS Sample ID **0711313-06EMS** Units: **mg/L** Analysis Date: **11/19/07 18:55**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265940** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05348	0.010	0.05	0.007074	92.8	80-120	0			

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID **0711313-06EMSD** Units: **mg/L** Analysis Date: **11/17/07 3:06**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264760** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.07399	0.0050	0.05	0.01503	118	80-120	0.06728	9.5	15	
Barium	0.1087	0.0050	0.05	0.06018	97	80-120	0.1102	1.37	15	
Beryllium	0.04895	0.0020	0.05	0.0006468	96.6	80-120	0.05128	4.65	15	
Boron	0.7898	0.020	0.5	0.2942	99.1	80-120	0.8142	3.04	15	
Cadmium	0.04852	0.0020	0.05	0.0003068	96.4	80-120	0.04984	2.68	15	
Calcium	146	0.50	5	148.6	-52	80-120	149.3	2.24	15	SO
Chromium	0.04641	0.0050	0.05	0.0002828	92.3	80-120	0.045	3.09	15	
Cobalt	0.05651	0.0050	0.05	0.007226	98.6	80-120	0.05518	2.38	15	
Copper	0.04666	0.0050	0.05	0.0007485	91.8	80-120	0.04599	1.45	15	
Iron	5.181	0.20	5	0.6444	90.7	80-120	5.172	0.174	15	
Lead	0.0476	0.0050	0.05	0.0003491	94.5	80-120	0.04957	4.05	15	
Magnesium	30.78	0.20	5	28.38	48	80-120	31.26	1.55	15	SO
Manganese	2.107	0.0050	0.05	2.124	-34	80-120	2.072	1.68	15	SEO
Molybdenum	0.04949	0.0050	0.05	0.002178	94.6	80-120	0.05029	1.6	15	
Nickel	0.05928	0.0050	0.05	0.01618	86.2	80-120	0.0611	3.02	15	
Potassium	20.87	0.20	5	17.18	73.8	80-120	21.17	1.43	15	S
Selenium	0.05122	0.0050	0.05	0.001845	98.8	80-120	0.05263	2.72	15	
Silver	0.04655	0.0050	0.05	0.0003217	92.5	80-120	0.04467	4.12	15	
Sodium	137.8	0.20	5	141.8	-80	80-120	139	0.867	15	SO
Vanadium	0.06479	0.0050	0.05	0.01373	102	80-120	0.06015	7.43	15	
Zinc	0.05098	0.0050	0.05	0.002264	97.4	80-120	0.05148	0.976	15	

MSD Sample ID **0711313-06EMSD** Units: **mg/L** Analysis Date: **11/19/07 19:01**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265941** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05155	0.010	0.05	0.007074	89	80-120	0.05348	3.68	15	

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/17/07 2:47**
Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264757** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.01783	0.0050	0	0	0	0-0	0.01503	17	25	
Barium	0.06495	0.0050	0	0	0	0-0	0.06018	7.62	25	
Beryllium	0.0004054	0.0020	0	0	0	0-0	0.0006468	0	25	J
Boron	0.3056	0.020	0	0	0	0-0	0.2942	3.8	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.0003068	0	25	
Calcium	151.1	0.50	0	0	0	0-0	148.6	1.67	25	
Chromium	ND	0.0050	0	0	0	0-0	0.0002828	0	25	
Cobalt	0.007171	0.0050	0	0	0	0-0	0.007226	0.764	25	
Copper	0.0005842	0.0050	0	0	0	0-0	0.0007485	0	25	J
Iron	0.6462	0.20	0	0	0	0-0	0.6444	0.279	25	
Lead	ND	0.0050	0	0	0	0-0	0.0003491	0	25	
Magnesium	28.36	0.20	0	0	0	0-0	28.38	0.0705	25	
Molybdenum	0.002077	0.0050	0	0	0	0-0	0.002178	0	25	J
Nickel	0.0161	0.0050	0	0	0	0-0	0.01618	0.496	25	
Potassium	17.34	0.20	0	0	0	0-0	17.18	0.927	25	
Selenium	ND	0.0050	0	0	0	0-0	0.001845	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0003217	0	25	
Sodium	141.8	0.20	0	0	0	0-0	141.8	0	25	
Vanadium	0.01359	0.0050	0	0	0	0-0	0.01373	1.02	25	
Zinc	0.002235	0.0050	0	0	0	0-0	0.002264	0	25	J

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/19/07 17:38**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265813** Prep Date: **11/15/2007** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	2.195	0.25	0	0	0	0-0	2.163	1.47	25	

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/19/07 18:23**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265819** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.007846	0.010	0	0	0	0-0	0.007074	0	25	J

The following samples were analyzed in this batch: 0711312-01B

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26874** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID **GBLKW3-112407** Units: **mg/L** Analysis Date: **11/25/07 17:44**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269056** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID **GLCSW3-112407** Units: **mg/L** Analysis Date: **11/25/07 17:48**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269057** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00475	0.00020	0.005	0	95	85-115	0			

LCSD Sample ID **GLCSDW3-11240** Units: **mg/L** Analysis Date: **11/25/07 17:50**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269058** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00498	0.00020	0.005	0	99.6	85-115	0.00475	4.73	20	

MS Sample ID **0711456-01DMS** Units: **mg/L** Analysis Date: **11/25/07 18:02**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269061** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00478	0.00020	0.005	0.000033	94.9	85-115	0			

MSD Sample ID **0711456-01DMSD** Units: **mg/L** Analysis Date: **11/25/07 18:04**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269062** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00519	0.00020	0.005	0.000033	103	85-115	0.00478	8.22	20	

DUP Sample ID **0711456-01DDUP** Units: **mg/L** Analysis Date: **11/25/07 17:57**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269060** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0.000033	0	20	

The following samples were analyzed in this batch: 0711312-01B

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID **SBLKW1-071116** Units: **µg/L** Analysis Date: **11/19/07 14:34**

Client ID: Run ID: **SV-3_071119B** SeqNo: **1266313** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*92.41*	5.0	*100*	0	*92.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*69.89*	5.0	*100*	0	*69.9*	*48-120*	0			
Surr: 2-Fluorophenol	*68.99*	5.0	*100*	0	*69*	*20-120*	0			
Surr: 4-Terphenyl-d14	*74.64*	5.0	*100*	0	*74.6*	*51-135*	0			
Surr: Nitrobenzene-d5	*71.66*	5.0	*100*	0	*71.7*	*41-120*	0			
Surr: Phenol-d6	*75.26*	5.0	*100*	0	*75.3*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID **SLCSW1-071116** Units: **µg/L** Analysis Date: **11/19/07 15:01**
Client ID: Run ID: **SV-3_071119B** SeqNo: **1266314** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	39.4	5.0	50	0	78.8	54-118	0			
2,4,5-Trichlorophenol	89.6	5.0	100	0	89.6	52-115	0			
2,4,6-Trichlorophenol	81.96	5.0	100	0	82	56-115	0			
2-Methylnaphthalene	42.93	5.0	50	0	85.9	46-117	0			
2-Methylphenol	83.45	5.0	100	0	83.4	53-115	0			
2-Nitroaniline	54.19	5.0	50	0	108	53-123	0			
2-Nitrophenol	78.88	5.0	100	0	78.9	53-115	0			
3&4-Methylphenol	125.9	5.0	150	0	83.9	48-115	0			
3-Nitroaniline	43.56	5.0	50	0	87.1	26-115	0			
4-Nitroaniline	52.68	5.0	50	0	105	47-115	0			
4-Nitrophenol	116	5.0	100	0	116	26-133	0			
Acenaphthene	45.42	5.0	50	0	90.8	57-115	0			
Acenaphthylene	45.59	5.0	50	0	91.2	57-118	0			
Aniline	30.91	5.0	50	0	61.8	36-115	0			
Anthracene	45.48	5.0	50	0	91	65-115	0			
Benz(a)anthracene	47.55	5.0	50	0	95.1	53-115	0			
Benzidine	30.52	5.0	50	0	61	10-115	0			
Hexachloroethane	37.97	5.0	50	0	75.9	54-115	0			
Indeno(1,2,3-cd)pyrene	45.31	5.0	50	0	90.6	51-115	0			
Isophorone	40.34	5.0	50	0	80.7	55-115	0			
N-Nitrosodi-n-propylamine	40.38	5.0	50	0	80.8	55-115	0			
N-Nitrosodimethylamine	43.16	5.0	50	0	86.3	42-115	0			
N-Nitrosodiphenylamine	39.58	5.0	50	0	79.2	52-115	0			
Naphthalene	41.89	5.0	50	0	83.8	55-115	0			
Nitrobenzene	40.24	5.0	50	0	80.5	40-124	0			
Pentachlorophenol	105.5	5.0	100	0	106	45-125	0			
Phenanthrene	44.7	5.0	50	0	89.4	57-115	0			
Phenol	84.22	5.0	100	0	84.2	38-115	0			
Pyrene	47.35	5.0	50	0	94.7	51-115	0			
Surr: 2,4,6-Tribromophenol	*96.31*	5.0	*100*	0	*96.3*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*69.86*	5.0	*100*	0	*69.9*	*48-120*	0			
Surr: 2-Fluorophenol	*73.12*	5.0	*100*	0	*73.1*	*20-120*	0			
Surr: 4-Terphenyl-d14	*75.81*	5.0	*100*	0	*75.8*	*51-135*	0			
Surr: Nitrobenzene-d5	*68.53*	5.0	*100*	0	*68.5*	*41-120*	0			
Surr: Phenol-d6	*77.13*	5.0	*100*	0	*77.1*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID **SLCSDW1-071116** Units: **µg/L** Analysis Date: **11/19/07 15:28**

Client ID: Run ID: **SV-3_071119B** SeqNo: **1266315** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.11	5.0	50	0	82.2	54-118	39.4	4.25	20	
2,4,5-Trichlorophenol	86.98	5.0	100	0	87	52-115	89.6	2.97	20	
2,4,6-Trichlorophenol	82.98	5.0	100	0	83	56-115	81.96	1.24	20	
2-Methylnaphthalene	45.1	5.0	50	0	90.2	46-117	42.93	4.93	20	
2-Methylphenol	83.41	5.0	100	0	83.4	53-115	83.45	0.0409	20	
2-Nitroaniline	51.42	5.0	50	0	103	53-123	54.19	5.26	20	
2-Nitrophenol	78.43	5.0	100	0	78.4	53-115	78.88	0.58	20	
3&4-Methylphenol	125.5	5.0	150	0	83.7	48-115	125.9	0.277	20	
3-Nitroaniline	44.89	5.0	50	0	89.8	26-115	43.56	3	20	
4-Nitroaniline	52.11	5.0	50	0	104	47-115	52.68	1.1	20	
4-Nitrophenol	115.8	5.0	100	0	116	26-133	116	0.18	20	
Acenaphthene	45.35	5.0	50	0	90.7	57-115	45.42	0.16	20	
Acenaphthylene	44.43	5.0	50	0	88.9	57-118	45.59	2.57	20	
Aniline	33.59	5.0	50	0	67.2	36-115	30.91	8.32	20	
Anthracene	45.52	5.0	50	0	91	65-115	45.48	0.0854	20	
Benz(a)anthracene	47.71	5.0	50	0	95.4	53-115	47.55	0.352	20	
Benzidine	38.73	5.0	50	0	77.5	10-115	30.52	23.7	20	R
Hexachloroethane	38.39	5.0	50	0	76.8	54-115	37.97	1.1	20	
Indeno(1,2,3-cd)pyrene	47.31	5.0	50	0	94.6	51-115	45.31	4.32	20	
Isophorone	43.3	5.0	50	0	86.6	55-115	40.34	7.06	20	
N-Nitrosodi-n-propylamine	40.39	5.0	50	0	80.8	55-115	40.38	0.0315	20	
N-Nitrosodimethylamine	45.31	5.0	50	0	90.6	42-115	43.16	4.87	20	
N-Nitrosodiphenylamine	40.7	5.0	50	0	81.4	52-115	39.58	2.79	20	
Naphthalene	43.92	5.0	50	0	87.8	55-115	41.89	4.71	20	
Nitrobenzene	40.55	5.0	50	0	81.1	40-124	40.24	0.773	20	
Pentachlorophenol	105.6	5.0	100	0	106	45-125	105.5	0.116	20	
Phenanthrene	45.06	5.0	50	0	90.1	57-115	44.7	0.812	20	
Phenol	86.8	5.0	100	0	86.8	38-115	84.22	3.02	20	
Pyrene	46.74	5.0	50	0	93.5	51-115	47.35	1.29	20	
Surr: 2,4,6-Tribromophenol	*94.74*	5.0	*100*	0	*94.7*	*42-124*	96.31	*1.64*	*20*	
Surr: 2-Fluorobiphenyl	*74.74*	5.0	*100*	0	*74.7*	*48-120*	69.86	*6.75*	*20*	
Surr: 2-Fluorophenol	*72.8*	5.0	*100*	0	*72.8*	*20-120*	73.12	*0.433*	*20*	
Surr: 4-Terphenyl-d14	*80.54*	5.0	*100*	0	*80.5*	*51-135*	75.81	*6.05*	*20*	
Surr: Nitrobenzene-d5	*76.56*	5.0	*100*	0	*76.6*	*41-120*	68.53	*11.1*	*20*	
Surr: Phenol-d6	*83.03*	5.0	*100*	0	*83*	*20-120*	77.13	*7.37*	*20*	

The following samples were analyzed in this batch: 0711312-01E

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID **VBLKW-112107** Units: **µg/L** Analysis Date: **11/21/07 12:49**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269780** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*42.59*	5.0	*50*	0	*85.2*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*50.37*	5.0	*50*	0	*101*	*72-125*	0			
Surr: Dibromofluoromethane	*48.48*	5.0	*50*	0	*97*	*71-125*	0			
Surr: Toluene-d8	*52.5*	5.0	*50*	0	*105*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID **VLCSW-112107** Units: **µg/L** Analysis Date: **11/21/07 14:55**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269782** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	55.83	5.0	50	0	112	80-120	0			
1,1,2,2-Tetrachloroethane	47.95	5.0	50	0	95.9	72-120	0			
1,1,2-Trichloroethane	45.77	5.0	50	0	91.5	80-120	0			
1,1-Dichloroethane	51.82	5.0	50	0	104	76-120	0			
1,1-Dichloroethene	53.78	5.0	50	0	108	73-124	0			
1,2-Dichloroethane	47.67	5.0	50	0	95.3	78-120	0			
2-Butanone	96.44	10	100	0	96.4	58-132	0			
2-Chloroethyl vinyl ether	77.45	10	100	0	77.4	74-120	0			
2-Hexanone	92.5	10	100	0	92.5	61-130	0			
4-Methyl-2-pentanone	105.7	10	100	0	106	65-127	0			
Acetone	100.1	10	100	0	100	59-137	0			
Benzene	47.01	5.0	50	0	94	73-121	0			
Bromodichloromethane	49.86	5.0	50	0	99.7	80-120	0			
Bromoform	45.58	5.0	50	0	91.2	79-120	0			
Bromomethane	52.49	5.0	50	0	105	66-137	0			
Carbon disulfide	102.6	10	100	0	103	68-141	0			
Carbon tetrachloride	49.23	5.0	50	0	98.5	75-124	0			
Chlorobenzene	49.24	5.0	50	0	98.5	80-120	0			
Chloroethane	50.21	5.0	50	0	100	76-121	0			
Chloroform	52.01	5.0	50	0	104	80-120	0			
Chloromethane	47.41	5.0	50	0	94.8	67-123	0			
cis-1,3-Dichloropropene	47.12	5.0	50	0	94.2	80-120	0			
Dibromochloromethane	52.13	5.0	50	0	104	80-120	0			
Ethylbenzene	51.73	5.0	50	0	103	80-120	0			
m,p-Xylene	98.1	10	100	0	98.1	78-121	0			
Methylene chloride	51.91	10	50	0	104	65-133	0			
Styrene	47.17	5.0	50	0	94.3	80-120	0			
Tetrachloroethene	47.43	5.0	50	0	94.9	79-120	0			
Toluene	52.88	5.0	50	0	106	80-120	0			
trans-1,3-Dichloropropene	49.9	5.0	50	0	99.8	80-120	0			
Trichloroethene	48.46	5.0	50	0	96.9	80-120	0			
Vinyl acetate	103.4	10	100	0	103	67-139	0			
Vinyl chloride	45.7	2.0	50	0	91.4	70-127	0			
Xylenes, Total	151.2	15	150	0	101	80-120	0			
Surr: 1,2-Dichloroethane-d4	*47.3*	5.0	*50*	0	*94.6*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*53.8*	5.0	*50*	0	*108*	*72-125*	0			
Surr: Dibromofluoromethane	*54.15*	5.0	*50*	0	*108*	*71-125*	0			
Surr: Toluene-d8	*57.23*	5.0	*50*	0	*114*	*75-125*	0			

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID **0711374-01AMS** Units: **µg/L** Analysis Date: **11/21/07 15:45**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269783** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.34	5.0	50	0	90.7	80-120	0			
1,1,2,2-Tetrachloroethane	50.58	5.0	50	0	101	72-120	0			
1,1,2-Trichloroethane	48.75	5.0	50	0	97.5	80-120	0			
1,1-Dichloroethane	48.63	5.0	50	0	97.3	76-120	0			
1,1-Dichloroethene	42.15	5.0	50	0	84.3	73-124	0			
1,2-Dichloroethane	47.99	5.0	50	0	96	78-120	0			
2-Butanone	91.89	10	100	0	91.9	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	95.1	10	100	0	95.1	61-130	0			
4-Methyl-2-pentanone	88.3	10	100	0	88.3	65-127	0			
Acetone	80.5	10	100	0	80.5	59-137	0			
Benzene	45.31	5.0	50	0	90.6	73-121	0			
Bromodichloromethane	48.38	5.0	50	0	96.8	80-120	0			
Bromoform	45.61	5.0	50	0	91.2	79-120	0			
Bromomethane	46.08	5.0	50	0	92.2	66-137	0			
Carbon disulfide	86.95	10	100	0	86.9	68-141	0			
Carbon tetrachloride	44.61	5.0	50	0	89.2	75-124	0			
Chlorobenzene	48.03	5.0	50	0	96.1	80-120	0			
Chloroethane	41.13	5.0	50	0	82.3	76-121	0			
Chloroform	46.71	5.0	50	0	93.4	80-120	0			
Chloromethane	43.96	5.0	50	0	87.9	67-123	0			
cis-1,3-Dichloropropene	49.34	5.0	50	0	98.7	80-120	0			
Dibromochloromethane	49.82	5.0	50	0	99.6	80-120	0			
Ethylbenzene	45.49	5.0	50	0	91	80-120	0			
m,p-Xylene	93.74	10	100	0	93.7	78-121	0			
Methylene chloride	47.25	10	50	0	94.5	65-133	0			
Styrene	45.63	5.0	50	0	91.3	80-120	0			
Tetrachloroethene	42.09	5.0	50	0	84.2	79-120	0			
Toluene	46.81	5.0	50	0	93.6	80-120	0			
trans-1,3-Dichloropropene	48.76	5.0	50	0	97.5	80-120	0			
Trichloroethene	42.4	5.0	50	0	84.8	80-120	0			
Vinyl acetate	95.18	10	100	0	95.2	67-139	0			
Vinyl chloride	38.53	2.0	50	0	77.1	70-127	0			
Xylenes, Total	141.8	15	150	0	94.5	80-120	0			
Surr: 1,2-Dichloroethane-d4	*45.18*	5.0	*50*	0	*90.4*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.35*	5.0	*50*	0	*109*	*72-125*	0			
Surr: Dibromofluoromethane	*49.56*	5.0	*50*	0	*99.1*	*71-125*	0			
Surr: Toluene-d8	*48.8*	5.0	*50*	0	*97.6*	*75-125*	0			

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
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U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID **0711374-01AMSD** Units: **µg/L** Analysis Date: **11/21/07 16:10**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269784** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	36.97	5.0	50	0	73.9	80-120	45.34	20.3	20	SR
1,1,2,2-Tetrachloroethane	46.06	5.0	50	0	92.1	72-120	50.58	9.35	20	
1,1,2-Trichloroethane	48.66	5.0	50	0	97.3	80-120	48.75	0.18	20	
1,1-Dichloroethane	43.48	5.0	50	0	87	76-120	48.63	11.2	20	
1,1-Dichloroethene	37.02	5.0	50	0	74	73-124	42.15	13	20	
1,2-Dichloroethane	39.89	5.0	50	0	79.8	78-120	47.99	18.4	20	
2-Butanone	91.95	10	100	0	91.9	58-132	91.89	0.0642	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	90.33	10	100	0	90.3	61-130	95.1	5.15	20	
4-Methyl-2-pentanone	102.6	10	100	0	103	65-127	88.3	14.9	20	
Acetone	84.77	10	100	0	84.8	59-137	80.5	5.17	20	
Benzene	45.96	5.0	50	0	91.9	73-121	45.31	1.43	20	
Bromodichloromethane	45.05	5.0	50	0	90.1	80-120	48.38	7.11	20	
Bromoform	47.11	5.0	50	0	94.2	79-120	45.61	3.24	20	
Bromomethane	42.14	5.0	50	0	84.3	66-137	46.08	8.93	20	
Carbon disulfide	82.75	10	100	0	82.8	68-141	86.95	4.94	20	
Carbon tetrachloride	40.68	5.0	50	0	81.4	75-124	44.61	9.22	20	
Chlorobenzene	48.73	5.0	50	0	97.5	80-120	48.03	1.44	20	
Chloroethane	35.91	5.0	50	0	71.8	76-121	41.13	13.6	20	S
Chloroform	42.13	5.0	50	0	84.3	80-120	46.71	10.3	20	
Chloromethane	37.08	5.0	50	0	74.2	67-123	43.96	17	20	
cis-1,3-Dichloropropene	43.91	5.0	50	0	87.8	80-120	49.34	11.7	20	
Dibromochloromethane	49.4	5.0	50	0	98.8	80-120	49.82	0.863	20	
Ethylbenzene	44.2	5.0	50	0	88.4	80-120	45.49	2.88	20	
m,p-Xylene	89.45	10	100	0	89.4	78-121	93.74	4.68	20	
Methylene chloride	42.99	10	50	0	86	65-133	47.25	9.45	20	
Styrene	42.78	5.0	50	0	85.6	80-120	45.63	6.45	20	
Tetrachloroethene	40.99	5.0	50	0	82	79-120	42.09	2.64	20	
Toluene	48.43	5.0	50	0	96.9	80-120	46.81	3.41	20	
trans-1,3-Dichloropropene	47.67	5.0	50	0	95.3	80-120	48.76	2.24	20	
Trichloroethene	44.91	5.0	50	0	89.8	80-120	42.4	5.76	20	
Vinyl acetate	83.17	10	100	0	83.2	67-139	95.18	13.5	20	
Vinyl chloride	32.62	2.0	50	0	65.2	70-127	38.53	16.6	20	S
Xylenes, Total	137.4	15	150	0	91.6	80-120	141.8	3.11	20	
Surr: 1,2-Dichloroethane-d4	*45.7*	5.0	*50*	0	*91.4*	*70-125*	45.18	*1.15*	*20*	
Surr: 4-Bromofluorobenzene	*53.77*	5.0	*50*	0	*108*	*72-125*	54.35	*1.06*	*20*	
Surr: Dibromofluoromethane	*47.75*	5.0	*50*	0	*95.5*	*71-125*	49.56	*3.72*	*20*	
Surr: Toluene-d8	*52.29*	5.0	*50*	0	*105*	*75-125*	48.8	*6.9*	*20*	

The following samples were analyzed in this batch: 0711312-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56779** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID **WLCSW1-111407** Units: **pH units** Analysis Date: **11/14/07 0:00**
Client ID: Run ID: **WETCHEM_071114H** SeqNo: **1261403** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.09	0.10	6	0	102	90-110	0			

DUP Sample ID **0711312-01DDUP** Units: **pH units** Analysis Date: **11/14/07 0:00**
Client ID: **Inj. Well** Run ID: **WETCHEM_071114H** SeqNo: **1261406** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.35	0.10	0	0	0	0-0	7.35	0	20	H

The following samples were analyzed in this batch: 0711312-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56807** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID **WLCSW1-111507** Units: **°F** Analysis Date: **11/15/07 0:00**
Client ID: Run ID: **WETCHEM_071115B** SeqNo: **1262473** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID **0711154-02ADUP** Units: **°F** Analysis Date: **11/15/07 0:00**
Client ID: Run ID: **WETCHEM_071115B** SeqNo: **1262478** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	145	50	0	0	0	0-0	145	0	25	

The following samples were analyzed in this batch: 0711312-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56853** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID **WBLKW1-111607** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: Run ID: **WETCHEM_071116C** SeqNo: **1263505** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID **WLCSW1-111607** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: Run ID: **WETCHEM_071116C** SeqNo: **1263506** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1426	1.0	1413	0	101	80-120	0			

DUP Sample ID **0711312-01CDUP** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: **Inj. Well** Run ID: **WETCHEM_071116C** SeqNo: **1263508** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	6050	1.0	0	0	0	0-0	5980	1.16	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56862** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID **BLANK** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263615** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID **LCS** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263616** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	968	10	1000	0	96.8	85-115	0			

DUP Sample ID **0711341-01EDUP** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263614** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	12470	10	0	0	0	0-0	12930	3.61	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56944** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID **WBLKW1-111907** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265713** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID **WLCSW1-111907** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265714** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1019	5.0	1000	0	102	80-120	0			
Alkalinity, Total (As CaCO3)	1019	5.0	1000	0	102	80-120	0			

DUP Sample ID **0711358-01ADUP** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265732** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	740	5.0	0	0	0	0-0	740	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	740	5.0	0	0	0	0-0	740	0	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57038** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID **WBLKW1-112007** Units: **mg/L** Analysis Date: **11/20/07 13:01**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267862** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*5.461*	0.10	*5*	0	*109*	*85-115*	0			

LCS Sample ID **WLCSW1-112007** Units: **mg/L** Analysis Date: **11/20/07 13:24**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267863** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.27	0.50	20	0	96.3	90-110	0			
Sulfate	20.72	0.50	20	0	104	90-110	0			
Surr: Selenate (surr)	*5.413*	0.10	*5*	0	*108*	*85-115*	0			

MS Sample ID **0711459-01AMS** Units: **mg/L** Analysis Date: **11/20/07 14:34**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267866** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	52.76	0.50	10	43.85	89.1	80-120	0			EO
Sulfate	323.3	0.50	10	320.5	28.5	80-120	0			SEO
Surr: Selenate (surr)	*5.487*	0.10	*5*	0	*110*	*85-115*	0			

MSD Sample ID **0711459-01AMSD** Units: **mg/L** Analysis Date: **11/20/07 14:57**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267867** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	52.71	0.50	10	43.85	88.6	80-120	52.76	0.0834	20	EO
Sulfate	322.1	0.50	10	320.5	16.5	80-120	323.3	0.374	20	SEO
Surr: Selenate (surr)	*5.468*	0.10	*5*	0	*109*	*85-115*	5.487	*0.347*	*20*	

DUP Sample ID **0711459-01ADUP** Units: **mg/L** Analysis Date: **11/20/07 14:11**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267865** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	43.6	0.50	0	0	0	0-0	43.85	0.556	20	
Sulfate	318.5	0.50	0	0	0	0-0	320.5	0.629	20	E
Surr: Selenate (surr)	*5.317*	0.10	*5*	0	*106*	*85-115*	5.347	*0.563*	*20*	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

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e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 7111312

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Quarterly	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Well	11/13/07	0915	L	Y	9	X	X	X	X	X	X	X	X	X		
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Heath Byrd

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Other ☑ Std 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

	Date:	Time:		
Relinquished by: Heath Byrd	11/13/07	1615	Received by:	
Relinquished by:	Date:	Time:	Received by (Laboratory):	11/14/07 09:20
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

Notes: 10 Day TAT.

e-Lab Analytical Cooler ID: | Cooler Temp.:

QC Package: (Check One Box Below)
- ☑ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other _____
- ☐ TRRP CheckList
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 11/14/2007 9:20:00 AM

Work Order Number 0711312 Received by: RNG

Checklist completed by [signature] 11/14/07 (Signature / Date) Reviewed by [initials] 11/14/07 (Initials / Date)

Matrix: W Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.9c	002	
Cooler(s)/Kit(s):	1993		
Water - VOA vials have zero headspace?	Yes ☐	No ☑	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes: Voa vials have excessive headspace. Trip blanks logged in work order 0711305 (received in same kit).

Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab Analytical, Inc

Date: *November 16, 2007*

CLIENT: e-Lab Analytical, Inc
Project: 0711312
Work Order: **0711346**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0711346-01	0711312-01F	Water		11/13/2007 09:15	11/16/2007 09:30	☐

e-Lab Analytical, Inc

Date: *November 16, 2007*

CLIENT: e-Lab Analytical, Inc
Work Order: 0711346
Project: 0711312
Lab ID: 0711346-01

Client Sample ID: 0711312-01F
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **DB**
Cyanide, Reactive	ND	40.0		mg/Kg	1	11/16/2007
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **DB**
Sulfide, Reactive	ND	40.0		mg/Kg	1	11/16/2007

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

NAVAJO REFINING COMPANY, LLC

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 ENV/PURCH/MKTG
(505) 746-5421 ENGINEERING

October 30, 2007

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 Third Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the third quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the 200 gallon tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2007 to September 30, 2007. We have disposed a total of 45,570,021 barrels of fluid into the two wells as of September 30, 2007. This is broken down as follows: 34,648,931 barrels into WDW-1 and 10,921,089 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Environmental Scientist

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

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2007 NOV 1 PM 12 04

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Received by OCD: 5/16/2022 2:12:41 PM

2007 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	33,831,096
Jul-07	517	718	307	263	281	248	157	188	122	9,022	9,636	8,495	279,688	34,110,784
Aug-07	303	348	242	252	280	222	91	137	46	8,647	9,588	7,620	268,056	34,378,840
Sep-07	329	493	62	254	285	83	166	215	19	8,713	9,787	2,832	270,092	34,648,931
WDW-2													**Previous Quarter**	10,506,967
Jul-07	532	723	313	149	170	128	500	500	500	5,093	5,824	4,375	157,870	10,664,837
Aug-07	311	373	247	117	146	80	481	500	398	4,001	5,011	2,732	124,025	10,788,861
Sep-07	321	384	72	124	156	19	479	500	204	4,265	5,359	653	132,228	10,921,089
													Total Injected fluids:	45,570,021

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 THIRD QUARTER WEEKLY WHAMS LEVEL TABLE

	7/2/07	7/10/07	7/17/07	7/23/07	7/30/07	8/7/07	8/13/07	8/20/07	8/27/07	9/4/07	9/10/07	9/17/07	9/24/07
WDW -1	200	200	200	200	200	200	200	200	200	200	200	200	200
WDW-2	160	160	160	160	160	160	160	160	160	160	160	160	160

Page 4283 of 5828

October 09, 2007

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Well Quarterly

Work Order : **0709522**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 2 samples on 9/27/2007 09:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 34.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Rebecca L. Hunt

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: **0709522**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0709522-01	Effluent	Water		9/26/2007 13:15	9/27/2007 09:00	☐
0709522-02	Trip Blank	Water		9/26/2007 13:15	9/27/2007 09:00	☐

e-Lab Analytical, Inc. **Date:** *October 09, 2007*

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0709522

Case Narrative

pH samples were received outside of the recommended holding time, but the samples were analyzed immediately upon receipt of the laboratory.

Batch 25842 Metals Duplicate RPD was an unrelated sample.

Batch's R55052 and R55288 Volatiles MS/MSD were unrelated samples.

Batch R54877 Anions MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **10/5/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	10/5/2007 3:58:46 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **10/1/2007**	Analyst: **SA**
Aluminum	**2.46**		**0.100**	**mg/L**	10	10/2/2007 1:28:00 PM
Arsenic	**0.135**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Barium	**0.0535**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Beryllium	ND		0.00400	mg/L	2	10/2/2007 1:34:00 PM
Boron	**0.202**		**0.0400**	**mg/L**	2	10/2/2007 1:34:00 PM
Cadmium	ND		0.00200	mg/L	1	10/2/2007 4:06:00 AM
Calcium	**101**		**5.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Chromium	**0.00503**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Cobalt	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Copper	**0.0130**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Iron	**2.87**		**0.200**	**mg/L**	1	10/2/2007 4:06:00 AM
Lead	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Magnesium	**36.7**		**0.200**	**mg/L**	1	10/2/2007 4:06:00 AM
Manganese	**0.0869**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Molybdenum	**0.104**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Nickel	**0.0141**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Potassium	**48.2**		**2.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Selenium	**0.388**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Silver	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Sodium	**1,220**		**2.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Vanadium	**0.00709**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Zinc	**0.192**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **10/2/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2,4,5-Trichlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2,4,6-Trichlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Methylnaphthalene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Methylphenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Nitrophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
3&4-Methylphenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
3-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
4-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
4-Nitrophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Acenaphthene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Acenaphthylene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Anthracene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Benz(a)anthracene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Benzidine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Hexachloroethane	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Indeno(1,2,3-cd)pyrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Isophorone	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodi-n-propylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodimethylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodiphenylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Naphthalene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Nitrobenzene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Pentachlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Phenanthrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Phenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Pyrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Surr: 2,4,6-Tribromophenol	*69.7*		*42-124*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 2-Fluorobiphenyl	*64.0*		*48-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 2-Fluorophenol	*61.1*		*20-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 4-Terphenyl-d14	*71.6*		*51-135*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: Nitrobenzene-d5	*67.1*		*41-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: Phenol-d6	*71.0*		*20-120*	*%REC*	1	10/3/2007 2:31:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
2-Butanone	**23**		**10**	**µg/L**	1	10/8/2007 3:07:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	10/8/2007 3:07:00 PM
2-Hexanone	ND		10	µg/L	1	10/8/2007 3:07:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Acetone	**110**		**10**	**µg/L**	1	10/8/2007 3:07:00 PM
Benzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromoform	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromomethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Carbon disulfide	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloroform	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Ethylbenzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
m,p-Xylene	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Methylene chloride	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Styrene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Toluene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Trichloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Vinyl acetate	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Vinyl chloride	ND		2.0	µg/L	1	10/8/2007 3:07:00 PM
Xylenes, Total	ND		15	µg/L	1	10/8/2007 3:07:00 PM
Surr: 1,2-Dichloroethane-d4	*92.6*		*70-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: 4-Bromofluorobenzene	*96.6*		*72-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: Dibromofluoromethane	*95.9*		*71-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: Toluene-d8	*104*		*75-125*	*%REC*	1	10/8/2007 3:07:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	10/4/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	10/4/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **RPM**
Chloride	**1,010**		**50.0**	**mg/L**	100	9/27/2007 8:01:00 PM
Sulfate	**1,660**		**50.0**	**mg/L**	100	9/27/2007 8:01:00 PM
Surr: Selenate (surr)	*106*		*85-115*	*%REC*	100	9/27/2007 8:01:00 PM
ALKALINITY			**E310.1**			Analyst: **DM**
Alkalinity, Bicarbonate (As CaCO3)	**243**		**5.00**	**mg/L**	1	10/1/2007 10:00:00 AM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	10/1/2007 10:00:00 AM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	10/1/2007 10:00:00 AM
Alkalinity, Total (As CaCO3)	**243**		**5.00**	**mg/L**	1	10/1/2007 10:00:00 AM
CONDUCTIVITY			**E120.1**			Analyst: **DM**
Specific Conductance	**6,620**		**1.00**	**µmhos/cm**	1	10/4/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	10/3/2007

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	7.26	H	0.100	pH units	1	9/27/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	4,240		10.0	mg/L	1	9/28/2007 5:00:00 PM

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- P - Dual Column results percent difference > 40%
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- H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-02

Client Sample ID: Trip Blank
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
2-Butanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	10/2/2007 9:11:00 PM
2-Hexanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Acetone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Benzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromoform	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromomethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Carbon disulfide	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chlorobenzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloroform	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Ethylbenzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
m,p-Xylene	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Methylene chloride	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Styrene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Toluene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Trichloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Vinyl acetate	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Vinyl chloride	ND		2.0	µg/L	1	10/2/2007 9:11:00 PM
Xylenes, Total	ND		15	µg/L	1	10/2/2007 9:11:00 PM
Surr: 1,2-Dichloroethane-d4	*93.2*		*70-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: 4-Bromofluorobenzene	*103*		*72-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: Dibromofluoromethane	*101*		*71-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: Toluene-d8	*99.2*		*75-125*	*%REC*	1	10/2/2007 9:11:00 PM

Qualifiers:

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e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

Date: *Oct 09 2007*

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MBLK Sample ID: **MBLKW1-100107** Units: **mg/L** Analysis Date: **10/02/07 13:16**

Client ID: Run ID: **ICP7500_071002A** SeqNo: **1223370** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	0.02979	0.20								J
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

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P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

LCS Sample ID: **MLCSW1-100107** Units: **mg/L** Analysis Date: **10/02/07 2:02**
Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222688** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04977	0.0050	0.05	0	99.5	80-120	0			
Barium	0.05117	0.0050	0.05	0	102	80-120	0			
Beryllium	0.04988	0.0020	0.05	0	99.8	80-120	0			
Boron	0.5115	0.020	0.5	0	102	80-120	0			
Cadmium	0.05125	0.0020	0.05	0	102	80-120	0			
Calcium	5.686	0.50	5	0	114	80-120	0			
Chromium	0.05016	0.0050	0.05	0	100	80-120	0			
Cobalt	0.05384	0.0050	0.05	0	108	80-120	0			
Copper	0.04738	0.0050	0.05	0	94.8	80-120	0			
Iron	5.179	0.20	5	0	104	80-120	0			
Lead	0.05113	0.0050	0.05	0	102	80-120	0			
Magnesium	5.396	0.20	5	0	108	80-120	0			
Manganese	0.05067	0.0050	0.05	0	101	80-120	0			
Molybdenum	0.04869	0.0050	0.05	0	97.4	80-120	0			
Nickel	0.0503	0.0050	0.05	0	101	80-120	0			
Potassium	5.29	0.20	5	0	106	80-120	0			
Selenium	0.05047	0.0050	0.05	0	101	80-120	0			
Silver	0.05062	0.0050	0.05	0	101	80-120	0			
Sodium	5.267	0.20	5	0	105	80-120	0			
Vanadium	0.05116	0.0050	0.05	0	102	80-120	0			
Zinc	0.0518	0.0050	0.05	0	104	80-120	0			

LCS Sample ID: **MLCSW1-100107** Units: **mg/L** Analysis Date: **10/02/07 13:22**
Client ID: Run ID: **ICP7500_071002A** SeqNo: **1223371** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05671	0.010	0.05	0	113	80-120	0			

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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MS Sample ID: **0709546-01CMS** Units: **mg/L** Analysis Date: **10/02/07 4:30**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222710** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05928	0.010	0.05	0.01003	98.5	80-120	0			
Arsenic	0.05069	0.0050	0.05	0.0002553	101	80-120	0			
Barium	0.05145	0.0050	0.05	0.00009868	103	80-120	0			
Beryllium	0.05116	0.0020	0.05	-0.00001769	102	80-120	0			
Boron	0.5303	0.020	0.5	0.0007129	106	80-120	0			
Cadmium	0.05218	0.0020	0.05	-0.00004231	104	80-120	0			
Calcium	5.928	0.50	5	0.1835	115	80-120	0			
Chromium	0.05106	0.0050	0.05	0.0002195	102	80-120	0			
Cobalt	0.05426	0.0050	0.05	-0.00003043	109	80-120	0			
Copper	0.04954	0.0050	0.05	-0.00257	104	80-120	0			
Iron	5.357	0.20	5	0.06073	106	80-120	0			
Lead	0.0523	0.0050	0.05	0.00004196	105	80-120	0			
Magnesium	5.389	0.20	5	0.03021	107	80-120	0			
Manganese	0.05263	0.0050	0.05	0.0005422	104	80-120	0			
Molybdenum	0.05117	0.0050	0.05	0.001057	100	80-120	0			
Nickel	0.0525	0.0050	0.05	-0.0005035	106	80-120	0			
Potassium	5.447	0.20	5	0.03845	108	80-120	0			
Selenium	0.05162	0.0050	0.05	0.0007415	102	80-120	0			
Silver	0.0526	0.0050	0.05	-0.0003616	106	80-120	0			
Sodium	5.548	0.20	5	0.7029	96.9	80-120	0			
Vanadium	0.05219	0.0050	0.05	0.00007382	104	80-120	0			
Zinc	0.05427	0.0050	0.05	0.001848	105	80-120	0			

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J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not deteeted
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MSD Sample ID: **0709546-01CMSD** Units: **mg/L** Analysis Date: **10/02/07 4:42**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222712** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.061	0.010	0.05	0.01003	102	80-120	0.05928	2.86	15	
Arsenic	0.04963	0.0050	0.05	0.0002553	98.7	80-120	0.05069	2.11	15	
Barium	0.05188	0.0050	0.05	0.00009868	104	80-120	0.05145	0.832	15	
Beryllium	0.05124	0.0020	0.05	-0.00001769	103	80-120	0.05116	0.156	15	
Boron	0.5277	0.020	0.5	0.0007129	105	80-120	0.5303	0.491	15	
Cadmium	0.0522	0.0020	0.05	-0.00004231	104	80-120	0.05218	0.0383	15	
Calcium	5.917	0.50	5	0.1835	115	80-120	5.928	0.186	15	
Chromium	0.05035	0.0050	0.05	0.0002195	100	80-120	0.05106	1.4	15	
Cobalt	0.05383	0.0050	0.05	-0.00003043	108	80-120	0.05426	0.796	15	
Copper	0.04969	0.0050	0.05	-0.00257	105	80-120	0.04954	0.302	15	
Iron	5.378	0.20	5	0.06073	106	80-120	5.357	0.391	15	
Lead	0.05116	0.0050	0.05	0.00004196	102	80-120	0.0523	2.2	15	
Magnesium	5.381	0.20	5	0.03021	107	80-120	5.389	0.149	15	
Manganese	0.05201	0.0050	0.05	0.0005422	103	80-120	0.05263	1.19	15	
Molybdenum	0.05122	0.0050	0.05	0.001057	100	80-120	0.05117	0.0977	15	
Nickel	0.05136	0.0050	0.05	-0.0005035	104	80-120	0.0525	2.2	15	
Potassium	5.405	0.20	5	0.03845	107	80-120	5.447	0.774	15	
Selenium	0.05111	0.0050	0.05	0.0007415	101	80-120	0.05162	0.993	15	
Silver	0.05207	0.0050	0.05	-0.0003616	105	80-120	0.0526	1.01	15	
Sodium	5.493	0.20	5	0.7029	95.8	80-120	5.548	0.996	15	
Vanadium	0.05168	0.0050	0.05	0.00007382	103	80-120	0.05219	0.982	15	
Zinc	0.05368	0.0050	0.05	0.001848	104	80-120	0.05427	1.09	15	

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

DUP Sample ID: **0709546-01CDUP** Units: **mg/L** Analysis Date: **10/02/07 4:24**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222709** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.008914	0.010	0	0	0	0-0	0.01003	0	25	J
Arsenic	ND	0.0050	0	0	0	0-0	0.0002553	0	25	
Barium	ND	0.0050	0	0	0	0-0	0.00009868	0	25	
Beryllium	ND	0.0020	0	0	0	0-0	-0.00001769	0	25	
Boron	ND	0.020	0	0	0	0-0	0.0007129	0	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.00004231	0	25	
Calcium	0.1347	0.50	0	0	0	0-0	0.1835	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0002195	0	25	
Cobalt	ND	0.0050	0	0	0	0-0	-0.00003043	0	25	
Copper	ND	0.0050	0	0	0	0-0	-0.00257	0	25	
Iron	0.05713	0.20	0	0	0	0-0	0.06073	0	25	J
Lead	ND	0.0050	0	0	0	0-0	0.00004196	0	25	
Magnesium	ND	0.20	0	0	0	0-0	0.03021	0	25	
Manganese	ND	0.0050	0	0	0	0-0	0.0005422	0	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.001057	0	25	
Nickel	ND	0.0050	0	0	0	0-0	-0.0005035	0	25	
Potassium	ND	0.20	0	0	0	0-0	0.03845	0	25	
Selenium	ND	0.0050	0	0	0	0-0	0.0007415	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003616	0	25	
Sodium	0.3724	0.20	0	0	0	0-0	0.7029	61.5	25	R
Vanadium	ND	0.0050	0	0	0	0-0	0.00007382	0	25	
Zinc	ND	0.0050	0	0	0	0-0	0.001848	0	25	

The following samples were analyzed in this batch: 0709522-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25937** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:12**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226768** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:14**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226769** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00564	0.00020	0.005	0	113	85-115	0			

LCSD Sample ID: **GLCSDW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:16**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226770** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00558	0.00020	0.005	0	112	85-115	0.00564	1.07	20	

MS Sample ID: **0710043-01DMS** Units: **mg/L** Analysis Date: **10/05/07 15:25**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226773** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00547	0.00020	0.005	-0.000019	110	85-115	0			

MSD Sample ID: **0710043-01DMSD** Units: **mg/L** Analysis Date: **10/05/07 15:27**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226774** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0054	0.00020	0.005	-0.000019	108	85-115	0.00547	1.29	20	

DUP Sample ID: **0710043-01DDUP** Units: **mg/L** Analysis Date: **10/05/07 15:23**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226772** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000019	0	20	

The following samples were analyzed in this batch: 0709522-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKW2-071002** Units: **µg/L** Analysis Date: **10/03/07 13:13**

Client ID: Run ID: **SV-3_071003A** SeqNo: **1224776** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*70.36*	5.0	*100*	0	*70.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*81.07*	5.0	*100*	0	*81.1*	*48-120*	0			
Surr: 2-Fluorophenol	*72.2*	5.0	*100*	0	*72.2*	*20-120*	0			
Surr: 4-Terphenyl-d14	*84.88*	5.0	*100*	0	*84.9*	*51-135*	0			
Surr: Nitrobenzene-d5	*80.2*	5.0	*100*	0	*80.2*	*41-120*	0			
Surr: Phenol-d6	*78.44*	5.0	*100*	0	*78.4*	*20-120*	0			

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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID: **SLCSW2-071002** Units: **µg/L** Analysis Date: **10/03/07 13:39**
Client ID: Run ID: **SV-3_071003A** SeqNo: **1224777** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	40.57	5.0	50	0	81.1	54-118	0			
2,4,5-Trichlorophenol	79.26	5.0	100	0	79.3	52-115	0			
2,4,6-Trichlorophenol	82.62	5.0	100	0	82.6	56-115	0			
2-Methylnaphthalene	41.13	5.0	50	0	82.3	46-117	0			
2-Methylphenol	83.9	5.0	100	0	83.9	53-115	0			
2-Nitroaniline	51.02	5.0	50	0	102	53-123	0			
2-Nitrophenol	80.37	5.0	100	0	80.4	53-115	0			
3&4-Methylphenol	121.7	5.0	150	0	81.1	48-115	0			
3-Nitroaniline	34.34	5.0	50	0	68.7	26-115	0			
4-Nitroaniline	40.81	5.0	50	0	81.6	47-115	0			
4-Nitrophenol	84.47	5.0	100	0	84.5	26-133	0			
Acenaphthene	42.71	5.0	50	0	85.4	57-115	0			
Acenaphthylene	42.99	5.0	50	0	86	57-118	0			
Aniline	32.19	5.0	50	0	64.4	36-115	0			
Anthracene	45.41	5.0	50	0	90.8	65-115	0			
Benz(a)anthracene	43.8	5.0	50	0	87.6	53-115	0			
Benzidine	37.43	5.0	50	0	74.9	10-115	0			
Hexachloroethane	41.72	5.0	50	0	83.4	54-115	0			
Indeno(1,2,3-cd)pyrene	43.31	5.0	50	0	86.6	51-115	0			
Isophorone	42.31	5.0	50	0	84.6	55-115	0			
N-Nitrosodi-n-propylamine	43.02	5.0	50	0	86	55-115	0			
N-Nitrosodimethylamine	44.13	5.0	50	0	88.3	42-115	0			
N-Nitrosodiphenylamine	46.03	5.0	50	0	92.1	52-115	0			
Naphthalene	41.17	5.0	50	0	82.3	55-115	0			
Nitrobenzene	41.52	5.0	50	0	83	40-124	0			
Pentachlorophenol	87.37	5.0	100	0	87.4	45-125	0			
Phenanthrene	44.76	5.0	50	0	89.5	57-115	0			
Phenol	77.8	5.0	100	0	77.8	38-115	0			
Pyrene	45.47	5.0	50	0	90.9	51-115	0			
Surr: 2,4,6-Tribromophenol	*73.07*	5.0	*100*	0	*73.1*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*78.63*	5.0	*100*	0	*78.6*	*48-120*	0			
Surr: 2-Fluorophenol	*76.86*	5.0	*100*	0	*76.9*	*20-120*	0			
Surr: 4-Terphenyl-d14	*82.95*	5.0	*100*	0	*82.9*	*51-135*	0			
Surr: Nitrobenzene-d5	*77.13*	5.0	*100*	0	*77.1*	*41-120*	0			
Surr: Phenol-d6	*82.83*	5.0	*100*	0	*82.8*	*20-120*	0			

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B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-071002** Units: **µg/L** Analysis Date: **10/03/07 14:05**
Client ID: Run ID: **SV-3_071003A** SeqNo: **1224778** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.1	5.0	50	0	86.2	54-118	40.57	6.06	20	
2,4,5-Trichlorophenol	84.74	5.0	100	0	84.7	52-115	79.26	6.68	20	
2,4,6-Trichlorophenol	82.76	5.0	100	0	82.8	56-115	82.62	0.165	20	
2-Methylnaphthalene	42.64	5.0	50	0	85.3	46-117	41.13	3.62	20	
2-Methylphenol	79.87	5.0	100	0	79.9	53-115	83.9	4.92	20	
2-Nitroaniline	55.31	5.0	50	0	111	53-123	51.02	8.07	20	
2-Nitrophenol	82.51	5.0	100	0	82.5	53-115	80.37	2.63	20	
3&4-Methylphenol	116.6	5.0	150	0	77.7	48-115	121.7	4.29	20	
3-Nitroaniline	34.18	5.0	50	0	68.4	26-115	34.34	0.475	20	
4-Nitroaniline	40	5.0	50	0	80	47-115	40.81	2.01	20	
4-Nitrophenol	85.01	5.0	100	0	85	26-133	84.47	0.637	20	
Acenaphthene	43.63	5.0	50	0	87.3	57-115	42.71	2.12	20	
Acenaphthylene	43.76	5.0	50	0	87.5	57-118	42.99	1.77	20	
Aniline	31.72	5.0	50	0	63.4	36-115	32.19	1.49	20	
Anthracene	44.26	5.0	50	0	88.5	65-115	45.41	2.57	20	
Benz(a)anthracene	43.37	5.0	50	0	86.7	53-115	43.8	0.974	20	
Benzidine	39.36	5.0	50	0	78.7	10-115	37.43	5.04	20	
Hexachloroethane	39.71	5.0	50	0	79.4	54-115	41.72	4.93	20	
Indeno(1,2,3-cd)pyrene	44.07	5.0	50	0	88.1	51-115	43.31	1.75	20	
Isophorone	43.22	5.0	50	0	86.4	55-115	42.31	2.13	20	
N-Nitrosodi-n-propylamine	41.5	5.0	50	0	83	55-115	43.02	3.59	20	
N-Nitrosodimethylamine	41.57	5.0	50	0	83.1	42-115	44.13	5.98	20	
N-Nitrosodiphenylamine	44.75	5.0	50	0	89.5	52-115	46.03	2.82	20	
Naphthalene	43.41	5.0	50	0	86.8	55-115	41.17	5.29	20	
Nitrobenzene	42.24	5.0	50	0	84.5	40-124	41.52	1.71	20	
Pentachlorophenol	84.38	5.0	100	0	84.4	45-125	87.37	3.48	20	
Phenanthrene	43.93	5.0	50	0	87.9	57-115	44.76	1.88	20	
Phenol	74.76	5.0	100	0	74.8	38-115	77.8	3.98	20	
Pyrene	44.4	5.0	50	0	88.8	51-115	45.47	2.38	20	
Surr: 2,4,6-Tribromophenol	*78.09*	5.0	*100*	0	*78.1*	*42-124*	73.07	*6.64*	*20*	
Surr: 2-Fluorobiphenyl	*80.06*	5.0	*100*	0	*80.1*	*48-120*	78.63	*1.8*	*20*	
Surr: 2-Fluorophenol	*76.52*	5.0	*100*	0	*76.5*	*20-120*	76.86	*0.439*	*20*	
Surr: 4-Terphenyl-d14	*84.19*	5.0	*100*	0	*84.2*	*51-135*	82.95	*1.48*	*20*	
Surr: Nitrobenzene-d5	*82.56*	5.0	*100*	0	*82.6*	*41-120*	77.13	*6.8*	*20*	
Surr: Phenol-d6	*81.29*	5.0	*100*	0	*81.3*	*20-120*	82.83	*1.87*	*20*	

The following samples were analyzed in this batch: 0709522-01E

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-100207** Units: **µg/L** Analysis Date: **10/02/07 11:55**

Client ID: Run ID: **VOA1_071002A** SeqNo: **1224017** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*46.56*	5.0	*50*	0	*93.1*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.31*	5.0	*50*	0	*109*	*72-125*	0			
Surr: Dibromofluoromethane	*49.81*	5.0	*50*	0	*99.6*	*71-125*	0			
Surr: Toluene-d8	*47.52*	5.0	*50*	0	*95*	*75-125*	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-100207** Units: **µg/L** Analysis Date: **10/02/07 12:20**
Client ID: Run ID: **VOA1_071002A** SeqNo: **1224018** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.93	5.0	50	0	97.9	80-120	0			
1,1,2,2-Tetrachloroethane	47.7	5.0	50	0	95.4	72-120	0			
1,1,2-Trichloroethane	41.01	5.0	50	0	82	80-120	0			
1,1-Dichloroethane	46.59	5.0	50	0	93.2	76-120	0			
1,1-Dichloroethene	52.67	5.0	50	0	105	73-124	0			
1,2-Dichloroethane	47.28	5.0	50	0	94.6	78-120	0			
2-Butanone	94.24	10	100	0	94.2	58-132	0			
2-Chloroethyl vinyl ether	94.01	10	100	0	94	74-120	0			
2-Hexanone	90.75	10	100	0	90.7	61-130	0			
4-Methyl-2-pentanone	89.26	10	100	0	89.3	65-127	0			
Acetone	105.9	10	100	0	106	59-137	0			
Benzene	46.59	5.0	50	0	93.2	73-121	0			
Bromodichloromethane	47.71	5.0	50	0	95.4	80-120	0			
Bromoform	46.17	5.0	50	0	92.3	79-120	0			
Bromomethane	55.86	5.0	50	0	112	66-137	0			
Carbon disulfide	99.02	10	100	0	99	68-141	0			
Carbon tetrachloride	50.87	5.0	50	0	102	75-124	0			
Chlorobenzene	45.07	5.0	50	0	90.1	80-120	0			
Chloroethane	46.57	5.0	50	0	93.1	76-121	0			
Chloroform	47.49	5.0	50	0	95	80-120	0			
Chloromethane	42.38	5.0	50	0	84.8	67-123	0			
cis-1,3-Dichloropropene	47.68	5.0	50	0	95.4	80-120	0			
Dibromochloromethane	46.42	5.0	50	0	92.8	80-120	0			
Ethylbenzene	46.41	5.0	50	0	92.8	80-120	0			
m,p-Xylene	92.21	10	100	0	92.2	78-121	0			
Methylene chloride	48.44	10	50	0	96.9	65-133	0			
Styrene	49.6	5.0	50	0	99.2	80-120	0			
Tetrachloroethene	41.98	5.0	50	0	84	79-120	0			
Toluene	40.21	5.0	50	0	80.4	80-120	0			
trans-1,3-Dichloropropene	47.77	5.0	50	0	95.5	80-120	0			
Trichloroethene	47.94	5.0	50	0	95.9	80-120	0			
Vinyl acetate	105.4	10	100	0	105	67-139	0			
Vinyl chloride	48.49	2.0	50	0	97	74-122	0			
Xylenes, Total	140.1	15	150	0	93.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	*47.68*	5.0	*50*	0	*95.4*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*47.98*	5.0	*50*	0	*96*	*72-125*	0			
Surr: Dibromofluoromethane	*49.97*	5.0	*50*	0	*99.9*	*71-125*	0			
Surr: Toluene-d8	*43.91*	5.0	*50*	0	*87.8*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0710031-02AMS** Units: **µg/L** Analysis Date: **10/02/07 15:17**

Client ID: Run ID: **VOA1_071002A** SeqNo: **1224026** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.87	5.0	50	0	89.7	80-120	0			
1,1,2,2-Tetrachloroethane	45.96	5.0	50	0	91.9	72-120	0			
1,1,2-Trichloroethane	44.46	5.0	50	0	88.9	80-120	0			
1,1-Dichloroethane	42.73	5.0	50	0	85.5	76-120	0			
1,1-Dichloroethene	38.74	5.0	50	0	77.5	73-124	0			
1,2-Dichloroethane	44.47	5.0	50	0	88.9	78-120	0			
2-Butanone	89.25	10	100	0	89.3	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	92.96	10	100	0	93	61-130	0			
4-Methyl-2-pentanone	92.63	10	100	0	92.6	65-127	0			
Acetone	81.48	10	100	0	81.5	59-137	0			
Benzene	41.84	5.0	50	0	83.7	73-121	0			
Bromodichloromethane	40.9	5.0	50	0	81.8	80-120	0			
Bromoform	50.46	5.0	50	0	101	79-120	0			
Bromomethane	46.42	5.0	50	0	92.8	66-137	0			
Carbon disulfide	78.45	10	100	0	78.5	68-141	0			
Carbon tetrachloride	43.78	5.0	50	0	87.6	75-124	0			
Chlorobenzene	45.71	5.0	50	0	91.4	80-120	0			
Chloroethane	38.42	5.0	50	0	76.8	76-121	0			
Chloroform	44.35	5.0	50	0	88.7	80-120	0			
Chloromethane	33.49	5.0	50	0	67	67-123	0			S
cis-1,3-Dichloropropene	40.56	5.0	50	0	81.1	80-120	0			
Dibromochloromethane	46.35	5.0	50	0	92.7	80-120	0			
Ethylbenzene	43.12	5.0	50	0.2648	85.7	80-120	0			
m,p-Xylene	94.64	10	100	0	94.6	78-121	0			
Methylene chloride	42.23	10	50	0	84.5	65-133	0			
Styrene	51.99	5.0	50	0	104	80-120	0			
Tetrachloroethene	43.57	5.0	50	0	87.1	79-120	0			
Toluene	40.4	5.0	50	0	80.8	80-120	0			
trans-1,3-Dichloropropene	42.81	5.0	50	0	85.6	80-120	0			
Trichloroethene	41.14	5.0	50	0	82.3	80-120	0			
Vinyl acetate	95.38	10	100	0	95.4	67-139	0			
Vinyl chloride	41.2	2.0	50	0	82.4	74-122	0			
Xylenes, Total	145.3	15	150	0	96.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	*46.41*	5.0	*50*	0	*92.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*55.24*	5.0	*50*	0	*110*	*72-125*	0			
Surr: Dibromofluoromethane	*50.03*	5.0	*50*	0	*100*	*71-125*	0			
Surr: Toluene-d8	*46.33*	5.0	*50*	0	*92.7*	*75-125*	0			

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0710031-02AMSD** Units: **µg/L** Analysis Date: **10/02/07 15:43**

Client ID: Run ID: **VOA1_071002A** SeqNo: **1224028** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	40.38	5.0	50	0	80.8	80-120	44.87	10.5	20	
1,1,2,2-Tetrachloroethane	49.43	5.0	50	0	98.9	72-120	45.96	7.28	20	
1,1,2-Trichloroethane	42.67	5.0	50	0	85.3	80-120	44.46	4.1	20	
1,1-Dichloroethane	40.39	5.0	50	0	80.8	76-120	42.73	5.62	20	
1,1-Dichloroethene	36.01	5.0	50	0	72	73-124	38.74	7.3	20	S
1,2-Dichloroethane	46.55	5.0	50	0	93.1	78-120	44.47	4.57	20	
2-Butanone	88.95	10	100	0	88.9	58-132	89.25	0.338	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	105.3	10	100	0	105	61-130	92.96	12.5	20	
4-Methyl-2-pentanone	101.8	10	100	0	102	65-127	92.63	9.42	20	
Acetone	84.42	10	100	0	84.4	59-137	81.48	3.55	20	
Benzene	44.88	5.0	50	0	89.8	73-121	41.84	7	20	
Bromodichloromethane	41.71	5.0	50	0	83.4	80-120	40.9	1.96	20	
Bromoform	49.95	5.0	50	0	99.9	79-120	50.46	1.02	20	
Bromomethane	45.06	5.0	50	0	90.1	66-137	46.42	2.97	20	
Carbon disulfide	74.77	10	100	0	74.8	68-141	78.45	4.81	20	
Carbon tetrachloride	41.11	5.0	50	0	82.2	75-124	43.78	6.28	20	
Chlorobenzene	45.07	5.0	50	0	90.1	80-120	45.71	1.4	20	
Chloroethane	38.48	5.0	50	0	77	76-121	38.42	0.153	20	
Chloroform	40.32	5.0	50	0	80.6	80-120	44.35	9.52	20	
Chloromethane	33.29	5.0	50	0	66.6	67-123	33.49	0.601	20	S
cis-1,3-Dichloropropene	43.02	5.0	50	0	86	80-120	40.56	5.9	20	
Dibromochloromethane	46.49	5.0	50	0	93	80-120	46.35	0.299	20	
Ethylbenzene	43.09	5.0	50	0.2648	85.7	80-120	43.12	0.0729	20	
m,p-Xylene	85.85	10	100	0	85.9	78-121	94.64	9.74	20	
Methylene chloride	39.68	10	50	0	79.4	65-133	42.23	6.21	20	
Styrene	49.34	5.0	50	0	98.7	80-120	51.99	5.22	20	
Tetrachloroethene	41.09	5.0	50	0	82.2	79-120	43.57	5.86	20	
Toluene	40.47	5.0	50	0	80.9	80-120	40.4	0.192	20	
trans-1,3-Dichloropropene	44.01	5.0	50	0	88	80-120	42.81	2.78	20	
Trichloroethene	42.87	5.0	50	0	85.7	80-120	41.14	4.13	20	
Vinyl acetate	96.85	10	100	0	96.8	67-139	95.38	1.53	20	
Vinyl chloride	37.49	2.0	50	0	75	74-122	41.2	9.43	20	
Xylenes, Total	132.7	15	150	0	88.5	80-120	145.3	9.03	20	
Surr: 1,2-Dichloroethane-d4	*43.35*	5.0	*50*	0	*86.7*	*70-125*	46.41	*6.8*	*20*	
Surr: 4-Bromofluorobenzene	*53.6*	5.0	*50*	0	*107*	*72-125*	55.24	*3.02*	*20*	
Surr: Dibromofluoromethane	*46.35*	5.0	*50*	0	*92.7*	*71-125*	50.03	*7.63*	*20*	
Surr: Toluene-d8	*46.85*	5.0	*50*	0	*93.7*	*75-125*	46.33	*1.12*	*20*	

The following samples were analyzed in this batch: 0709522-02A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-100807** Units: **µg/L** Analysis Date: **10/08/07 12:11**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229041** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*46.74*	5.0	*50*	0	*93.5*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*47.18*	5.0	*50*	0	*94.4*	*72-125*	0			
Surr: Dibromofluoromethane	*46.65*	5.0	*50*	0	*93.3*	*71-125*	0			
Surr: Toluene-d8	*50.14*	5.0	*50*	0	*100*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-100807** Units: **µg/L** Analysis Date: **10/08/07 11:21**
Client ID: Run ID: **VOA1_071008A** SeqNo: **1229040** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.58	5.0	50	0	103	80-120	0			
1,1,2,2-Tetrachloroethane	45.6	5.0	50	0	91.2	72-120	0			
1,1,2-Trichloroethane	45.17	5.0	50	0	90.3	80-120	0			
1,1-Dichloroethane	48.34	5.0	50	0	96.7	76-120	0			
1,1-Dichloroethene	45.07	5.0	50	0	90.1	73-124	0			
1,2-Dichloroethane	47.89	5.0	50	0	95.8	78-120	0			
2-Butanone	103.6	10	100	0	104	58-132	0			
2-Chloroethyl vinyl ether	95.96	10	100	0	96	74-120	0			
2-Hexanone	98.25	10	100	0	98.3	61-130	0			
4-Methyl-2-pentanone	95.73	10	100	0	95.7	65-127	0			
Acetone	97.54	10	100	0	97.5	59-137	0			
Benzene	46.98	5.0	50	0	94	73-121	0			
Bromodichloromethane	48.6	5.0	50	0	97.2	80-120	0			
Bromoform	47.79	5.0	50	0	95.6	79-120	0			
Bromomethane	41.9	5.0	50	0	83.8	66-137	0			
Carbon disulfide	90.43	10	100	0	90.4	68-141	0			
Carbon tetrachloride	46.7	5.0	50	0	93.4	75-124	0			
Chlorobenzene	48.47	5.0	50	0	96.9	80-120	0			
Chloroethane	46.05	5.0	50	0	92.1	76-121	0			
Chloroform	47.6	5.0	50	0	95.2	80-120	0			
Chloromethane	53.25	5.0	50	0	106	67-123	0			
cis-1,3-Dichloropropene	49.92	5.0	50	0	99.8	80-120	0			
Dibromochloromethane	49.38	5.0	50	0	98.8	80-120	0			
Ethylbenzene	44.73	5.0	50	0	89.5	80-120	0			
m,p-Xylene	89.94	10	100	0	89.9	78-121	0			
Methylene chloride	48.19	10	50	0	96.4	65-133	0			
Styrene	51.09	5.0	50	0	102	80-120	0			
Tetrachloroethene	50.09	5.0	50	0	100	79-120	0			
Toluene	46.47	5.0	50	0	92.9	80-120	0			
trans-1,3-Dichloropropene	47.75	5.0	50	0	95.5	80-120	0			
Trichloroethene	47.13	5.0	50	0	94.3	80-120	0			
Vinyl acetate	114.5	10	100	0	115	67-139	0			
Vinyl chloride	51.35	2.0	50	0	103	70-127	0			
Xylenes, Total	140.4	15	150	0	93.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	*48.01*	5.0	*50*	0	*96*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*46.24*	5.0	*50*	0	*92.5*	*72-125*	0			
Surr: Dibromofluoromethane	*49.62*	5.0	*50*	0	*99.2*	*71-125*	0			
Surr: Toluene-d8	*50.57*	5.0	*50*	0	*101*	*75-125*	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0710089-05AMS** Units: **µg/L** Analysis Date: **10/08/07 15:33**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229044** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	43.71	5.0	50	0	87.4	80-120	0			
1,1,2,2-Tetrachloroethane	48.37	5.0	50	0	96.7	72-120	0			
1,1,2-Trichloroethane	51.72	5.0	50	0	103	80-120	0			
1,1-Dichloroethane	44.38	5.0	50	0	88.8	76-120	0			
1,1-Dichloroethene	39.51	5.0	50	0	79	73-124	0			
1,2-Dichloroethane	45.58	5.0	50	0	91.2	78-120	0			
2-Butanone	105.2	10	100	0	105	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	124.7	10	100	0	125	61-130	0			
4-Methyl-2-pentanone	117.9	10	100	0	118	65-127	0			
Acetone	90.25	10	100	0	90.2	59-137	0			
Benzene	43.71	5.0	50	0	87.4	73-121	0			
Bromodichloromethane	44.59	5.0	50	0	89.2	80-120	0			
Bromoform	51.49	5.0	50	0	103	79-120	0			
Bromomethane	27.69	5.0	50	0	55.4	66-137	0			S
Carbon disulfide	77.05	10	100	0	77	68-141	0			
Carbon tetrachloride	41.6	5.0	50	0	83.2	75-124	0			
Chlorobenzene	48.23	5.0	50	0	96.5	80-120	0			
Chloroethane	40.79	5.0	50	0	81.6	76-121	0			
Chloroform	46.76	5.0	50	0	93.5	80-120	0			
Chloromethane	42.22	5.0	50	0	84.4	67-123	0			
cis-1,3-Dichloropropene	47.43	5.0	50	0	94.9	80-120	0			
Dibromochloromethane	52.32	5.0	50	0	105	80-120	0			
Ethylbenzene	47.27	5.0	50	0	94.5	80-120	0			
m,p-Xylene	95.43	10	100	0	95.4	78-121	0			
Methylene chloride	44.6	10	50	0	89.2	65-133	0			
Styrene	49.37	5.0	50	0	98.7	80-120	0			
Tetrachloroethene	46.3	5.0	50	0	92.6	79-120	0			
Toluene	47.75	5.0	50	0	95.5	80-120	0			
trans-1,3-Dichloropropene	46.71	5.0	50	0	93.4	80-120	0			
Trichloroethene	44.21	5.0	50	0	88.4	80-120	0			
Vinyl acetate	109.2	10	100	0	109	67-139	0			
Vinyl chloride	43.32	2.0	50	0	86.6	70-127	0			
Xylenes, Total	140.9	15	150	0	94	80-120	0			
Surr: 1,2-Dichloroethane-d4	*44.42*	5.0	*50*	0	*88.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*51.65*	5.0	*50*	0	*103*	*72-125*	0			
Surr: Dibromofluoromethane	*47.12*	5.0	*50*	0	*94.2*	*71-125*	0			
Surr: Toluene-d8	*52.33*	5.0	*50*	0	*105*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0710089-05AMSD** Units: **µg/L** Analysis Date: **10/08/07 15:58**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229045** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.14	5.0	50	0	92.3	80-120	43.71	5.4	20	
1,1,2,2-Tetrachloroethane	50.59	5.0	50	0	101	72-120	48.37	4.48	20	
1,1,2-Trichloroethane	50.33	5.0	50	0	101	80-120	51.72	2.72	20	
1,1-Dichloroethane	45.29	5.0	50	0	90.6	76-120	44.38	2.02	20	
1,1-Dichloroethene	42.57	5.0	50	0	85.1	73-124	39.51	7.46	20	
1,2-Dichloroethane	49.29	5.0	50	0	98.6	78-120	45.58	7.82	20	
2-Butanone	121.7	10	100	0	122	58-132	105.2	14.5	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	126.8	10	100	0	127	61-130	124.7	1.67	20	
4-Methyl-2-pentanone	123	10	100	0	123	65-127	117.9	4.26	20	
Acetone	99.42	10	100	0	99.4	59-137	90.25	9.67	20	
Benzene	47.35	5.0	50	0	94.7	73-121	43.71	8	20	
Bromodichloromethane	47.59	5.0	50	0	95.2	80-120	44.59	6.5	20	
Bromoform	52.33	5.0	50	0	105	79-120	51.49	1.62	20	
Bromomethane	35.73	5.0	50	0	71.5	66-137	27.69	25.4	20	R
Carbon disulfide	83.89	10	100	0	83.9	68-141	77.05	8.5	20	
Carbon tetrachloride	42.59	5.0	50	0	85.2	75-124	41.6	2.36	20	
Chlorobenzene	50.01	5.0	50	0	100	80-120	48.23	3.63	20	
Chloroethane	43.82	5.0	50	0	87.6	76-121	40.79	7.15	20	
Chloroform	47.52	5.0	50	0	95	80-120	46.76	1.6	20	
Chloromethane	47.83	5.0	50	0	95.7	67-123	42.22	12.5	20	
cis-1,3-Dichloropropene	50.18	5.0	50	0	100	80-120	47.43	5.64	20	
Dibromochloromethane	54.06	5.0	50	0	108	80-120	52.32	3.27	20	
Ethylbenzene	47.95	5.0	50	0	95.9	80-120	47.27	1.43	20	
m,p-Xylene	92	10	100	0	92	78-121	95.43	3.65	20	
Methylene chloride	47.01	10	50	0	94	65-133	44.6	5.25	20	
Styrene	47.6	5.0	50	0	95.2	80-120	49.37	3.66	20	
Tetrachloroethene	47	5.0	50	0	94	79-120	46.3	1.52	20	
Toluene	50.3	5.0	50	0	101	80-120	47.75	5.19	20	
trans-1,3-Dichloropropene	51.33	5.0	50	0	103	80-120	46.71	9.42	20	
Trichloroethene	44.95	5.0	50	0	89.9	80-120	44.21	1.64	20	
Vinyl acetate	119.1	10	100	0	119	67-139	109.2	8.74	20	
Vinyl chloride	45.65	2.0	50	0	91.3	70-127	43.32	5.22	20	
Xylenes, Total	137.9	15	150	0	91.9	80-120	140.9	2.16	20	
Surr: 1,2-Dichloroethane-d4	*49.08*	5.0	*50*	0	*98.2*	*70-125*	44.42	*9.98*	*20*	
Surr: 4-Bromofluorobenzene	*49.11*	5.0	*50*	0	*98.2*	*72-125*	51.65	*5.04*	*20*	
Surr: Dibromofluoromethane	*49.13*	5.0	*50*	0	*98.3*	*71-125*	47.12	*4.17*	*20*	
Surr: Toluene-d8	*51.14*	5.0	*50*	0	*102*	*75-125*	52.33	*2.3*	*20*	

The following samples were analyzed in this batch: 0709522-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54877** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-092707** Units: **mg/L** Analysis Date: **09/27/07 14:45**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220057** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*5.189*	0.10	*5*	0	*104*	*85-115*		0		

LCS Sample ID: **WLCSW1-092707** Units: **mg/L** Analysis Date: **09/27/07 15:09**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220058** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.38	0.50	20	0	102	90-110		0		
Sulfate	20.33	0.50	20	0	102	90-110		0		
Surr: Selenate (surr)	*5.072*	0.10	*5*	0	*101*	*85-115*		0		

MS Sample ID: **0709516-01BMS** Units: **mg/L** Analysis Date: **09/27/07 13:56**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220055** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	69.82	0.50	10	61.55	82.7	80-120		0		EO
Sulfate	342.8	0.50	10	340.2	26.4	80-120		0		SEO
Surr: Selenate (surr)	*5.168*	0.10	*5*	0	*103*	*85-115*		0		

MSD Sample ID: **0709516-01BMSD** Units: **mg/L** Analysis Date: **09/27/07 14:20**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220056** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	69.89	0.50	10	61.55	83.4	80-120	69.82	0.1	20	EO
Sulfate	343.2	0.50	10	340.2	30.8	80-120	342.8	0.126	20	SEO
Surr: Selenate (surr)	*5.176*	0.10	*5*	0	*104*	*85-115*	5.168	*0.155*	*20*	

DUP Sample ID: **0709516-01BDUP** Units: **mg/L** Analysis Date: **09/27/07 13:31**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220054** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	61.49	0.50	0	0	0	0-0	61.55	0.101	20	E
Sulfate	339.8	0.50	0	0	0	0-0	340.2	0.109	20	E
Surr: Selenate (surr)	*5.213*	0.10	*5*	0	*104*	*85-115*	5.216	*0.0575*	*20*	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54887** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW3-092707** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: Run ID: **WETCHEM_070927I** SeqNo: **1220276** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.07	0.10	6	0	101	90-110	0			

DUP Sample ID: **0709520-20EDUP** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: Run ID: **WETCHEM_070927I** SeqNo: **1220293** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.22	0.10	0	0	0	0-0	7.25	0.415	20	H

DUP Sample ID: **0709522-01DDUP** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: **Effluent** Run ID: **WETCHEM_070927I** SeqNo: **1220294** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.27	0.10	0	0	0	0-0	7.26	0.138	20	H

The following samples were analyzed in this batch: 0709522-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54965** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-100107** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222179** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-100107** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222180** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1055	5.0	1000	0	106	80-120	0			
Alkalinity, Total (As CaCO3)	1055	5.0	1000	0	106	80-120	0			

DUP Sample ID: **0709520-02FDUP** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222188** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	381.9	5.0	0	0	0	0-0	381.9	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	381.9	5.0	0	0	0	0-0	381.9	0	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54971** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222279** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222280** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	928	10	1000	0	92.8	85-115	0			

DUP Sample ID: **0709529-16CDUP** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222278** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	642	10	0	0	0	0-0	646	0.621	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55088** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-100307** Units: **°F** Analysis Date: **10/03/07 0:00**

Client ID: Run ID: **WETCHEM_071003H** SeqNo: **1224653** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120		0		

DUP Sample ID: **0709574-02EDUP** Units: **°F** Analysis Date: **10/03/07 0:00**

Client ID: Run ID: **WETCHEM_071003H** SeqNo: **1224657** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0		0	0	25

The following samples were analyzed in this batch: 0709522-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55131** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **MBLKW1-100407** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225720** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-100407** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225721** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1425	1.0	1413	0	101	80-120	0			

DUP Sample ID: **0710048-01GDUP** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225724** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	3390	1.0	0	0	0	0-0	3400	0.295	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Chain of Custody Form

Page 1 of 1

e-Lab Project Manager: | e-Lab Work Order #: 5109522

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Quarterly	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Effluent	9/26/07	1315	L	Y	9	X	X	X	X	X	X	X	X	X		
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: [signature] B.E.D.

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☑ Std 10 WK Days ☐ 6 WK Days ☐ Other 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
[signature] Jeff Byrd	9/25/07	1615	[signature] 9/27/07	10 Day TAT.
Relinquished by:	Date:	Time:	Received by (Laboratory): [signature]	

Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	e-Lab Analytical Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 9/27/2007 9:00:00 AM

Work Order Number 0709522 Received by: RNG

Checklist completed by RMGM 9/27/07 (Signature / Date) Reviewed by QL 9/28/07 (Initials / Date)

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.3c	002	
Cooler(s)/Kit(s):	1447		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

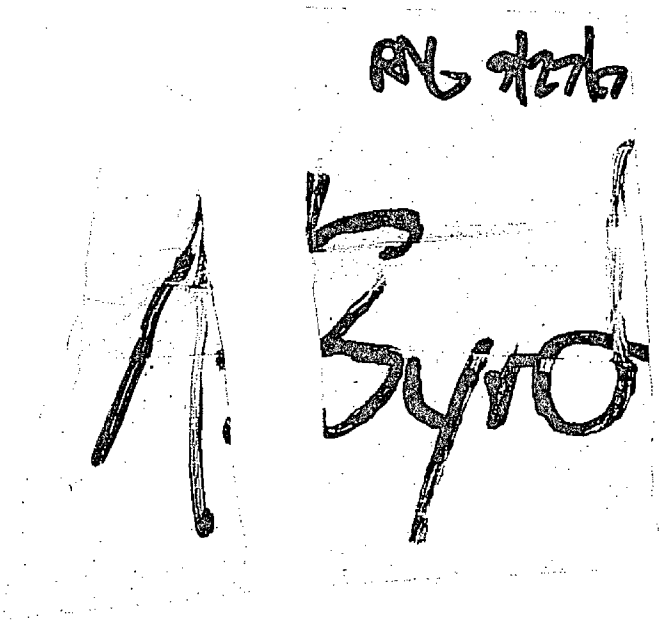
Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

P.O # 179522



NAVAJO REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P.O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
2007 SEP 20 AM 10 09

September 19, 2007

FedEx Overnight Delivery

Wayne Price
Environmental Bureau Chief
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Re: Navajo Refining Company, L.L.C., Class 1 Injection Well Discharge Permit WDW-3 UICCL-1-008-3 (I-008)

Dear Mr. Price:

Enclosed pursuant to your August 13, 2007 letter to Darrell Moore are (1) the signed copy of the above-referenced discharge permit for Navajo Refining Company, LLC ("Navajo") and (2) the permit fee in the amount of $4,500.00.

Navajo has agreed to sign the conditions listed in the permit based on your statements during our August 28, 2007 phone conversation that the conditions in the permit only apply to equipment at the site of the injection well covered by the permit (WDW-3), not the Artesia Refinery.

We strongly support your suggestion that we schedule a meeting with you and your staff to review the draft Navajo Refinery Discharge Permit that is currently in the renewal process to discuss certain conditions that may be included in the refinery permit which need further clarification and to address any concerns we may have prior to issuance of the final permit.

As we discussed, Navajo is concerned that the permit conditions, including conditions to retrofit storage tanks to include impermeable containment under all tanks and "bermed" areas, have not been thoroughly evaluated or discussed with Navajo prior to imposition. Navajo continues to believe that such evaluation and discussion prior to finalizing these conditions is necessary and appropriate.

Please contact me at 505-746-5490 if you have any questions.

Sincerely,

Johnny Lackey
Environmental Manager

Cc (w/enclosure): JER
Electronic cc (w/o enclosure): DGM, PLY
Environmental Files: REF.ART.07-4.A.02
(WDW-3 Discharge Permit)

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Check Date		09/13/2007
Check Amount	$	4,500.00
Vendor No		5102035
Payment Document		2000023164
Company Code		1020

Invoice Date	Invoice Number	Description	Invoice Amount	Discount Amount	Net Amount
08/13/2007	081307		4,500.00	0.00	4,500.00

Payment document	Check number	Date	Currency	Payment amount
2000023164	1000009940	09/13/2007	USD	*********4,500.00*

↓ PLEASE FOLD ON PERFORATION AND DETACH HERE ↓

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.
ANTI-FRAUD PROTECTION - PATENTS 5,197,765

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

64-1278/611
1000009940
09/13/2007

PAY EXACTLY
*********4,500.00*USD
VOID AFTER 180 DAYS

PAY *** FOUR THOUSAND FIVE HUNDRED and 00 /100 USD***

TO THE
ORDER OF WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Stephen D Wise
AUTHORIZED SIGNATURE

⑈1000009940⑈ ⑆061112788⑆ 329905321?⑈

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

August 13, 2007

Mr. Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company
501 East Main Street, P.O. Drawer 159
Artesia, New Mexico 88211-0159

Re: **Approval of Class I Injection Well Discharge Permit WDW-3 UICCL1-008-3 (I-008)**
Class I Non-Hazardous Oil Field Waste Disposal Well
WDW-3, API No. 30-015-26575
790 FSL and 2250 FWL UL: N Section 1, T 18 S, R 27 E
Eddy County, New Mexico

Dear Mr. Moore:

Pursuant to all applicable parts of the Water Quality Control Commission (WQCC) Regulations 20.6.2 NMAC and more specifically 20.6.2.3104 - 20.6.2.3999 discharge permit, and 20.6.2.5000-.5299 Underground Injection Control, the Oil Conservation Division (OCD), the applicant is hereby authorized to utilize its Navajo Refining Company Class I WDW-3 Waste Disposal Well (API No. 30-015-26575) located 790 feet from the South line and 2250 feet from the West line in the SE/4, SW/4 of Section 1, Township 18 South, and Range27 East, NMPM, Eddy County, New Mexico, under the conditions specified in the enclosed **Attachment To The Class I Injection Well Discharge Permit**.

Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the New Mexico Oil Conservation Division (OCD) Santa Fe Office within 30 working days of receipt of this letter-including permit fees.**

Please be advised that approval of this permit does not relieve the Navajo Refining Company of responsibility should operations result in pollution of surface water, ground water or the environment. Nor does approval of the permit relieve the Navajo Refining Company of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If you have any questions, please contact Carl Chavez of my staff at (505-476-3491) or E-mail address: carlj.chavez@state.nm.us. On behalf of the staff of the OCD, I wish to thank you and your staff for your cooperation during this discharge permit review.

Sincerely,

Wayne Price
Environmental Bureau Chief

LWP/cc
Attachments-1
xc: OCD District Office

Released to Imaging: 7/12/2024 10:49:45 AM

ATTACHMENT TO THE DISCHARGE PERMIT
Navajo Refining Company WDW-3 Class I Waste Disposal Well UICCL1-008-3 (I-008)
DISCHARGE PERMIT APPROVAL CONDITIONS

August 13, 2007

Please remit a check for $4,500.00 made payable to Water Quality Management Fund:

Water Quality Management Fund
C/o: Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, New Mexico 87505

1. **Payment of Discharge Plan Fees:** All discharge permits are subject to WQCC Regulations. Every billable facility that submits a discharge permit application will be assessed a filing fee of $100.00, plus a renewal flat fee (*see* WQCC Regulation 20.6.2.3114 NMAC). The Oil Conservation Division ("OCD") has received the required $100.00 filing fee and the Navajo Refining Company still owes the required $4500.00 permit fee. The total fee amount due is $4500 for the Class I Well.

2. **Permit Expiration and Renewal Conditions and Penalties:** Pursuant to WQCC Regulation 20.6.2.3109.H.4 NMAC, this permit is valid for a period of five years. **The permit will expire on June 1, 2012** and an application for renewal should be submitted no later than 120 days before that expiration date. Pursuant to WQCC Regulation 20.6.2.3106.F NMAC, if a discharger submits a discharge permit renewal application at least 120 days before the discharge permit expires and is in compliance with the approved permit, then the existing discharge permit will not expire until the application for renewal has been approved or disapproved. ***Expired permits are a violation of the Water Quality Act (Chapter 74, Article 6, NMSA 1978) and civil penalties may be assessed accordingly.***

3. **Permit Terms and Conditions:** Pursuant to WQCC Regulation 20.6.2.3104 NMAC, when a permit has been issued, the Navajo Refining Company must ensure that all discharges shall be consistent with the terms and conditions of the permit. In addition, all facilities shall abide by the applicable rules and regulations administered by the OCD pursuant to the Oil and Gas Act, NMSA 1978, Sections 70-2-1 through 70-2-38. All injection operations related to oil and natural gas production in New Mexico are regulated under the provisions of the Oil and Gas Act, NMSA 1978, Sections 70-2-1 *et seq.* and the Water Quality Act, NMSA 1978, Sections 74-6-1 *et seq.* These Acts delegate authority for enforcement of their provisions relating to oil and natural gas drilling, production, processing, and transportation to the Oil Conservation Division (OCD) of the New Mexico Energy, Minerals and Natural Resources Department, and to the Oil Conservation Commission (OCC) and the Water Quality Control Commission (WQCC). To carry out its authority, the OCC has promulgated rules (19 NMAC) and numerous orders. Navajo Refining Company shall comply with WQCC Regulations 20.6.2 *et seq.* NMAC relating to Class I Waste Disposal Wells.

4. **Navajo Refining Company Commitments:** The Navajo Refining Company shall abide by all commitments submitted in its June 28, 2006 Application for Permit to Drill, Re-enter, Deepen, Plug back or Add a Zone API No. 30-015-26575" including subsequent attachments and amendments; letters and conditions herein for approval. Permit applications that reference previously approved plans on file with the division shall

be incorporated in this permit and the Navajo Refining Company shall abide by all previous commitments of such plans and these conditions for approval.

5. Modifications: WQCC Regulation 20.6.2.3107.C, 20.6.2.3109 and 20.6.2.5101.I NMAC addresses possible future modifications of a permit. The Navajo Refining Company (discharger) shall notify the OCD of any facility expansion, production increase or process modification that would result in any significant modification in the discharge of water contaminants. The Division Director may require a permit modification if any water quality standard specified at 20.6.2.3103 NMAC is or will be exceeded, or if a toxic pollutants as defined in WQCC Regulation 20.6.2.7 NMAC is present in ground water at any place of withdrawal for present or reasonably foreseeable future use, or that the Water Quality Standards for Interstate and Intrastate streams as specified in 20.6.4 NMAC are being or may be violated in surface water in New Mexico.

6. Waste Disposal and Storage: Navajo Refining Company shall dispose of all other non-injected wastes at an OCD-approved facility. Only oil field RCRA-exempt wastes may be disposed of by injection in a Class I well. RCRA non-hazardous, exempt and non-exempt oil field wastes may be disposed of at an OCD-approved facility upon proper waste determination pursuant to 40 CFR Part 261. Any waste stream that is not listed in the discharge permit application must be approved by the OCD on a case-by-case basis.

A. OCD Rule 712 Waste: Pursuant to OCD Rule 712 (19.15.9.712 NMAC) disposal of certain non-domestic waste without notification to the OCD is allowed at NMED permitted solid waste facilities if the waste stream has been identified in the discharge permit and existing process knowledge of the waste stream does not change.

B. Waste Storage: The Navajo Refining Company shall store all waste in an impermeable bermed area, except waste generated during emergency response operations for up to 72 hours. All waste storage areas shall be identified in the discharge permit application. Any waste storage area not identified in the permit shall be approved on a case-by-case basis only. The Navajo Refining Company shall not store oil field waste on-site for more than 180 days unless approved by the OCD.

7. Drum Storage: The Navajo Refining Company must store all drums, including empty drums, containing materials other than fresh water on an impermeable pad with curbing. The Navajo Refining Company must store empty drums on their sides with the bungs in place and lined up on a horizontal plane. The Navajo Refining Company must store chemicals in other containers, such as tote tanks, sacks, or buckets on an impermeable pad with curbing.

8. Process, Maintenance and Yard Areas: The Navajo Refining Company shall either pave and curb or have some type of spill collection device incorporated into the design at all process, maintenance, and yard areas which show evidence that water contaminants from releases, leaks and spills have reached the ground surface.

9. Above Ground Tanks: The Navajo Refining Company shall ensure that all aboveground tanks have impermeable secondary containment (e.g., liners and berms), which will contain a volume of at least one-third greater than the total volume of the largest tank or all interconnected tanks. The Navajo Refining Company shall retrofit all existing tanks before discharge permit renewal. Tanks that contain fresh water or fluids that are gases at atmospheric temperature and pressure are exempt from this condition.

10. Labeling: The Navajo Refining Company shall clearly label all tanks, drums, and containers to identify their contents and other emergency notification information. The Navajo Refining Company may use a tank code numbering system, which is incorporated into their emergency response plans.

11. Below-Grade Tanks/Sumps and Pits/Ponds.

A. All below-grade tanks and sumps must be approved by the OCD prior to installation and must incorporate secondary containment with leak detection into the design. The Navajo Refining Company shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal. All existing below-grade tanks and sumps without secondary containment and leak detection must be tested annually or as specified herein. Systems that have secondary containment with leak detection shall have a monthly inspection of the leak detection system to determine if the primary containment is leaking. Small sumps or depressions in secondary containment systems used to facilitate fluid removal are exempt from these requirements if fluids are removed within 72 hours.

B. All pits and ponds, including modifications and retrofits, shall be designed by a certified registered professional engineer and approved by the OCD prior to installation. In general, all pits or ponds shall have approved hydrologic and geologic reports, location, foundation, liners, and secondary containment with leak detection, monitoring and closure plans. All pits or ponds shall be designed, constructed and operated so as to contain liquids and solids in a manner that will protect fresh water, public health, safety and the environment for the foreseeable future. The Navajo Refining Company shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal.

C. The Navajo Refining Company shall ensure that all exposed pits, including lined pits and open top tanks (8 feet in diameter or larger) shall be fenced, screened, netted, or otherwise rendered non-hazardous to wildlife, including migratory birds.

D. The Navajo Refining Company shall maintain the results of tests and inspections at the facility covered by this discharge permit and available for OCD inspection. The Navajo Refining Company shall report the discovery of any system which is found to be leaking or has lost integrity to the OCD within 15 days. The Navajo Refining Company may propose various methods for testing such as pressure testing to 3 pounds per square inch greater than normal operating pressure and/or visual inspection of cleaned tanks and/or sumps, or other OCD-approved methods. The Navajo Refining Company shall notify the OCD at least 72 hours prior to all testing.

12. Underground Process/Wastewater Lines:

A. The Navajo Refining Company shall test all underground process/wastewater pipelines at least once every five (5) years to demonstrate their mechanical integrity, except lines containing fresh water or fluids that are gases at atmospheric temperature and pressure. Pressure rated pipe shall be tested by pressuring up to one and one-half times the normal operating pressure, if possible, or for atmospheric drain systems, to 3 pounds per square inch greater than normal operating pressure, and pressure held for a minimum of 30 minutes with no more

than a 1% loss/gain in pressure. The Navajo Refining Company may use other methods for testing if approved by the OCD.

B. Navajo Refining Company shall maintain underground process and wastewater pipeline schematic diagrams or plans showing all drains, vents, risers, valves, underground piping, pipe type, rating, size, and approximate location. All new underground piping must be approved by the OCD prior to installation. The Navajo Refining Company shall report any leaks or loss of integrity to the OCD within 15 days of discovery.

Navajo Refining Company shall maintain the results of all tests at the facility covered by this discharge permit and they shall be available for OCD inspection. The Navajo Refining Company shall notify the OCD at least 72 hours prior to all testing.

13. Class V Wells: The Navajo Refining Company shall close all Class V wells (e.g., septic systems, leach fields, dry wells, etc.) that inject non-hazardous industrial wastes or a mixture of industrial wastes and domestic wastes unless it can be demonstrated that ground water will not be impacted in the reasonably foreseeable future. Leach fields and other wastewater disposal systems at OCD-regulated facilities that inject non-hazardous fluid into or above an underground source of drinking water are considered Class V Waste Disposal Wells under the EPA UIC program. Class V wells that inject domestic waste only, must be permitted by the New Mexico Environment Department (NMED).

14. Housekeeping: The Navajo Refining Company shall inspect all systems designed for spill collection/prevention and leak detection at least monthly to ensure proper operation and to prevent over topping or system failure. All spill collection and/or secondary containment devices shall be emptied of fluids within 72 hours of discovery. The Navajo Refining Company shall maintain all records at the facility and available for OCD inspection.

15. Spill Reporting: The Navajo Refining Company shall report all unauthorized discharges, spills, leaks and releases and conduct corrective action pursuant to WQCC Regulation 20.5.12.1203 NMAC and OCD Rule 116 (19.15.3.116 NMAC). The Navajo Refining Company shall notify both the OCD District Office and the Santa Fe Office within 24 hours and file a written report within 15 days.

16. OCD Inspections: The OCD may place additional requirements on the facility and modify the permit conditions based on well emergencies, OCD inspections, and/or quarterly reporting information.

17. Storm Water: The Navajo Refining Company shall implement and maintain run-on and runoff plans and controls. The Navajo Refining Company shall not discharge any water contaminant that exceeds the WQCC standards specified in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) including any oil sheen in any stormwater run-off. The Navajo Refining Company shall notify the OCD within 24 hours of discovery of any releases and shall take immediate corrective action(s) to stop the discharge.

18. Unauthorized Discharges: The Navajo Refining Company shall not allow or cause water pollution, discharge or release of any water contaminant that exceeds the WQCC standards listed in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) unless specifically listed in the permit application approved herein.

An unauthorized discharge is a violation of this permit.

19. Vadose Zone and Water Pollution: The Navajo Refining Company shall address any contamination through the discharge permit process or pursuant to WQCC 20.6.2.4000-.4116 NMAC (Prevention and Abatement of Water Pollution). The OCD may require the Navajo Refining Company to modify its permit for investigation, remediation, abatement, and monitoring requirements for any vadose zone or water pollution. Failure to perform any required investigation, remediation, abatement and submit subsequent reports will be a violation of the permit.

20. Additional Site Specific Conditions: The Navajo Refining Company shall notify the OCD within 24 hours after having knowledge of ground water pollution complaints or well problems within a 1-mile radius of WDW-3.

21. Class I Injection Well(s) Construction Conditions.
All wells, except those municipal wells injection of non-corrosive wastes, shall inject fluids through tubing with a packer set immediately above the injection zone.

A. Construction: The tubing and packer shall be designed and maintained for the duration of expected service.

B. Logs or tests required for the following situations:

a. For surface casing intended to protect underground sources of drinking water:
   i. Resistivity, spontaneous potential, and caliper logs before the casing is installed; and
   ii. A cement bond, temperature, or density log after the casing is set and cemented.

b. For intermediate and long strings of casing intended to facilitate injection:
   i. Resistivity, spontaneous potential, porosity, and gamma ray logs before the casing is installed.
   ii. Fracture finder logs; and
   iii. A cement bond, temperature, or density log after the casing is set and cemented.
   iv. At a minimum, the following information concerning the injection formation shall be determined or calculated for new Class I wells:
      1. Fluid pressure;
      2. Temperature;
      3. Fracture pressure;
      4. Other physical and chemical characteristics of the injection matrix; and
      5. Physical and chemical characteristics of the formation fluids.

22. Class I Injection Well(s) Identification, Operation, Monitoring, Bonding and Reporting.

A. Well Identification: API # 30-015-26575

B. Well Work Over Operations: OCD approval will be obtained prior to performing remedial work, pressure test or any other work. Approval will be requested on OCD Form C-103 "Sundry Notices and Reports on Wells" (OCD Rule 1103.A) with appropriate copies sent to the OCD Environmental Bureau and District Office.

C. Injection Formation, Interval & Waste: Injected refinery exempt/non-exempt non-hazardous wastes will be injected into the Lower-Wolfcamp Formation at the interval 7650 ft to 8450 ft and 8450 ft to 8620 ft. Tubing shall be surrounded by surface casing set to a depth protective of fresh ground water (< 10,000 ppm TDS). The owner/operator shall take all steps necessary to ensure that the injected waste enters only the above specified injection interval and is not permitted to escape to other formations or onto the surface. The operator shall provide written notice of the date of commencement of injection to the Santa Fe Office of the Division.

D. Well Injection Pressure Limits: The wellhead injection pressure on the well shall be limited to no more than 1530 psig. In addition, the injection well or system shall be equipped with a pressure limiting device in workable condition, which shall, at all times, limit surface injection pressure to the maximum allowable pressure for this well. The maximum operating surface injection and/or test pressure measured at the wellhead shall not exceed 1530 psig unless otherwise approved by the OCD. The pressure-limiting device shall monthly be demonstrated and reported quarterly to the OCD. Navajo Refining Company shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the ground surface. Any pressure that causes new fractures or propagation in existing fractures or causes damage to the system shall be reported to OCD within 24 hours of discovery.

The Director of the OCD may authorize an increase in injection pressure upon demonstration by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formation. Such demonstration shall consist of a valid step-rate test run in accordance with and acceptable to the OCD.

E. Mechanical Integrity Testing (MIT):

The owner/operator shall complete an annual casing-tubing annulus pressure test from the surface to the approved injection depth and below the depth of fresh ground water (< 10,000 ppm TDS) to assess casing and tubing integrity. The MIT shall consist of a 30-minute test at a minimum pressure from 300 to 500 psig measured at the surface. A Bradenhead test(s) shall also be performed annually along with the casing-tubing annulus test. A Bradenhead test(s) shall be performed in all annular spaces including surface casing if not cemented.

The owner/operator shall complete an annual pressure fall-off test to monitor the pressure buildup in the injection zone. The well shall be shut down for a period sufficient to conduct the test and shall be submitted to the OCD in the annual report (see Section 22K (11)).

All well testing shall be performed annually or shall also be performed whenever the tubing is pulled or the packer reseated or when the injection formation will be isolated from the casing/tubing annuals.

The operator shall notify the supervisor of the Santa Fe Office of the Division of the date, time and time of the installation of disposal equipment and of any MIT so that it may be inspected and witnessed.

1. General Requirements:

   a. If the testing requires a packer then casing-tubing annulus must be loaded with inert fluid 24 hours prior to testing.
   b. Have manpower and equipment available for pressure test. Wellhead shall be prepared for test and all valves and gauges should be in good working order.
   c. Pumps, tanks, external lines etc. must be isolated from the wellhead during test.
   d. A continuous recording pressure device with a maximum 4-hour clock shall be installed on the casing-tubing annulus. The pressure range shall not be greater than 500 psig. The operator must provide proof that the pressure-recording device has been calibrated within the past 6 months.
   e. A minimum of one pressure gauge shall be installed on the casing/tubing annulus.
   f. OCD must witness the beginning of test (putting chart on) and ending of test (removing chart). At the end of test, the operator may be required to bleed-off well pressure to demonstrate recorder and gauge response.
   g. The Operator shall supply the following information on the pressure chart that the inspector will file in the well records:
      1. Company Name, Well Name, API #, Legal Location.
      2. Test Procedure with "Pass/Fail" designation.
      3. Testing Media: Water, Gas, Oil, Etc.
      4. Date, time started and ending.
      5. Name (printed) and signature of company representative and OCD Inspector

2. Test Acceptance:

The OCD will use the following criteria in determining if a well has passed the Mechanical Integrity Test:

   a. Passes if Zero Bleed-Off during the test.
   b. Passes if Final Test Pressure is within ± 10% of Starting Pressure, if approved by the OCD inspector.
   c. Fails if any Final Test Pressure is greater than ± 10% of Starting Pressure. Operators must investigate for leaks and demonstrate that mechanical integrity of the well(s) by ensuring there are no leaks in the tubing, casing, or packer, and injected/produced fluids are confined within the piping and/or injection zones. Wells shall not resume operations until approved by OCD.

   Note: OCD recognizes that different operations, well designs, formation characteristics and field conditions may cause variations in the above procedures. If the operator wishes to make or discuss anticipate changes, please notify the OCD for approval. All operators are responsible to notify OCD of any procedure that may cause harm to the well system or formation. Please be advised that OCD approval does not relieve any operator of liability should operations result in pollution of surface water, groundwater, or the environment.

d. When the MIT is not witnessed by an OCD Representative and fails, the owner/operator shall notify the OCD within 24 hours after having knowledge of well MIT failure.

F. Loss of Mechanical Integrity: The operator shall report within 24 hours of discovery any failure of the casing, tubing or packer, or movement of fluids outside of the injection zone. The operator shall cease operations until proper repairs are made and receive OCD approval to re-start injection operations. In addition, any associated fresh ground water monitor wells, which exhibit anomalous static water levels, detection of elevated general chemistry constituents, public health issues, etc. shall be immediately reported to the OCD.

G. Injection Record Volumes and Pressures: The owner/operator shall submit quarterly reports of its disposal, operation and well workovers provided herein. The minimum, maximum, average flow waste injection volumes (including total volumes) and annular pressures of waste (oil field exempt/non-exempt non-hazardous waste) injected will be recorded monthly and submitted to the OCD Santa Fe Office on a quarterly basis.

The casing-tubing annulus shall contain fluid and be equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. Due to pressure fluctuations observed at Navajo's other two nearby Class I Injection Wells, WDW-3 shall be equipped with an expansion tank under constant 100 psig pressure connected to the casing-annulus and maintained under constant pressure. The expansion tank shall initially be filled half-full (250 gallon expansion tank) with an approved fluid to establish an equilibrium volume and fluid level. Weekly monitoring of fluid levels in the expansion tank coupled with documented additions/ removals of fluids into or out of the expansion tank is required to maintain the equilibrium volume. Any loss or gain of fluids in the expansion tank shall be recorded, and if significant, reported to the OCD within 24 hours of discovery. The owner/operator shall provide the following information on a quarterly basis: weekly expansion tank volume readings shall be provided in a table in the cover letter of each quarterly report. Navajo shall monitor, record and note any fluid volume additions or removals from the expansion tank on a quarterly basis. In addition, any well activity (i.e., plugging, changing injection intervals, etc.) shall be conducted in accordance with all applicable New Mexico Oil Conservation Division regulations.

H. Analysis of Injected Waste: Provide an analytical data or test results summary of the injection waste water with each annual report. The analytical testing shall be conducted on a quarterly basis with any exceedence reported to the OCD within 24 hours after having knowledge of an exceedence(s). Records shall be maintained at Navajo for the life of the well. The required analytical test methods are:

a. Aromatic and halogenated volatile hydrocarbon scan by EPA Method 8260C GC/MS. Semi-volatile Organics GC/MS EPA Method 8270B including 1 and 2-methylnaphthalene.
b. General water chemistry (Method 40 CFR 136.3) to include calcium, potassium, magnesium, sodium, bicarbonate, carbonate, chloride, sulfate, total dissolved solids (TDS), pH, and conductivity.

c. Heavy metals using the ICP scan (EPA Method 6010) and Arsenic and Mercury using atomic absorption (EPA Methods 7060 and 7470).
d. EPA RCRA Characteristics for Ignitability, Corrosivity and Reactivity (40 CFR part 261 Subpart C Sections 261.21 – 261.23, July 1, 1992).

I. Area of Review (AOR): The operator shall report within 24 hours of discovery of any new wells, conduits, or any other device that penetrates or may penetrate the injection zone within a 1-mile radius from the Class I Well. Documentation of new wells shall be added to the existing AOR information in the well file within 30 days of the discovery.

J. Bonding or Financial Assurance: The operator shall maintain at a minimum, a one well plugging bond in the amount of $95,000 or the actual amount required to plug/abandon the well pursuant to OCD and WQCC rules and regulations. If warranted, OCD may require additional financial assurance to ensure adequate funding to plug and abandon the well or for any corrective actions.

K. Annual Report: All operators shall submit an annual report due on January 31 of each year. The report shall include the following information:

1. Cover sheet marked as "Annual Class I Well Report, name of operator, permit #, API# of well(s), date of report, and person submitting report.
2. Brief summary of Class I Well(s) operations including description and reason for any remedial or major work on the well with a copy of OCD Form C-103.
3. Production volumes as required above in 22.G. including a running total should be carried over to each year. The maximum and average injection pressure.
4. A copy of the chemical analysis as required above in 22.H.
5. A copy of any mechanical integrity test chart, including the type of test, i.e. duration, gauge pressure, etc.
6. Brief explanation describing deviations from normal production methods.
7. A copy of any expansion tank monitoring pressure, fluid removals/additions, well problems, drinking water impacts, leaks and spills reports.
8. If applicable, results of any groundwater monitoring.
9. An Area of Review (AOR) update summary.
10. Sign-off requirements pursuant to WQCC Subsection G 20.6.2.5101.
11. A summary with interpretation of MITs, Fall-Off Tests, etc., with conclusion(s) and recommendation(s).
12. Annual facility training.

23. Transfer of Discharge Permit: Pursuant to WQCC 20.6.2.5101.H the Navajo Refining Company and any new owner/operator shall provide written notice of any transfer of the permit in accordance with WQCC 20.6.2.3104 (Discharge Permit Required), 20.6.2.3111 (Transfer of Discharge Permit), 20.6.2.5101 (Discharge Permit and Other Requirements for Class I Non-Hazardous Waste Waste Disposal Wells, and Class III Wells). Both parties shall sign the notice 30 days prior to any transfer of ownership, control or possession of a Class I Well with an approved discharge permit. In addition, the purchaser shall include a written commitment to comply with the terms and conditions of the previously approved discharge permit. OCD will not transfer Class I Well operations until: correspondence between the transferor and transferee is submitted along with a signed

certification of acceptance by the transferee, and proper bonding or financial assurance is in place and approved by the division. OCD reserves the right to require a major modification of the permit during the transfer process.

24. Training: All personnel associated with operations at the Navajo Class I disposal well shall have appropriate training in accepting, processing, and disposing of Class I non exempt non-hazardous refinery waste to insure proper disposal. Provide training documentation in annual report under Section 22K(12).

25. Closure: The Navajo Refining Company shall notify the OCD when operations of the facility are to be discontinued for a period in excess of six months. Prior to closure of the facility, the operator shall submit for OCD approval, a closure plan including a completed C-103 form for plugging and abandonment of the well(s). Closure and waste disposal shall be in accordance with the statutes, rules and regulations in effect at the time of closure.

26. Certification: Navajo Refining Company, by the officer whose signature appears below, accepts this permit and agrees to comply with all submitted commitments, including these terms and conditions contained here. **Navajo Refining Company** further acknowledges that the OCD may, for good cause shown, as necessary to protect fresh water, public health, safety, and the environment, change the conditions and requirements of this permit administratively.

Conditions accepted by: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

Navajo Refining Company- print name above

JAMES RESINGER

Company Representative- print name

Company Representative- signature

Title VP - NAVAJO REFINERY

Date: 9/18/07

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Check Date		09/13/2007
Check Amount	$	4,500.00
Vendor No		5102035
Payment Document		2000023164
Company Code		1020

Invoice Date	Invoice Number	Description	Invoice Amount	Discount Amount	Net Amount
08/13/2007	081307		4,500.00	0.00	4,500.00

Payment document	Check number	Date	Currency	Payment amount
2000023164	1000009940	09/13/2007	USD	*********4,500.00*

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. 1000009940 dated 9/13/07

or cash received on _____ in the amount of $ 4500 00

from Navajo Refining Co LP

for WDW-3 UICCL-1-008-3 (CI-008)

Submitted by: Lawrence Romero Date: 9/24/07

Submitted to ASD by: Lawrence Romero Date: 9/24/07

Received in ASD by: _____ Date: _____

Filing Fee _____ New Facility _____ Renewal _____

Modification _____ Other _____

Organization Code 521.07 Applicable FY 2004

To be deposited in the Water Quality Management Fund.

Full Payment ✓ or Annual Increment _____

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

64-1278/611 1000009940
09/13/2007

PAY EXACTLY
*********4,500.00*USD

VOID AFTER 180 DAYS

PAY *** FOUR THOUSAND FIVE HUNDRED and 00 /100 USD***

TO THE ORDER OF WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Stephen D Wise
AUTHORIZED SIGNATURE

⑈1000009940⑈ ⑆111278833⑆ 29905321⑆

NAVAJO REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
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FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

April 25, 2007

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 First Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the first quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the 200 gallon tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2007 to March 31, 2007. We have disposed a total of 32,545,353 barrels of fluid into the two wells as of March 31, 2007. This is broken down as follows: 22,038,386 barrels into WDW-1 and 10,506,967 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Sr. Environmental Specialist

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	21,268,940
Jan-07	374	417	339	199	263	40	82	143	33	6,821	9,002	1,370	211,459	21,480,399
Feb-07	290	388	222	250	351	17	250	381	38	8,574	12,032	580	265,809	21,746,208
Mar-07	284	340	221	275	295	234	427	500	319	9,425	10,101	8,019	292,178	22,038,386
WDW-2													**Previous Quarter**	10,091,491
Jan-07	223	455	28	119	129	105	0	2	0	4,090	4,415	3,583	126,789	10,218,280
Feb-07	315	500	0	123	158	75	0	0	0	4,219	5,410	2,556	130,779	10,349,059
Mar-07	36	188	0	149	170	124	0	0	0	5,094	5,819	4,238	157,907	10,506,967
													Total Injected fluids:	32,545,353

Page 4334 of 5828

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 FIRST QUARTER WEEKLY WHAMS LEVEL TABLE

	1/1/07	1/8/07	1/15/07	1/22/07	1/29/07	2/5/07	2/12/07	2/19/07	2/26/07	3/5/07	3/12/07	3/19/07	3/26/07
WDW -1	300	300	300	300	200[1]	200	200	200	200	200	200	200	200
WDW-2	250	250	250	250	160[1]	160	160	160	160	160	160	160	160

[1] Removed material to ensure tanks don't overflow.

Page 4335 of 5828

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 (281) 530-5656 Fax (281) 530-5887

April 24, 2007

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj. Well Work Order : **0704309**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 1 sample on 4/17/2007 8:40:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 37.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Jeffrey L Croston

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Project: Inj. Well
Work Order: **0704309**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0704309-01	Inj. Well	Water		4/16/2007 13:30	4/17/2007 08:40	☐

e-Lab Analytical, Inc. **Date:** *April 24, 2007*

CLIENT: Navajo Refining Company
Project: Inj. Well
Work Order: 0704309

Case Narrative

pH sample was analyzed within 24 hours of collection.

Batch 22974 Metals MS/MSD was an unrelated sample.collection.

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **4/19/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	4/19/2007 5:03:37 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **4/19/2007**	Analyst: **ALR**
Aluminum	**2.63**		**1.00**	**mg/L**	100	4/20/2007 5:47:00 PM
Arsenic	**0.189**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Barium	**0.0462**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Beryllium	ND		0.00200	mg/L	1	4/20/2007 6:56:00 AM
Boron	**0.188**		**0.0200**	**mg/L**	1	4/20/2007 6:56:00 AM
Cadmium	ND		0.00200	mg/L	1	4/20/2007 6:56:00 AM
Calcium	**46.2**		**0.500**	**mg/L**	1	4/20/2007 6:56:00 AM
Chromium	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Cobalt	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Copper	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Iron	**0.286**		**0.200**	**mg/L**	1	4/20/2007 6:56:00 AM
Lead	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Magnesium	**43.0**		**1.00**	**mg/L**	5	4/23/2007 3:50:00 PM
Manganese	**0.0249**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Molybdenum	**0.0890**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Nickel	**0.00511**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Potassium	**82.8**		**1.00**	**mg/L**	5	4/23/2007 3:50:00 PM
Selenium	**0.170**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Silver	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Sodium	**2,000**		**20.0**	**mg/L**	100	4/20/2007 5:47:00 PM
Vanadium	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Zinc	**0.0201**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **4/20/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2,4,5-Trichlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2,4,6-Trichlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Methylnaphthalene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Methylphenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Nitrophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
3&4-Methylphenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
3-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
4-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
4-Nitrophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Acenaphthene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Acenaphthylene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Anthracene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Benz(a)anthracene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Benzidine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Hexachloroethane	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Indeno(1,2,3-cd)pyrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Isophorone	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodi-n-propylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodimethylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodiphenylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Naphthalene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Nitrobenzene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Pentachlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Phenanthrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Phenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Pyrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Surr: 2,4,6-Tribromophenol	*75.6*		*42-124*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 2-Fluorobiphenyl	*69.1*		*48-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 2-Fluorophenol	*65.6*		*20-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 4-Terphenyl-d14	*72.1*		*51-135*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: Nitrobenzene-d5	*76.7*		*41-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: Phenol-d6	*70.7*		*20-120*	*%REC*	1	4/20/2007 3:25:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
2-Butanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	4/20/2007 4:54:00 PM
2-Hexanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Acetone	**130**		**10**	**µg/L**	1	4/20/2007 4:54:00 PM
Benzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromoform	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromomethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Carbon disulfide	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM

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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloroform	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Ethylbenzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
m,p-Xylene	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Methylene chloride	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Styrene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Toluene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Trichloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Vinyl acetate	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Vinyl chloride	ND		2.0	µg/L	1	4/20/2007 4:54:00 PM
Xylenes, Total	ND		15	µg/L	1	4/20/2007 4:54:00 PM
Surr: 1,2-Dichloroethane-d4	*98.9*		*70-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: 4-Bromofluorobenzene	*100*		*72-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: Dibromofluoromethane	*97.6*		*71-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: Toluene-d8	*101*		*75-125*	*%REC*	1	4/20/2007 4:54:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	4/18/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	4/18/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **LMD**
Chloride	**953**		**25.0**	**mg/L**	50	4/19/2007 12:47:00 AM
Sulfate	**2,420**		**50.0**	**mg/L**	50	4/19/2007 12:47:00 AM
Surr: Selenate (surr)	*100*		*85-115*	*%REC*	50	4/19/2007 12:47:00 AM
ALKALINITY			**E310.1**			Analyst: **PV**
Alkalinity, Bicarbonate (As CaCO3)	**846**		**5.00**	**mg/L**	1	4/18/2007
Alkalinity, Carbonate (As CaCO3)	**124**		**5.00**	**mg/L**	1	4/18/2007
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	4/18/2007
Alkalinity, Total (As CaCO3)	**970**		**5.00**	**mg/L**	1	4/18/2007
CONDUCTIVITY			**E120.1**			Analyst: **PV**
Specific Conductance	**8,030**		**1.00**	**µmhos/cm**	1	4/17/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>200**		**50.0**	**°F**	1	4/19/2007

Qualifiers:

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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	**8.72**	H	**0.100**	**pH units**	1	4/17/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	**6,740**		**10.0**	**mg/L**	1	4/17/2007

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

Date: *Apr 24 2007*

QC BATCH REPORT

Batch ID: **22964** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:27**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095860** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:29**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095861** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00548	0.00020	0.005	0	110	85-115	0			

LCSD Sample ID: **GLCSDW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:31**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095862** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00553	0.00020	0.005	0	111	85-115	0.00548	0.908	20	

MS Sample ID: **0704314-01DMS** Units: **mg/L** Analysis Date: **04/19/07 16:41**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095865** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00536	0.00020	0.005	-0.000016	108	85-115	0			

MSD Sample ID: **0704314-01DMSD** Units: **mg/L** Analysis Date: **04/19/07 16:43**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095866** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00551	0.00020	0.005	-0.000016	111	85-115	0.00536	2.76	20	

DUP Sample ID: **0704314-01DDUP** Units: **mg/L** Analysis Date: **04/19/07 16:35**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095864** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000016	0	20	

The following samples were analyzed in this batch: 0704309-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW2-041907** Units: **mg/L** Analysis Date: **04/20/07 6:43**
Client ID: Run ID: **ICPMS02_070419A** SeqNo: **1096355** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	0.153	0.50								J
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	0.0004649	0.0050								J
Iron	ND	0.20								
Lead	ND	0.0050								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

MBLK Sample ID: **MBLKW2-041907** Units: **mg/L** Analysis Date: **04/20/07 17:35**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097433** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002384	0.010								J
Magnesium	ND	0.20								
Potassium	ND	0.20								
Sodium	ND	0.20								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW2-041907** Units: **mg/L** Analysis Date: **04/20/07 6:50**
Client ID: Run ID: **ICPMS02_070419A** SeqNo: **1096356** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04694	0.0050	0.05	0	93.9	80-120	0			
Barium	0.0492	0.0050	0.05	0	98.4	80-120	0			
Beryllium	0.04661	0.0020	0.05	0	93.2	80-120	0			
Boron	0.4886	0.020	0.5	0	97.7	80-120	0			
Cadmium	0.04819	0.0020	0.05	0	96.4	80-120	0			
Calcium	4.432	0.50	5	0	88.6	80-120	0			
Chromium	0.04374	0.0050	0.05	0	87.5	80-120	0			
Cobalt	0.04761	0.0050	0.05	0	95.2	80-120	0			
Copper	0.04604	0.0050	0.05	0	92.1	80-120	0			
Iron	4.78	0.20	5	0	95.6	80-120	0			
Lead	0.04708	0.0050	0.05	0	94.2	80-120	0			
Manganese	0.04577	0.0050	0.05	0	91.5	80-120	0			
Molybdenum	0.04668	0.0050	0.05	0	93.4	80-120	0			
Nickel	0.04595	0.0050	0.05	0	91.9	80-120	0			
Selenium	0.04865	0.0050	0.05	0	97.3	80-120	0			
Silver	0.04866	0.0050	0.05	0	97.3	80-120	0			
Vanadium	0.04467	0.0050	0.05	0	89.3	80-119	0			
Zinc	0.04782	0.0050	0.05	0	95.6	80-118	0			

LCS Sample ID: **MLCSW2-041907** Units: **mg/L** Analysis Date: **04/20/07 17:41**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097434** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.04611	0.010	0.05	0	92.2	80-120	0			
Magnesium	4.742	0.20	5	0	94.8	80-120	0			
Potassium	4.78	0.20	5	0	95.6	80-120	0			
Sodium	4.681	0.20	5	0	93.6	80-120	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/20/07 23:33**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097709** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06546	0.0050	0.05	0.01224	106	80-120	0			
Barium	0.07401	0.0050	0.05	0.0219	104	80-120	0			
Cadmium	0.04766	0.0020	0.05	0.0003782	94.6	80-120	0			
Calcium	788.7	0.50	5	784.1	92	80-120	0			EO
Chromium	0.0485	0.0050	0.05	0.0001179	96.8	80-120	0			
Cobalt	0.04993	0.0050	0.05	-4.907E-05	100	80-120	0			
Copper	0.04552	0.0050	0.05	0.0001244	90.8	80-120	0			
Iron	7.65	0.20	5	2.781	97.4	80-120	0			
Lead	0.05079	0.0050	0.05	0.0001332	101	80-120	0			
Manganese	0.3215	0.0050	0.05	0.2683	106	80-120	0			O
Molybdenum	0.0586	0.0050	0.05	0.007029	103	80-120	0			
Nickel	0.04825	0.0050	0.05	0.0035	89.5	80-120	0			
Selenium	0.05793	0.0050	0.05	0.00277	110	80-120	0			
Silver	0.04486	0.0050	0.05	-0.0003654	90.5	80-120	0			
Sodium	ND	0.20	5	0	0	80-120	0			SX
Zinc	0.05858	0.0050	0.05	0.01406	89	80-118	0			

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/23/07 16:38**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098464** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04792	0.0040	0.05	-0.0001226	96.1	80-120	0			
Boron	1.713	0.040	0.5	1.21	100	80-120	0			
Vanadium	0.05208	0.010	0.05	-0.0005382	105	80-119	0			

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/23/07 18:54**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098605** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06834	0.020	0.05	0.01825	100	80-120	0			
Magnesium	258	0.40	5	259.2	-24	80-120	0			SEO
Potassium	39.84	0.40	5	35.54	86	80-120	0			O

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/20/07 23:39**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097710** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06506	0.0050	0.05	0.01224	106	80-120	0.06546	0.613	15	
Barium	0.07081	0.0050	0.05	0.0219	97.8	80-120	0.07401	4.42	15	
Cadmium	0.04533	0.0020	0.05	0.0003782	89.9	80-120	0.04766	5.01	15	
Calcium	751.3	0.50	5	784.1	-656	80-120	788.7	4.86	15	SEO
Chromium	0.04705	0.0050	0.05	0.0001179	93.9	80-120	0.0485	3.04	15	
Cobalt	0.04893	0.0050	0.05	-4.907E-05	98	80-120	0.04993	2.02	15	
Copper	0.04465	0.0050	0.05	0.0001244	89.1	80-120	0.04552	1.93	15	
Iron	7.313	0.20	5	2.781	90.6	80-120	7.65	4.5	15	
Lead	0.04983	0.0050	0.05	0.0001332	99.4	80-120	0.05079	1.91	15	
Manganese	0.3116	0.0050	0.05	0.2683	86.6	80-120	0.3215	3.13	15	O
Molybdenum	0.0569	0.0050	0.05	0.007029	99.7	80-120	0.0586	2.94	15	
Nickel	0.04624	0.0050	0.05	0.0035	85.5	80-120	0.04825	4.25	15	
Selenium	0.05633	0.0050	0.05	0.00277	107	80-120	0.05793	2.8	15	
Silver	0.04482	0.0050	0.05	-0.0003654	90.4	80-120	0.04486	0.0892	15	
Sodium	ND	0.20	5	0	0	80-120	0	0	15	SX
Zinc	0.04966	0.0050	0.05	0.01406	71.2	80-118	0.05858	16.5	15	SR

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/23/07 16:51**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098465** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04966	0.0040	0.05	-0.0001226	99.6	80-120	0.04792	3.57	15	
Boron	1.749	0.040	0.5	1.21	108	80-120	1.713	2.11	15	
Vanadium	0.05126	0.010	0.05	-0.0005382	104	80-119	0.05208	1.59	15	

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/23/07 19:06**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098606** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06672	0.020	0.05	0.01825	96.9	80-120	0.06834	2.4	15	
Magnesium	252.2	0.40	5	259.2	-140	80-120	258	2.27	15	SEO
Potassium	38.96	0.40	5	35.54	68.4	80-120	39.84	2.23	15	SO

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/20/07 18:18**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097442** Prep Date: **4/19/2007** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	746.2	50	0	0	0	0-0	738.2	1.08	25	
Magnesium	243.9	20	0	0	0	0-0	240.3	1.49	25	
Sodium	2752	20	0	0	0	0-0	2751	0.0363	25	

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/20/07 23:21**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097707** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.01246	0.0050	0	0	0	0-0	0.01224	1.78	25	
Barium	0.02203	0.0050	0	0	0	0-0	0.0219	0.592	25	
Cadmium	0.0002431	0.0020	0	0	0	0-0	0.0003782	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0001179	0	25	
Cobalt	ND	0.0050	0	0	0	0-0	-4.907E-05	0	25	
Copper	ND	0.0050	0	0	0	0-0	0.0001244	0	25	
Iron	2.77	0.20	0	0	0	0-0	2.781	0.396	25	
Lead	ND	0.0050	0	0	0	0-0	0.0001332	0	25	
Manganese	0.2679	0.0050	0	0	0	0-0	0.2683	0.149	25	
Molybdenum	0.00692	0.0050	0	0	0	0-0	0.007029	1.56	25	
Nickel	0.003014	0.0050	0	0	0	0-0	0.0035	0	25	J
Selenium	0.002389	0.0050	0	0	0	0-0	0.00277	0	25	J
Silver	ND	0.0050	0	0	0	0-0	-0.0003654	0	25	
Zinc	0.005127	0.0050	0	0	0	0-0	0.01406	93.1	25	R

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/23/07 16:07**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098409** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01785	0.020	0	0	0	0-0	0.01825	0	25	J
Beryllium	ND	0.0040	0	0	0	0-0	-0.0001226	0	25	
Boron	1.185	0.040	0	0	0	0-0	1.21	2.14	25	
Potassium	34.9	0.40	0	0	0	0-0	35.54	1.82	25	
Vanadium	ND	0.010	0	0	0	0-0	-0.0005382	0	25	

The following samples were analyzed in this batch: 0704309-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:09**

Client ID: Run ID: **SV-3_070420A** SeqNo: **1097700** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*76.15*	5.0	*100*	0	*76.1*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*81.66*	5.0	*100*	0	*81.7*	*48-120*	0			
Surr: 2-Fluorophenol	*74.34*	5.0	*100*	0	*74.3*	*20-120*	0			
Surr: 4-Terphenyl-d14	*87.27*	5.0	*100*	0	*87.3*	*51-135*	0			
Surr: Nitrobenzene-d5	*81.15*	5.0	*100*	0	*81.2*	*41-120*	0			
Surr: Phenol-d6	*76.4*	5.0	*100*	0	*76.4*	*20-120*	0			

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID: **SLCSW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:34**

Client ID: Run ID: **SV-3_070420A** SeqNo: **1097701** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	40.98	5.0	50	0	82	54-118	0			
2,4,5-Trichlorophenol	82.74	5.0	100	0	82.7	52-115	0			
2,4,6-Trichlorophenol	85.08	5.0	100	0	85.1	56-115	0			
2-Methylnaphthalene	43.85	5.0	50	0	87.7	46-117	0			
2-Methylphenol	81.32	5.0	100	0	81.3	53-115	0			
2-Nitroaniline	45.33	5.0	50	0	90.7	53-123	0			
2-Nitrophenol	79.93	5.0	100	0	79.9	53-115	0			
3&4-Methylphenol	118.5	5.0	150	0	79	48-115	0			
3-Nitroaniline	36.53	5.0	50	0	73.1	26-115	0			
4-Nitroaniline	41.73	5.0	50	0	83.5	47-115	0			
4-Nitrophenol	94.88	5.0	100	0	94.9	26-133	0			
Acenaphthene	43.38	5.0	50	0	86.8	57-115	0			
Acenaphthylene	45.78	5.0	50	0	91.6	57-118	0			
Aniline	32.26	5.0	50	0	64.5	36-115	0			
Anthracene	44.87	5.0	50	0	89.7	65-115	0			
Benz(a)anthracene	38.95	5.0	50	0	77.9	53-115	0			
Benzidine	15.57	5.0	50	0	31.1	10-115	0			
Hexachloroethane	41.99	5.0	50	0	84	54-115	0			
Indeno(1,2,3-cd)pyrene	42.04	5.0	50	0	84.1	51-115	0			
Isophorone	41.19	5.0	50	0	82.4	55-115	0			
N-Nitrosodi-n-propylamine	40.8	5.0	50	0	81.6	55-115	0			
N-Nitrosodimethylamine	37.08	5.0	50	0	74.2	42-115	0			
N-Nitrosodiphenylamine	44.27	5.0	50	0	88.5	52-115	0			
Naphthalene	42.77	5.0	50	0	85.5	55-115	0			
Nitrobenzene	40.53	5.0	50	0	81.1	40-124	0			
Pentachlorophenol	90.61	5.0	100	0	90.6	45-125	0			
Phenanthrene	44.33	5.0	50	0	88.7	57-115	0			
Phenol	77.82	5.0	100	0	77.8	38-115	0			
Pyrene	41.57	5.0	50	0	83.1	51-115	0			
Surr: 2,4,6-Tribromophenol	*84.37*	5.0	*100*	0	*84.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*83.81*	5.0	*100*	0	*83.8*	*48-120*	0			
Surr: 2-Fluorophenol	*76*	5.0	*100*	0	*76*	*20-120*	0			
Surr: 4-Terphenyl-d14	*78.04*	5.0	*100*	0	*78*	*51-135*	0			
Surr: Nitrobenzene-d5	*81.76*	5.0	*100*	0	*81.8*	*41-120*	0			
Surr: Phenol-d6	*79.46*	5.0	*100*	0	*79.5*	*20-120*	0			

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:58**

Client ID: Run ID: **SV-3_070420A** SeqNo: **1097702** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	42.92	5.0	50	0	85.8	54-118	40.98	4.62	20	
2,4,5-Trichlorophenol	89.79	5.0	100	0	89.8	52-115	82.74	8.17	20	
2,4,6-Trichlorophenol	89.01	5.0	100	0	89	56-115	85.08	4.52	20	
2-Methylnaphthalene	45.67	5.0	50	0	91.3	46-117	43.85	4.07	20	
2-Methylphenol	85.68	5.0	100	0	85.7	53-115	81.32	5.22	20	
2-Nitroaniline	47.16	5.0	50	0	94.3	53-123	45.33	3.98	20	
2-Nitrophenol	86.43	5.0	100	0	86.4	53-115	79.93	7.81	20	
3&4-Methylphenol	126.7	5.0	150	0	84.5	48-115	118.5	6.72	20	
3-Nitroaniline	37.83	5.0	50	0	75.7	26-115	36.53	3.49	20	
4-Nitroaniline	42.27	5.0	50	0	84.5	47-115	41.73	1.29	20	
4-Nitrophenol	94.83	5.0	100	0	94.8	26-133	94.88	0.048	20	
Acenaphthene	45.32	5.0	50	0	90.6	57-115	43.38	4.39	20	
Acenaphthylene	48.52	5.0	50	0	97	57-118	45.78	5.82	20	
Aniline	36.05	5.0	50	0	72.1	36-115	32.26	11.1	20	
Anthracene	45.5	5.0	50	0	91	65-115	44.87	1.38	20	
Benz(a)anthracene	40.58	5.0	50	0	81.2	53-115	38.95	4.11	20	
Benzidine	18.35	5.0	50	0	36.7	10-115	15.57	16.4	20	
Hexachloroethane	44.99	5.0	50	0	90	54-115	41.99	6.9	20	
Indeno(1,2,3-cd)pyrene	44	5.0	50	0	88	51-115	42.04	4.55	20	
Isophorone	42.55	5.0	50	0	85.1	55-115	41.19	3.25	20	
N-Nitrosodi-n-propylamine	43.4	5.0	50	0	86.8	55-115	40.8	6.18	20	
N-Nitrosodimethylamine	41.08	5.0	50	0	82.2	42-115	37.08	10.2	20	
N-Nitrosodiphenylamine	46.04	5.0	50	0	92.1	52-115	44.27	3.92	20	
Naphthalene	45.39	5.0	50	0	90.8	55-115	42.77	5.93	20	
Nitrobenzene	42.89	5.0	50	0	85.8	40-124	40.53	5.65	20	
Pentachlorophenol	90.27	5.0	100	0	90.3	45-125	90.61	0.378	20	
Phenanthrene	45.7	5.0	50	0	91.4	57-115	44.33	3.04	20	
Phenol	82.62	5.0	100	0	82.6	38-115	77.82	5.98	20	
Pyrene	42.88	5.0	50	0	85.8	51-115	41.57	3.09	20	
Surr: 2,4,6-Tribromophenol	*81.47*	5.0	*100*	0	*81.5*	*42-124*	84.37	*3.5*	*20*	
Surr: 2-Fluorobiphenyl	*80.25*	5.0	*100*	0	*80.2*	*48-120*	83.81	*4.34*	*20*	
Surr: 2-Fluorophenol	*75.96*	5.0	*100*	0	*76*	*20-120*	76	*0.0635*	*20*	
Surr: 4-Terphenyl-d14	*74.62*	5.0	*100*	0	*74.6*	*51-135*	78.04	*4.48*	*20*	
Surr: Nitrobenzene-d5	*80.37*	5.0	*100*	0	*80.4*	*41-120*	81.76	*1.71*	*20*	
Surr: Phenol-d6	*83.42*	5.0	*100*	0	*83.4*	*20-120*	79.46	*4.86*	*20*	

The following samples were analyzed in this batch: 0704309-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-042007** Units: **µg/L** Analysis Date: **04/20/07 11:51**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096817** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*48.6*	5.0	*50*	0	*97.2*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*50.22*	5.0	*50*	0	*100*	*72-125*	0			
Surr: Dibromofluoromethane	*49.42*	5.0	*50*	0	*98.8*	*71-125*	0			
Surr: Toluene-d8	*50.95*	5.0	*50*	0	*102*	*75-125*	0			

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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-042007** Units: **µg/L** Analysis Date: **04/20/07 11:00**
Client ID: Run ID: **VOA1_070420A** SeqNo: **1096816** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.57	5.0	50	0	97.1	80-120	0			
1,1,2,2-Tetrachloroethane	50.18	5.0	50	0	100	72-120	0			
1,1,2-Trichloroethane	50.68	5.0	50	0	101	80-120	0			
1,1-Dichloroethane	48.74	5.0	50	0	97.5	76-120	0			
1,1-Dichloroethene	47.27	5.0	50	0	94.5	73-124	0			
1,2-Dichloroethane	49.42	5.0	50	0	98.8	78-120	0			
2-Butanone	105.8	10	100	0	106	58-132	0			
2-Chloroethyl vinyl ether	105.8	10	100	0	106	74-120	0			
2-Hexanone	103.7	10	100	0	104	61-130	0			
4-Methyl-2-pentanone	107.1	10	100	0	107	65-127	0			
Acetone	98.11	10	100	0	98.1	59-137	0			
Benzene	48.83	5.0	50	0	97.7	73-121	0			
Bromodichloromethane	48.22	5.0	50	0	96.4	80-120	0			
Bromoform	46.52	5.0	50	0	93	79-120	0			
Bromomethane	47.32	5.0	50	0	94.6	66-137	0			
Carbon disulfide	94.62	10	100	0	94.6	68-141	0			
Carbon tetrachloride	46.42	5.0	50	0	92.8	75-124	0			
Chlorobenzene	48.72	5.0	50	0	97.4	80-120	0			
Chloroethane	47.15	5.0	50	0	94.3	76-121	0			
Chloroform	48.82	5.0	50	0	97.6	80-120	0			
Chloromethane	42.92	5.0	50	0	85.8	67-123	0			
cis-1,3-Dichloropropene	49.93	5.0	50	0	99.9	80-120	0			
Dibromochloromethane	50.55	5.0	50	0	101	80-120	0			
Ethylbenzene	48.19	5.0	50	0	96.4	80-120	0			
m,p-Xylene	95.22	10	100	0	95.2	78-121	0			
Methylene chloride	46.36	10	50	0	92.7	65-133	0			
Styrene	49.71	5.0	50	0	99.4	80-120	0			
Tetrachloroethene	47.21	5.0	50	0	94.4	79-120	0			
Toluene	47.98	5.0	50	0	96	80-120	0			
trans-1,3-Dichloropropene	50.69	5.0	50	0	101	80-120	0			
Trichloroethene	48.41	5.0	50	0	96.8	80-120	0			
Vinyl acetate	108.6	10	100	0	109	67-139	0			
Vinyl chloride	43.31	2.0	50	0	86.6	74-122	0			
Xylenes, Total	143.3	15	150	0	95.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	*50.26*	5.0	*50*	0	*101*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*51.33*	5.0	*50*	0	*103*	*72-125*	0			
Surr: Dibromofluoromethane	*50.99*	5.0	*50*	0	*102*	*71-125*	0			
Surr: Toluene-d8	*51.95*	5.0	*50*	0	*104*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0704367-01AMS** Units: **µg/L** Analysis Date: **04/20/07 12:41**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096823** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.57	5.0	50	0	93.1	80-120		0		
1,1,2,2-Tetrachloroethane	51.33	5.0	50	0	103	72-120		0		
1,1,2-Trichloroethane	51.95	5.0	50	0	104	80-120		0		
1,1-Dichloroethane	48.37	5.0	50	0	96.7	76-120		0		
1,1-Dichloroethene	45.82	5.0	50	0	91.6	73-124		0		
1,2-Dichloroethane	50.11	5.0	50	0	100	78-120		0		
2-Butanone	110.2	10	100	0	110	58-132		0		
2-Chloroethyl vinyl ether	109.7	10	100	0	110	74-120		0		
2-Hexanone	111.7	10	100	0	112	61-130		0		
4-Methyl-2-pentanone	112.1	10	100	0	112	65-127		0		
Acetone	103.2	10	100	0.8797	102	59-137		0		
Benzene	47.63	5.0	50	0	95.3	73-121		0		
Bromodichloromethane	49.95	5.0	50	0	99.9	80-120		0		
Bromoform	47.58	5.0	50	0	95.2	79-120		0		
Bromomethane	43.93	5.0	50	0	87.9	66-137		0		
Carbon disulfide	90.67	10	100	0	90.7	68-141		0		
Carbon tetrachloride	44.69	5.0	50	0	89.4	75-124		0		
Chlorobenzene	47.56	5.0	50	0	95.1	80-120		0		
Chloroethane	43.04	5.0	50	0	86.1	76-121		0		
Chloroform	49.18	5.0	50	0	98.4	80-120		0		
Chloromethane	41.05	5.0	50	0	82.1	67-123		0		
cis-1,3-Dichloropropene	50.92	5.0	50	0	102	80-120		0		
Dibromochloromethane	52.39	5.0	50	0	105	80-120		0		
Ethylbenzene	46.46	5.0	50	0	92.9	80-120		0		
m,p-Xylene	94.12	10	100	0	94.1	78-121		0		
Methylene chloride	45.96	10	50	0	91.9	65-133		0		
Styrene	48.39	5.0	50	0	96.8	80-120		0		
Tetrachloroethene	45.71	5.0	50	0	91.4	79-120		0		
Toluene	46.08	5.0	50	0	92.2	80-120		0		
trans-1,3-Dichloropropene	50.97	5.0	50	0	102	80-120		0		
Trichloroethene	47.15	5.0	50	0	94.3	80-120		0		
Vinyl acetate	111.9	10	100	0	112	67-139		0		
Vinyl chloride	40.33	2.0	50	0	80.7	74-122		0		
Xylenes, Total	141	15	150	0	94	80-120		0		
Surr: 1,2-Dichloroethane-d4	*50.37*	5.0	*50*	0	*101*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*50.31*	5.0	*50*	0	*101*	*72-125*		0		
Surr: Dibromofluoromethane	*51.6*	5.0	*50*	0	*103*	*71-125*		0		
Surr: Toluene-d8	*51.99*	5.0	*50*	0	*104*	*75-125*		0		

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0704367-01AMSD** Units: **µg/L** Analysis Date: **04/20/07 13:06**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096824** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	43.74	5.0	50	0	87.5	80-120	46.57	6.27	20	
1,1,2,2-Tetrachloroethane	53.33	5.0	50	0	107	72-120	51.33	3.81	20	
1,1,2-Trichloroethane	52.88	5.0	50	0	106	80-120	51.95	1.78	20	
1,1-Dichloroethane	47.37	5.0	50	0	94.7	76-120	48.37	2.09	20	
1,1-Dichloroethene	42.93	5.0	50	0	85.9	73-124	45.82	6.51	20	
1,2-Dichloroethane	48.84	5.0	50	0	97.7	78-120	50.11	2.57	20	
2-Butanone	110.9	10	100	0	111	58-132	110.2	0.693	20	
2-Chloroethyl vinyl ether	111.3	10	100	0	111	74-120	109.7	1.44	20	
2-Hexanone	113	10	100	0	113	61-130	111.7	1.13	20	
4-Methyl-2-pentanone	116.9	10	100	0	117	65-127	112.1	4.23	20	
Acetone	99.56	10	100	0.8797	98.7	59-137	103.2	3.57	20	
Benzene	46.66	5.0	50	0	93.3	73-121	47.63	2.07	20	
Bromodichloromethane	50.08	5.0	50	0	100	80-120	49.95	0.258	20	
Bromoform	48.99	5.0	50	0	98	79-120	47.58	2.93	20	
Bromomethane	45.06	5.0	50	0	90.1	66-137	43.93	2.54	20	
Carbon disulfide	86.9	10	100	0	86.9	68-141	90.67	4.25	20	
Carbon tetrachloride	41.85	5.0	50	0	83.7	75-124	44.69	6.56	20	
Chlorobenzene	46.5	5.0	50	0	93	80-120	47.56	2.24	20	
Chloroethane	41.73	5.0	50	0	83.5	76-121	43.04	3.07	20	
Chloroform	48.58	5.0	50	0	97.2	80-120	49.18	1.21	20	
Chloromethane	40.89	5.0	50	0	81.8	67-123	41.05	0.403	20	
cis-1,3-Dichloropropene	50.77	5.0	50	0	102	80-120	50.92	0.297	20	
Dibromochloromethane	52.86	5.0	50	0	106	80-120	52.39	0.889	20	
Ethylbenzene	43.35	5.0	50	0	86.7	80-120	46.46	6.94	20	
m,p-Xylene	91.01	10	100	0	91	78-121	94.12	3.37	20	
Methylene chloride	46.2	10	50	0	92.4	65-133	45.96	0.53	20	
Styrene	47.29	5.0	50	0	94.6	80-120	48.39	2.29	20	
Tetrachloroethene	42.07	5.0	50	0	84.1	79-120	45.71	8.3	20	
Toluene	45.9	5.0	50	0	91.8	80-120	46.08	0.395	20	
trans-1,3-Dichloropropene	52.11	5.0	50	0	104	80-120	50.97	2.22	20	
Trichloroethene	45.17	5.0	50	0	90.3	80-120	47.15	4.29	20	
Vinyl acetate	108.9	10	100	0	109	67-139	111.9	2.66	20	
Vinyl chloride	38.59	2.0	50	0	77.2	74-122	40.33	4.41	20	
Xylenes, Total	135.2	15	150	0	90.1	80-120	141	4.21	20	
Surr: 1,2-Dichloroethane-d4	*49.77*	5.0	*50*	0	*99.5*	*70-125*	50.37	*1.18*	*20*	
Surr: 4-Bromofluorobenzene	*49.34*	5.0	*50*	0	*98.7*	*72-125*	50.31	*1.96*	*20*	
Surr: Dibromofluoromethane	*50.41*	5.0	*50*	0	*101*	*71-125*	51.6	*2.33*	*20*	
Surr: Toluene-d8	*50.95*	5.0	*50*	0	*102*	*75-125*	51.99	*2.03*	*20*	

The following samples were analyzed in this batch: 0704309-01A

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J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48864** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-041707** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093574** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-041707** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093575** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1410	1.0	1413	0	99.8	80-120		0		

DUP Sample ID: **0704241-01BDUP** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093581** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	42.93	1.0	0	0	0	0-0	43.13	0.465	20	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48869** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-041707** Units: **pH units** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417G** SeqNo: **1093613** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.02	0.10	6	0	100	90-110	0			

DUP Sample ID: **0704322-01ADUP** Units: **pH units** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417G** SeqNo: **1093616** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.71	0.10	0	0	0	0-0	7.69	0.26	20	H

The following samples were analyzed in this batch: 0704309-01C

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O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48897** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094263** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094264** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	971	10	1000	0	97.1	85-115		0		

DUP Sample ID: **0704293-18CDUP** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094254** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1422	10	0	0	0	0-0	1347	5.42	20	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48926** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-041807** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094851** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-041807** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094852** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1006	5.0	1000	0	101	80-120	0			

DUP Sample ID: **0704260-04FDUP** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094866** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	371.5	5.0	0	0	0	0-0	356	4.26	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	371.5	5.0	0	0	0	0-0	356	4.26	20	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48945** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-041907** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095481** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID: **0704158-01EDUP** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095487** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

DUP Sample ID: **0704338-01ADUP** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095488** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48972** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-041707** Units: **mg/L** Analysis Date: **04/17/07 21:23**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096082** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Selenate (surr)	*4.803*	0.10	*5*	0	*96.1*	*85-115*		0		

LCS Sample ID: **WLCSW1-041707/** Units: **mg/L** Analysis Date: **04/17/07 21:47**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096083** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.12	0.50	20	0	101	90-110		0		
Sulfate	20.19	1.0	20	0	101	90-110		0		
Surr: Selenate (surr)	*5.152*	0.10	*5*	0	*103*	*85-115*		0		

MS Sample ID: **0704301-01FMS** Units: **mg/L** Analysis Date: **04/17/07 23:00**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096086** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	53.34	0.50	10	44.17	91.7	80-120		0		EO
Sulfate	87.46	1.0	10	78.84	86.2	80-120		0		EO
Surr: Selenate (surr)	*4.848*	0.10	*5*	0	*97*	*85-115*		0		

MSD Sample ID: **0704301-01FMSD** Units: **mg/L** Analysis Date: **04/17/07 23:25**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096087** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	53.3	0.50	10	44.17	91.3	80-120	53.34	0.0731	20	EO
Sulfate	87.29	1.0	10	78.84	84.5	80-120	87.46	0.195	20	EO
Surr: Selenate (surr)	*4.833*	0.10	*5*	0	*96.7*	*85-115*	4.848	*0.31*	*20*	

DUP Sample ID: **0704301-01FDUP** Units: **mg/L** Analysis Date: **04/17/07 22:36**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096085** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	44.13	0.50	0	0	0	0-0	44.17	0.0861	20	
Sulfate	78.82	1.0	0	0	0	0-0	78.84	0.019	20	E
Surr: Selenate (surr)	*4.843*	0.10	*5*	0	*96.9*	*85-115*	4.847	*0.0826*	*20*	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48972** Instrument ID **ICS3000** Method: **E300**

DUP Sample ID: **0704301-01FDUP** Units: **mg/L** Analysis Date: **04/18/07 9:33**

Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096131** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	43.19	5.0	0	0	0	0-0	43.34	0.337	20	
Sulfate	76.4	10	0	0	0	0-0	76.35	0.0615	20	
Surr: Selenate (surr)	*48.09*	1.0	*50*	0	*96.2*	*85-115*	47.96	*0.273*	*20*	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab
QUALITY • INTEGRITY • SERVICE

☐ e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

The Chain of Custody is a Legal Document. All information must be completed accurately.

☐ e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 0704309

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Well	A	Injection Well Quarterly
Work Order		Project Number		B	
Company Name	Navajo Refining	Bill To Company	Same	C	
Send Report To	Jeff Byrd	Invoice Attn		D	
Address		Address		E	
				F	
City/State/Zip	Artesia	City/State/Zip		G	
Phone		Phone		H	
Fax		Fax		I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Well	4/16/07	1330	L	Y	8	X										
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Jeff Byrd

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Other ☐ STD-10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour X

Results Due Date:

Relinquished by: Jeff Byrd	Date: 4/16/07	Time: 1615	Received by:	Notes:	
Relinquished by:	Date:	Time:	Received by (Laboratory): 4/17/07 08:46	e-Lab Analytical Cooler ID	Trip Blank Number
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 4/17/2007 8:40:00 AM

Work Order Number 0704309 Received by: RNG

Checklist completed by RMR 4-17-07 (Signature / Date) Reviewed by 9L 4/18/07 (Initials / Date)

Matrix: Liquid Carrier name: E-Lab

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.7c	002	
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

FedEx
Emp# 520550 01:01 17APR07

STANDARD OVERNIGHT

TUE

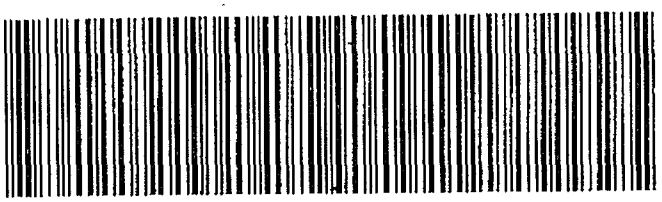
Deliver By:
17APR07

TRK# 9046 7991 1241 FORM 0201

IAH

77099 -TX-US

XH JGQA



e-Lab Analytical, Inc.
10460 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.6887

CUSTOD

Date: 4/16/07

Name:

Company:

DY SEAL

me: 1615

Seal Broken By:

Date: 4/17/07

e-Lab Analytical, Inc

Date: *April 20, 2007*

CLIENT: e-Lab Analytical, Inc
Project: 0704309
Work Order: **0704354**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0704354-01	0704309-01E	Water		4/16/2007 13:30	4/18/2007 10:00	☐

e-Lab Analytical, Inc

Date: *April 20, 2007*

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309
Lab ID: 0704354-01

Client Sample ID: 0704309-01E
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **RAR**
Cyanide, Reactive	ND	40.0		mg/Kg	1	4/18/2007
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **RAR**
Sulfide, Reactive	ND	40.0		mg/Kg	1	4/18/2007

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- P - Dual Column results percent difference > 40%
- E - Value above quantitation range
- H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309

Date: *Apr 20 2007*

QC BATCH REPORT

Batch ID: **R48120** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID **WBLKW1-041707** Units: **mg/Kg** Analysis Date: **04/18/07 0:00**

Client ID: Run ID: **WETCHEM_070417P** SeqNo: **764493** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0704354-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309

QC BATCH REPORT

Batch ID: **R48121** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID **WBLKW1-041707** Units: **mg/Kg** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764522** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID **WLCSW1-041707** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764531** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	190.8	40	619	0	30.8	2.8-70	0			

LCSD Sample ID **WLCSDW1-04170** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764530** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	194.5	40	619	0	31.4	2.8-70	190.8	1.92	35	

MS Sample ID **0704315-01A MS** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764532** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	157	40	619	0	25.4	2.8-70	0			

MSD Sample ID **0704315-01A MSD** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764533** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	131	40	619	0	21.2	2.8-70	157	18.1	35	

The following samples were analyzed in this batch: 0704354-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

0704354

Subcontractor:
e-Lab Analytical, Inc.
3352 128th Ave.
Holland, MI 49424
TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

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CHAIN-OF-CUSTODY RECORD

Date: Apr 17, 2007
COC ID: 4918
Due Date 4/23/2007

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	0704309	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jcroston@elabi.com	eMail CC	oelliston@elabi.com	J

Sample ID	Matrix	Collection Date	Bottle	A	B	C	D	E	F	G	H	I	J
0704309-01E (Inj. Well)	Water	4/16/2007 13:30	(1) 1LPNEAT	X	X								

Comments:

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
					Std
Relinquished by:	Date/Time	Received by:	Date/Time		
UPS	4-17-07/UPS 4/18/07 1000	UPS	4/17/07 4/18/07 1000		

e-Lab Analytical, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 4/18/2007 10:00:00 AM

Work Order Number 0704354 Received by: AJK

Checklist completed by Signature 4/18/07 Date Reviewed by Initials 4/18/07 Date

Matrix: Water Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.2 C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

UPS Next Day Air Saver

Ship Via: UPS Document

WEIGHT: 1 LBS | DIMENSIONAL WEIGHT | LARGE AIR PACKAGE | SHIPPER RELEASE

Saver

SHIPMENT FROM

UPS ACCOUNT NO: 698174

REFERENCE NUMBER: SUB R2 SANCHR2

TELEPHONE: 281-530-5656

E-LAB, INC.

10450 STANCLIFF RD STE #210

HOUSTON TX 77099

MI 495 9-04

UPS Next Day Air Saver 1P

DELIVER TO

TELEPHONE: 616-399-6070

RECEIVING

E-LAB, INC.

3352 128TH AVE

HOLLAND MI 49424

1Z 678 17[illegible] 23 1002 7565

(URC v.48.0A 10/2005)
0201952542609 1:05 S

United Parcel Service, Louisville, KY

SHIPMENT ID NUMBER: 6981 7479 [illegible]

e-Lab Analytical, Inc.
10450 Stancliff Rd., Ste 210
Houston, Texas 77099
Tel: 281.530.5656
Fax: 281.530.5887

QUALITY - INTEGRITY

CUSTODY SEAL

Date: 4-11-07 Time: [illegible] By: RICHARD CAN

No: 1602

070435

OK cc. 5/17/07 Sam Actions

NAVAJO REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

April 16, 2006

RECEIVED

APR 19 2007

Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2006 Fourth Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the fourth quarter of 2006 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2006 to December 31, 2006. We have disposed a total of 31,360,431 barrels of fluid into the two wells as of December 31, 2006. This is broken down as follows: 21,268,940 barrels into WDW-1 and 10,091,491 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Sr. Environmental Specialist

Encl.

ccc: DGM
File; REF:ART: 4 A 02 D

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2006 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													Previous Quarter	20,500,126
Oct-06	229	353	7	242	312	125	241	349	154	8,311	10,708	4,296	257,630	20,757,756
Nov-06	279	368	36	248	298	122	267	325	130	8,491	10,221	4,189	263,211	21,020,967
Dec-06	349	402	294	233	342	129	157	232	102	7,999	11,712	4,420	247,973	21,268,940
WDW-2													Previous Quarter	9,745,400
Oct-06	481	500	358	94	150	0	0	0	0	3,237	5,160	0	100,352	9,845,752
Nov-06	497	500	447	109	154	0	0	0	0	3,735	5,291	0	115,797	9,961,549
Dec-06	406	500	205	122	140	69	0	0	0	4,192	4,799	2,382	129,942	10,091,491
													Total Injected fluids:	31,360,431

Page 4374 of 5828

2006 FOURTH QUARTER WEEKLY WHAMS LEVEL TABLE

	12/4/06	12/11/06	12/18/06	12/25/06
	Gallons	Gallons	Gallons	Gallons
WDW-1	300	300	300	300
WDW-2	250	250	250	250

Released to Imaging: 7/12/2024 10:49:45 AM

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 (281) 530-5656 Fax (281) 530-5887

December 29, 2006

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Wells Work Order : **0612199**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 2 samples on 12/12/2006 10:35:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 45.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Odette E. Elliston

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: **0612199**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0612199-01	Injection Wells	Water		12/11/2006 13:30	12/12/2006 10:35	☐
0612199-02	Trip Blank 1338	Trip Blank		12/11/2006	12/12/2006 10:35	☑

e-Lab Analytical, Inc. **Date:** *December 29, 2006*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0612199

Case Narrative

Batch's 21185 and 21217 Metals MS/MSD were unrelated samples.

Batch's R44863 and R45027 Volatiles MS/MSD were unrelated samples.

Batch R44808 Anions (sample Injection Wells) MS/MSD recoveries were below the control limits for Sulfate (76.4% and 64.8%). Recoveries were E/O-flagged.

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **12/18/2006**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	12/18/2006 5:21:59 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **12/13/2006**	Analyst: **ALR**
Aluminum	**1.27**		**0.0100**	**mg/L**	1	12/15/2006 12:10:00 AM
Arsenic	**0.159**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Barium	**0.0250**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Beryllium	ND		0.00200	mg/L	1	12/15/2006 12:10:00 AM
Boron	**0.237**		**0.0200**	**mg/L**	1	12/19/2006 8:58:00 AM
Cadmium	ND		0.00100	mg/L	1	12/15/2006 12:10:00 AM
Calcium	**121**		**0.500**	**mg/L**	1	12/15/2006 12:10:00 AM
Chromium	**0.00234**		**0.00200**	**mg/L**	1	12/15/2006 12:10:00 AM
Cobalt	ND		0.00200	mg/L	1	12/15/2006 12:10:00 AM
Copper	**0.00417**		**0.00200**	**mg/L**	1	12/15/2006 12:10:00 AM
Iron	**0.802**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Lead	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Magnesium	**25.0**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Manganese	**0.0726**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Molybdenum	**0.0925**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Nickel	**0.0103**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Potassium	**18.8**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Selenium	**0.344**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Silver	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Sodium	**1,400**		**40.0**	**mg/L**	200	12/15/2006 4:58:00 PM
Vanadium	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Zinc	**0.159**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **12/13/2006**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2,4,5-Trichlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2,4,6-Trichlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Methylnaphthalene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Methylphenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Nitrophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
3&4-Methylphenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
3-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
4-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
4-Nitrophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Acenaphthene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Acenaphthylene	ND		10	µg/L	1	12/14/2006 5:22:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Anthracene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Benz(a)anthracene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Benzidine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Hexachloroethane	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Indeno(1,2,3-cd)pyrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Isophorone	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodi-n-propylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodimethylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodiphenylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Naphthalene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Nitrobenzene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Pentachlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Phenanthrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Phenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Pyrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Surr: 2,4,6-Tribromophenol	*69.3*		*42-124*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 2-Fluorobiphenyl	*65.2*		*48-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 2-Fluorophenol	*53.3*		*20-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 4-Terphenyl-d14	*66.0*		*51-135*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: Nitrobenzene-d5	*62.9*		*41-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: Phenol-d6	*61.1*		*20-120*	*%REC*	1	12/14/2006 5:22:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
2-Butanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	12/18/2006 7:17:00 PM
2-Hexanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Acetone	**53**		**10**	**µg/L**	1	12/18/2006 7:17:00 PM
Benzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromoform	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromomethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Carbon disulfide	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM

Qualifiers:
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloroform	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Ethylbenzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
m,p-Xylene	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Methylene chloride	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Styrene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Toluene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Trichloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Vinyl acetate	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Vinyl chloride	ND		2.0	µg/L	1	12/18/2006 7:17:00 PM
Xylenes, Total	ND		15	µg/L	1	12/18/2006 7:17:00 PM
Surr: 1,2-Dichloroethane-d4	*107*		*70-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: 4-Bromofluorobenzene	*116*		*72.4-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: Dibromofluoromethane	*121*		*71.2-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: Toluene-d8	*123*		*75-125*	*%REC*	1	12/18/2006 7:17:00 PM
FLASHPOINT			**SW1010**			Analyst: **MAG**
Ignitability	**>180**		**50.0**	**°F**	1	12/15/2006
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	12/15/2006
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	12/15/2006
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **LMD**
Chloride	**907**		**25.0**	**mg/L**	50	12/13/2006 12:38:00 AM
Sulfate	**1,810**		**50.0**	**mg/L**	50	12/13/2006 12:38:00 AM
Surr: Selenate (surr)	*92.9*		*80-120*	*%REC*	50	12/13/2006 12:38:00 AM
ALKALINITY			**E310.1**			Analyst: **PV**
Alkalinity, Bicarbonate (As CaCO3)	**224**		**5.00**	**mg/L**	1	12/18/2006
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	12/18/2006
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	12/18/2006
Alkalinity, Total (As CaCO3)	**224**		**5.00**	**mg/L**	1	12/18/2006
CONDUCTIVITY			**E120.1**			Analyst: **RPM**
Specific Conductance	**5,800**		**1.00**	**µmhos/cm**	1	12/12/2006

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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **RPM**
pH	7.32		0.100	pH units	1	12/12/2006
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	4,530		10.0	mg/L	1	12/13/2006

Qualifiers:

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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-02

Client Sample ID: Trip Blank 1338
Collection Date: 12/11/2006
Matrix: TRIP BLANK

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
2-Butanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	12/13/2006 8:56:00 PM
2-Hexanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Acetone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Benzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromoform	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromomethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Carbon disulfide	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chlorobenzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloroform	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Ethylbenzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
m,p-Xylene	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Methylene chloride	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Styrene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Toluene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Trichloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Vinyl acetate	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Vinyl chloride	ND		2.0	µg/L	1	12/13/2006 8:56:00 PM
Xylenes, Total	ND		15	µg/L	1	12/13/2006 8:56:00 PM
Surr: 1,2-Dichloroethane-d4	*104*		*70-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: 4-Bromofluorobenzene	*80.6*		*72.4-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: Dibromofluoromethane	*99.8*		*71.2-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: Toluene-d8	*91.4*		*75-125*	*%REC*	1	12/13/2006 8:56:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

Date: *Dec 29 2006*

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW1-121306** Units: **mg/L** Analysis Date: **12/14/06 14:44**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014550** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	ND	0.0050								

MBLK Sample ID: **MBLKW1-121306** Units: **mg/L** Analysis Date: **12/14/06 18:48**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014885** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	0.02435	0.20								J
Selenium	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	0.00299	0.0050								J

LCS Sample ID: **MLCSW1-121306** Units: **mg/L** Analysis Date: **12/14/06 14:50**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014551** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	0.04857	0.0050	0.05	0	97.1	80-117		0		

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW1-121306** Units: **mg/L** Analysis Date: **12/14/06 18:54**

Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014886** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05627	0.010	0.05	0	113	79-126	0			
Arsenic	0.0495	0.0050	0.05	0	99	80-121	0			
Barium	0.05205	0.0050	0.05	0	104	79.8-119	0			
Beryllium	0.04927	0.0020	0.05	0	98.5	78.9-120	0			
Cadmium	0.05273	0.0020	0.05	0	105	79.1-119	0			
Calcium	5.374	0.50	5	0	107	80-121	0			
Chromium	0.05011	0.0050	0.05	0	100	79.3-121	0			
Cobalt	0.0542	0.0050	0.05	0	108	82-121	0			
Copper	0.04994	0.0050	0.05	0	99.9	81-120	0			
Iron	5.01	0.20	5	0	100	80-120	0			
Lead	0.0496	0.0050	0.05	0	99.2	80-118	0			
Magnesium	4.874	0.20	5	0	97.5	80-120	0			
Manganese	0.05128	0.0050	0.05	0	103	82-119	0			
Molybdenum	0.04974	0.0050	0.05	0	99.5	81-116	0			
Nickel	0.05207	0.0050	0.05	0	104	82-120	0			
Potassium	4.844	0.20	5	0	96.9	80-120	0			
Selenium	0.04976	0.0050	0.05	0	99.5	79.2-118	0			
Sodium	4.873	0.20	5	0	97.5	80.6-119	0			
Vanadium	0.05329	0.0050	0.05	0	107	82.1-119	0			
Zinc	0.05312	0.0050	0.05	0	106	79-118	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/14/06 6:12**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014199** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05019	0.0050	0.05	0.003835	92.7	80-121	0			
Barium	0.2575	0.0050	0.05	0.2123	90.4	79.8-119	0			O
Cadmium	0.04615	0.0020	0.05	-0.0003191	92.9	79.1-119	0			
Calcium	110.8	0.50	5	102.6	164	80-121	0			SO
Chromium	0.05279	0.0050	0.05	0.002521	101	79.3-121	0			
Cobalt	0.05119	0.0050	0.05	-0.0001729	103	82-121	0			
Copper	0.06686	0.0050	0.05	0.02236	89	80-120	0			
Iron	4.641	0.20	5	0.03176	92.2	80-120	0			
Lead	0.04808	0.0050	0.05	-0.00005234	96.3	80-118	0			
Manganese	0.04835	0.0050	0.05	-0.0001617	97	82-119	0			
Molybdenum	0.04822	0.0050	0.05	0.00133	93.8	81-116	0			
Nickel	0.04771	0.0050	0.05	0.0005055	94.4	82-120	0			
Potassium	87.71	0.20	5	79.47	165	80-120	0			SO
Selenium	0.04355	0.0050	0.05	0.001252	84.6	79.2-118	0			
Silver	0.04151	0.0050	0.05	-0.0003545	83.7	80-117	0			
Sodium	1377	0.20	5	1299	1560	80.6-119	0			SEO
Vanadium	0.06184	0.0050	0.05	0.008266	107	82.1-119	0			
Zinc	0.06342	0.0050	0.05	0.01872	89.4	79-118	0			

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/14/06 22:05**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014913** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04543	0.0020	0.05	0.00003426	90.8	78.9-120	0			

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/15/06 15:39**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015920** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.0583	0.010	0.05	0.007915	101	79-126	0			
Magnesium	7.084	0.20	5	2.247	96.7	80-120	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/14/06 6:42**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014202** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05268	0.0050	0.05	0.003835	97.7	80-121	0.05019	4.84	15	
Barium	0.2609	0.0050	0.05	0.2123	97.2	79.8-119	0.2575	1.31	15	O
Cadmium	0.04664	0.0020	0.05	-0.0003191	93.9	79.1-119	0.04615	1.06	15	
Calcium	111.3	0.50	5	102.6	174	80-121	110.8	0.45	15	SO
Chromium	0.05392	0.0050	0.05	0.002521	103	79.3-121	0.05279	2.12	15	
Cobalt	0.05257	0.0050	0.05	-0.0001729	105	82-121	0.05119	2.66	15	
Copper	0.06723	0.0050	0.05	0.02236	89.7	81-120	0.06686	0.552	15	
Iron	4.76	0.20	5	0.03176	94.6	80-120	4.641	2.53	15	
Lead	0.04907	0.0050	0.05	-0.00005234	98.2	80-118	0.04808	2.04	15	
Manganese	0.04982	0.0050	0.05	-0.0001617	100	82-119	0.04835	2.99	15	
Molybdenum	0.05058	0.0050	0.05	0.00133	98.5	81-116	0.04822	4.78	15	
Nickel	0.04836	0.0050	0.05	0.0005055	95.7	82-120	0.04771	1.35	15	
Potassium	88.86	0.20	5	79.47	188	80-120	87.71	1.3	15	SO
Selenium	0.04557	0.0050	0.05	0.001252	88.6	79.2-118	0.04355	4.53	15	
Silver	0.04232	0.0050	0.05	-0.0003545	85.3	80-117	0.04151	1.93	15	
Sodium	1368	0.20	5	1299	1380	80.6-119	1377	0.656	15	SEO
Vanadium	0.06322	0.0050	0.05	0.008266	110	82.1-119	0.06184	2.21	15	
Zinc	0.06534	0.0050	0.05	0.01872	93.2	79-118	0.06342	2.98	15	

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/14/06 22:11**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014914** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04628	0.0020	0.05	0.00003426	92.5	78.9-120	0.04543	1.85	15	

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/15/06 15:45**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015921** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05953	0.010	0.05	0.007915	103	79-126	0.0583	2.09	15	
Magnesium	7.342	0.20	5	2.247	102	80-120	7.084	3.58	15	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 6:00**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014197** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.003896	0.0050	0	0	0	0-0	0.003835	0	25	J
Barium	0.2164	0.0050	0	0	0	0-0	0.2123	1.91	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.0003191	0	25	
Calcium	108.1	0.50	0	0	0	0-0	102.6	5.22	25	
Chromium	0.002547	0.0050	0	0	0	0-0	0.002521	0	25	J
Cobalt	ND	0.0050	0	0	0	0-0	-0.0001729	0	25	
Copper	0.02359	0.0050	0	0	0	0-0	0.02236	5.35	25	
Iron	ND	0.20	0	0	0	0-0	0.03176	0	25	
Lead	ND	0.0050	0	0	0	0-0	-0.00005234	0	25	
Manganese	ND	0.0050	0	0	0	0-0	-0.0001617	0	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.00133	0	25	
Nickel	ND	0.0050	0	0	0	0-0	0.0005055	0	25	
Potassium	84.36	0.20	0	0	0	0-0	79.47	5.97	25	
Selenium	ND	0.0050	0	0	0	0-0	0.001252	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003545	0	25	
Vanadium	0.008473	0.0050	0	0	0	0-0	0.008266	2.47	25	
Zinc	0.01981	0.0050	0	0	0	0-0	0.01872	5.66	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 19:12**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014889** Prep Date: **12/13/2006** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	1115	20	0	0	0	0-0	1159	3.87	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 21:53**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014911** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020	0	0	0	0-0	0.00003426	0	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/15/06 15:09**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015916** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.008813	0.010	0	0	0	0-0	0.007915	0	25	J
Magnesium	2.464	0.20	0	0	0	0-0	2.247	9.21	25	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW2-121406** Units: **mg/L** Analysis Date: **12/15/06 23:07**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016132** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Boron	ND	0.020								
Selenium	ND	0.0050								
Silver	ND	0.0050								

MBLK Sample ID: **MBLKW2-121406** Units: **mg/L** Analysis Date: **12/19/06 7:35**
Client ID: Run ID: **ICPMS02_061218A** SeqNo: **1017633** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.001537	0.0050								J
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Manganese	ND	0.0050								

LCS Sample ID: **MLCSW2-121406** Units: **mg/L** Analysis Date: **12/15/06 23:13**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016133** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04677	0.0050	0.05	0	93.5	80-121	0			
Boron	0.4806	0.020	0.5	0	96.1	80-120	0			
Selenium	0.04586	0.0050	0.05	0	91.7	79.2-118	0			
Silver	0.04708	0.0050	0.05	0	94.2	80-117	0			

LCS Sample ID: **MLCSW2-121406** Units: **mg/L** Analysis Date: **12/19/06 7:41**
Client ID: Run ID: **ICPMS02_061218A** SeqNo: **1017634** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.04922	0.0050	0.05	0	98.4	79.8-119	0			
Cadmium	0.05144	0.0020	0.05	0	103	79.1-119	0			
Chromium	0.04955	0.0050	0.05	0	99.1	79.3-121	0			
Iron	4.899	0.20	5	0	98	80-120	0			
Lead	0.04956	0.0050	0.05	0	99.1	80-118	0			
Manganese	0.04994	0.0050	0.05	0	99.9	82-119	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0612242-05CMS** Units: **mg/L** Analysis Date: **12/15/06 23:43**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016138** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05464	0.0050	0.05	0.004181	101	80-121	0			
Barium	0.3228	0.0050	0.05	0.2688	108	79.8-119	0			O
Boron	0.65	0.020	0.5	0.1409	102	80-120	0			
Cadmium	0.05025	0.0020	0.05	0.0001167	100	79.1-119	0			
Chromium	0.06074	0.0050	0.05	0.00971	102	79.3-121	0			
Iron	5.036	0.20	5	0.1981	96.8	80-120	0			
Lead	0.05276	0.0050	0.05	0.0009405	104	80-118	0			
Manganese	0.6335	0.0050	0.05	0.554	159	82-119	0			SO
Selenium	0.05114	0.0050	0.05	0.00048	101	79.2-118	0			
Silver	0.04824	0.0050	0.05	-0.0003112	97.1	80-117	0			

MSD Sample ID: **0612242-05CMSD** Units: **mg/L** Analysis Date: **12/15/06 23:49**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016139** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05287	0.0050	0.05	0.004181	97.4	80-121	0.05464	3.29	15	
Barium	0.307	0.0050	0.05	0.2688	76.4	79.8-119	0.3228	5.02	15	SO
Boron	0.6264	0.020	0.5	0.1409	97.1	80-120	0.65	3.7	15	
Cadmium	0.04894	0.0020	0.05	0.0001167	97.6	79.1-119	0.05025	2.64	15	
Chromium	0.05741	0.0050	0.05	0.00971	95.4	79.3-121	0.06074	5.64	15	
Iron	4.782	0.20	5	0.1981	91.7	80-120	5.036	5.17	15	
Lead	0.05067	0.0050	0.05	0.0009405	99.5	80-118	0.05276	4.04	15	
Manganese	0.5899	0.0050	0.05	0.554	71.8	82-119	0.6335	7.13	15	SO
Selenium	0.04877	0.0050	0.05	0.00048	96.6	79.2-118	0.05114	4.74	15	
Silver	0.04559	0.0050	0.05	-0.0003112	91.8	80-117	0.04824	5.65	15	

ND - Not Dctected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0612242-05CDUP** Units: **mg/L** Analysis Date: **12/15/06 23:31**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016136** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.003997	0.0050	0	0	0	0-0	0.004181	0	25	J
Barium	0.257	0.0050	0	0	0	0-0	0.2688	4.49	25	
Boron	0.1321	0.020	0	0	0	0-0	0.1409	6.45	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.0001167	0	25	
Chromium	0.009143	0.0050	0	0	0	0-0	0.00971	6.01	25	
Iron	0.1797	0.20	0	0	0	0-0	0.1981	0	25	J
Lead	0.0008973	0.0050	0	0	0	0-0	0.0009405	0	25	J
Manganese	0.5385	0.0050	0	0	0	0-0	0.554	2.84	25	
Selenium	ND	0.0050	0	0	0	0-0	0.00048	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003112	0	25	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21263** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:07**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017389** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:09**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017390** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	0	101	85-115	0			

LCSD Sample ID: **GLCSDW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:11**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017391** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00527	0.00020	0.005	0	105	85-115	0.00506	4.07	20	

MS Sample ID: **0612163-01DMS** Units: **mg/L** Analysis Date: **12/18/06 17:17**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017394** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	-0.000011	101	85-115	0			

MSD Sample ID: **0612163-01DMSD** Units: **mg/L** Analysis Date: **12/18/06 17:19**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017395** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00532	0.00020	0.005	-0.000011	107	85-115	0.00506	5.01	20	

DUP Sample ID: **0612163-01DDUP** Units: **mg/L** Analysis Date: **12/18/06 17:15**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017393** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000011	0	20	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

MBLK Sample ID: **SBLKW2-061213** Units: **µg/L** Analysis Date: **12/14/06 9:34**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015216** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3&4-Methylphenol	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Surr: 2,4,6-Tribromophenol	*91.62*	10	*100*	0	*91.6*	*42-124*		0		
Surr: 2-Fluorobiphenyl	*91.9*	10	*100*	0	*91.9*	*48-120*		0		
Surr: 2-Fluorophenol	*79.87*	10	*100*	0	*79.9*	*20-120*		0		
Surr: 4-Terphenyl-d14	*94.4*	10	*100*	0	*94.4*	*51-135*		0		
Surr: Nitrobenzene-d5	*91.1*	10	*100*	0	*91.1*	*41-120*		0		
Surr: Phenol-d6	*85.53*	10	*100*	0	*85.5*	*20-120*		0		

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

LCS Sample ID: **SLCSW2-061213** Units: **µg/L** Analysis Date: **12/14/06 10:59**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015220** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	49.76	10	50	0	99.5	54-118	0			
2,4,5-Trichlorophenol	100.5	10	100	0	101	52-115	0			
2,4,6-Trichlorophenol	98.68	10	100	0	98.7	56-115	0			
2-Methylnaphthalene	48.02	10	50	0	96	46-117	0			
2-Methylphenol	88.15	10	100	0	88.2	53-115	0			
2-Nitroaniline	50.67	10	50	0	101	53-123	0			
2-Nitrophenol	96.62	10	100	0	96.6	53-115	0			
3&4-Methylphenol	131.3	10	150	0	87.5	48-115	0			
3-Nitroaniline	26.98	10	50	0	54	26-115	0			
4-Nitroaniline	47.99	10	50	0	96	47-115	0			
4-Nitrophenol	100.4	10	100	0	100	26-133	0			
Acenaphthene	50.39	10	50	0	101	57-115	0			
Acenaphthylene	50.97	10	50	0	102	57-118	0			
Aniline	27.7	10	50	0	55.4	36-115	0			
Anthracene	49.9	10	50	0	99.8	65-115	0			
Benz(a)anthracene	50.43	10	50	0	101	53-115	0			
Benzidine	16.61	10	50	0	33.2	10-115	0			
Hexachloroethane	46.18	10	50	0	92.4	54-115	0			
Indeno(1,2,3-cd)pyrene	49.6	10	50	0	99.2	51-115	0			
Isophorone	45.9	10	50	0	91.8	55-115	0			
N-Nitrosodi-n-propylamine	43.38	10	50	0	86.8	55-115	0			
N-Nitrosodimethylamine	37.69	10	50	0	75.4	42-115	0			
N-Nitrosodiphenylamine	50.13	10	50	0	100	52-115	0			
Naphthalene	47.53	10	50	0	95.1	55-115	0			
Nitrobenzene	48.39	10	50	0	96.8	40-124	0			
Pentachlorophenol	85.2	10	100	0	85.2	45-125	0			
Phenanthrene	50.15	10	50	0	100	57-115	0			
Phenol	91.85	10	100	0	91.8	38-115	0			
Pyrene	51.73	10	50	0	103	51-115	0			
Surr: 2,4,6-Tribromophenol	*99.22*	10	*100*	0	*99.2*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*90.57*	10	*100*	0	*90.6*	*48-120*	0			
Surr: 2-Fluorophenol	*87.64*	10	*100*	0	*87.6*	*20-120*	0			
Surr: 4-Terphenyl-d14	*95.5*	10	*100*	0	*95.5*	*51-135*	0			
Surr: Nitrobenzene-d5	*91.29*	10	*100*	0	*91.3*	*41-120*	0			
Surr: Phenol-d6	*90.94*	10	*100*	0	*90.9*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-061213** Units: **µg/L** Analysis Date: **12/14/06 11:24**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015222** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.01	10	50	0	86	54-118	49.76	14.5	20	
2,4,5-Trichlorophenol	89.8	10	100	0	89.8	52-115	100.5	11.3	20	
2,4,6-Trichlorophenol	92.36	10	100	0	92.4	56-115	98.68	6.62	20	
2-Methylnaphthalene	42.9	10	50	0	85.8	46-117	48.02	11.3	20	
2-Methylphenol	82.74	10	100	0	82.7	53-115	88.15	6.34	20	
2-Nitroaniline	46.15	10	50	0	92.3	53-123	50.67	9.35	20	
2-Nitrophenol	87.51	10	100	0	87.5	53-115	96.62	9.9	20	
3&4-Methylphenol	123.9	10	150	0	82.6	48-115	131.3	5.8	20	
3-Nitroaniline	24.38	10	50	0	48.8	26-115	26.98	10.1	20	
4-Nitroaniline	44.16	10	50	0	88.3	47-115	47.99	8.32	20	
4-Nitrophenol	91.73	10	100	0	91.7	26-133	100.4	9.03	20	
Acenaphthene	45.07	10	50	0	90.1	57-115	50.39	11.1	20	
Acenaphthylene	46.98	10	50	0	94	57-118	50.97	8.16	20	
Aniline	29.08	10	50	0	58.2	36-115	27.7	4.86	20	
Anthracene	43.31	10	50	0	86.6	65-115	49.9	14.1	20	
Benz(a)anthracene	44.44	10	50	0	88.9	53-115	50.43	12.6	20	
Benzidine	17.87	10	50	0	35.7	10-115	16.61	7.28	20	
Hexachloroethane	39.9	10	50	0	79.8	54-115	46.18	14.6	20	
Indeno(1,2,3-cd)pyrene	44.07	10	50	0	88.1	51-115	49.6	11.8	20	
Isophorone	39.52	10	50	0	79	55-115	45.9	14.9	20	
N-Nitrosodi-n-propylamine	41.77	10	50	0	83.5	55-115	43.38	3.8	20	
N-Nitrosodimethylamine	35.66	10	50	0	71.3	42-115	37.69	5.52	20	
N-Nitrosodiphenylamine	43.9	10	50	0	87.8	52-115	50.13	13.3	20	
Naphthalene	41.66	10	50	0	83.3	55-115	47.53	13.2	20	
Nitrobenzene	41.58	10	50	0	83.2	40-124	48.39	15.1	20	
Pentachlorophenol	83.42	10	100	0	83.4	45-125	85.2	2.11	20	
Phenanthrene	43.9	10	50	0	87.8	57-115	50.15	13.3	20	
Phenol	83.92	10	100	0	83.9	38-115	91.85	9.02	20	
Pyrene	44.47	10	50	0	88.9	51-115	51.73	15.1	20	
Surr: 2,4,6-Tribromophenol	*84.73*	10	*100*	0	*84.7*	*42-124*	99.22	*15.8*	*20*	
Surr: 2-Fluorobiphenyl	*81.48*	10	*100*	0	*81.5*	*48-120*	90.57	*10.6*	*20*	
Surr: 2-Fluorophenol	*80.36*	10	*100*	0	*80.4*	*20-120*	87.64	*8.67*	*20*	
Surr: 4-Terphenyl-d14	*81.65*	10	*100*	0	*81.6*	*51-135*	95.5	*15.6*	*20*	
Surr: Nitrobenzene-d5	*80.37*	10	*100*	0	*80.4*	*41-120*	91.29	*12.7*	*20*	
Surr: Phenol-d6	*85.36*	10	*100*	0	*85.4*	*20-120*	90.94	*6.33*	*20*	

The following samples were analyzed in this batch: 0612199-01D

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MBLK Sample ID: **VBLKW-061213** Units: **µg/L** Analysis Date: **12/13/06 13:50**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014211** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*53.04*	5.0	*50*	0	*106*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*45.6*	5.0	*50*	0	*91.2*	*72.4-125*	0			
Surr: Dibromofluoromethane	*48.61*	5.0	*50*	0	*97.2*	*71.2-125*	0			
Surr: Toluene-d8	*45.8*	5.0	*50*	0	*91.6*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

LCS Sample ID: **VLCSW-061213** Units: **µg/L** Analysis Date: **12/13/06 12:58**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014210** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.96	5.0	50	0	108	79.6-120		0		
1,1,2,2-Tetrachloroethane	52.48	5.0	50	0	105	78.9-121		0		
1,1,2-Trichloroethane	51.25	5.0	50	0	103	80-120		0		
1,1-Dichloroethane	54.29	5.0	50	0	109	74.2-122		0		
1,1-Dichloroethene	55.19	5.0	50	0	110	75.8-122		0		
1,2-Dichloroethane	51.56	5.0	50	0	103	78.8-120		0		
2-Butanone	107.9	10	100	0	108	69.2-131		0		
2-Chloroethyl vinyl ether	110.7	10	100	0	111	60.6-128		0		
2-Hexanone	119	10	100	0	119	59.1-135		0		
4-Methyl-2-pentanone	115.7	10	100	0	116	71.6-124		0		
Acetone	125.8	10	100	0	126	60.1-141		0		
Benzene	51.03	5.0	50	0	102	80-120		0		
Bromodichloromethane	52.32	5.0	50	0	105	80-120		0		
Bromoform	55.1	5.0	50	0	110	78.1-120		0		
Bromomethane	50.42	5.0	50	0	101	52.8-147		0		
Carbon disulfide	110.6	10	100	0	111	78.8-120		0		
Carbon tetrachloride	46.71	5.0	50	0	93.4	76.8-120		0		
Chlorobenzene	49.19	5.0	50	0	98.4	80-120		0		
Chloroethane	55.82	5.0	50	0	112	74.2-120		0		
Chloroform	51.51	5.0	50	0	103	80-120		0		
Chloromethane	50.21	5.0	50	0	100	63.5-133		0		
cis-1,3-Dichloropropene	51.04	5.0	50	0	102	80-120		0		
Dibromochloromethane	53.73	5.0	50	0	107	80-120		0		
Ethylbenzene	53.35	5.0	50	0	107	80-120		0		
m,p-Xylene	100.4	10	100	0	100	80-120		0		
Methylene chloride	55.38	10	50	0	111	74.7-120		0		
Styrene	50.76	5.0	50	0	102	80-120		0		
Tetrachloroethene	49.54	5.0	50	0	99.1	80-120		0		
Toluene	52.61	5.0	50	0	105	80-120		0		
trans-1,3-Dichloropropene	52	5.0	50	0	104	80-120		0		
Trichloroethene	50.53	5.0	50	0	101	80-120		0		
Vinyl acetate	120	10	100	0	120	61.1-148		0		
Vinyl chloride	54.01	2.0	50	0	108	76.2-121		0		
Xylenes, Total	151.2	15	150	0	101	80-120		0		
Surr: 1,2-Dichloroethane-d4	*47.29*	5.0	*50*	0	*94.6*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*48.35*	5.0	*50*	0	*96.7*	*72.4-125*		0		
Surr: Dibromofluoromethane	*46.28*	5.0	*50*	0	*92.6*	*71.2-125*		0		
Surr: Toluene-d8	*44.74*	5.0	*50*	0	*89.5*	*75-125*		0		

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MS Sample ID: **0612207-06AMS** Units: **µg/L** Analysis Date: **12/13/06 15:31**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014213** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.13	5.0	50	0	94.3	79.6-120	0			
1,1,2,2-Tetrachloroethane	49.71	5.0	50	0	99.4	78.9-121	0			
1,1,2-Trichloroethane	49.93	5.0	50	0	99.9	80-120	0			
1,1-Dichloroethane	49.68	5.0	50	0	99.4	74.2-122	0			
1,1-Dichloroethene	42.37	5.0	50	0	84.7	75.8-122	0			
1,2-Dichloroethane	53.32	5.0	50	0	107	78.8-120	0			
2-Butanone	89.06	10	100	0	89.1	69.2-131	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0			S
2-Hexanone	99.21	10	100	0	99.2	59.1-135	0			
4-Methyl-2-pentanone	100.2	10	100	0	100	71.6-124	0			
Acetone	105.1	10	100	0	105	60.1-141	0			
Benzene	48.83	5.0	50	0	97.7	80-120	0			
Bromodichloromethane	57.77	5.0	50	0	116	80-120	0			
Bromoform	51.22	5.0	50	0	102	78.1-120	0			
Bromomethane	31.91	5.0	50	0	63.8	52.8-147	0			
Carbon disulfide	82.89	10	100	0	82.9	78.8-120	0			
Carbon tetrachloride	40.65	5.0	50	0	81.3	76.8-120	0			
Chlorobenzene	47.12	5.0	50	0	94.2	80-120	0			
Chloroethane	47.21	5.0	50	0	94.4	74.2-120	0			
Chloroform	66.8	5.0	50	15.69	102	80-120	0			
Chloromethane	68.5	5.0	50	0	137	63.5-133	0			S
cis-1,3-Dichloropropene	49.23	5.0	50	0	98.5	80-120	0			
Dibromochloromethane	54.19	5.0	50	0	108	80-120	0			
Ethylbenzene	47.77	5.0	50	0	95.5	80-120	0			
m,p-Xylene	88.72	10	100	0	88.7	80-120	0			
Methylene chloride	51.8	10	50	0	104	74.7-120	0			
Styrene	2.286	5.0	50	0	4.57	80-120	0			JS
Tetrachloroethene	41.24	5.0	50	0	82.5	80-120	0			
Toluene	48.44	5.0	50	0	96.9	80-120	0			
trans-1,3-Dichloropropene	50.31	5.0	50	0	101	80-120	0			
Trichloroethene	47.47	5.0	50	0	94.9	80-120	0			
Vinyl acetate	93.51	10	100	0	93.5	61.1-148	0			
Vinyl chloride	42.79	2.0	50	0	85.6	76.2-121	0			
Xylenes, Total	134.1	15	150	0	89.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	*48.63*	5.0	*50*	0	*97.3*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*45.72*	5.0	*50*	0	*91.4*	*72.4-125*	0			
Surr: Dibromofluoromethane	*48.38*	5.0	*50*	0	*96.8*	*71.2-125*	0			
Surr: Toluene-d8	*44.7*	5.0	*50*	0	*89.4*	*75-125*	*0*			

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MSD Sample ID: **0612207-06AMSD** Units: **µg/L** Analysis Date: **12/13/06 15:56**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014214** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.53	5.0	50	0	89.1	79.6-120	47.13	5.67	20	
1,1,2,2-Tetrachloroethane	47.84	5.0	50	0	95.7	78.9-121	49.71	3.83	20	
1,1,2-Trichloroethane	47.76	5.0	50	0	95.5	80-120	49.93	4.44	20	
1,1-Dichloroethane	48.57	5.0	50	0	97.1	74.2-122	49.68	2.25	20	
1,1-Dichloroethene	42.69	5.0	50	0	85.4	75.8-122	42.37	0.752	20	
1,2-Dichloroethane	50.65	5.0	50	0	101	78.8-120	53.32	5.13	20	
2-Butanone	91.28	10	100	0	91.3	69.2-131	89.06	2.47	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0	0	20	S
2-Hexanone	100.9	10	100	0	101	59.1-135	99.21	1.67	20	
4-Methyl-2-pentanone	98.83	10	100	0	98.8	71.6-124	100.2	1.41	20	
Acetone	109.4	10	100	0	109	60.1-141	105.1	4.06	20	
Benzene	49.12	5.0	50	0	98.2	80-120	48.83	0.601	20	
Bromodichloromethane	55.5	5.0	50	0	111	80-120	57.77	4	20	
Bromoform	49.93	5.0	50	0	99.9	78.1-120	51.22	2.54	20	
Bromomethane	36.1	5.0	50	0	72.2	52.8-147	31.91	12.3	20	
Carbon disulfide	83.36	10	100	0	83.4	78.8-120	82.89	0.565	20	
Carbon tetrachloride	40.16	5.0	50	0	80.3	76.8-120	40.65	1.2	20	
Chlorobenzene	47.19	5.0	50	0	94.4	80-120	47.12	0.141	20	
Chloroethane	47.51	5.0	50	0	95	74.2-120	47.21	0.645	20	
Chloroform	63.04	5.0	50	15.69	94.7	80-120	66.8	5.79	20	
Chloromethane	68.53	5.0	50	0	137	63.5-133	68.5	0.0443	20	S
cis-1,3-Dichloropropene	48.1	5.0	50	0	96.2	80-120	49.23	2.32	20	
Dibromochloromethane	52.7	5.0	50	0	105	80-120	54.19	2.79	20	
Ethylbenzene	49.24	5.0	50	0	98.5	80-120	47.77	3.04	20	
m,p-Xylene	90.84	10	100	0	90.8	80-120	88.72	2.36	20	
Methylene chloride	51.51	10	50	0	103	74.7-120	51.8	0.573	20	
Styrene	2.426	5.0	50	0	4.85	80-120	2.286	0	20	JS
Tetrachloroethene	43.42	5.0	50	0	86.8	80-120	41.24	5.17	20	
Toluene	49.39	5.0	50	0	98.8	80-120	48.44	1.95	20	
trans-1,3-Dichloropropene	49.57	5.0	50	0	99.1	80-120	50.31	1.48	20	
Trichloroethene	47.31	5.0	50	0	94.6	80-120	47.47	0.332	20	
Vinyl acetate	90.54	10	100	0	90.5	61.1-148	93.51	3.24	20	
Vinyl chloride	42.98	2.0	50	0	86	76.2-121	42.79	0.425	20	
Xylenes, Total	137.6	15	150	0	91.7	80-120	134.1	2.57	20	
Surr: 1,2-Dichloroethane-d4	*45.53*	5.0	*50*	0	*91.1*	*70-125*	48.63	*6.6*	*20*	
Surr: 4-Bromofluorobenzene	*45.59*	5.0	*50*	0	*91.2*	*72.4-125*	45.72	*0.305*	*20*	
Surr: Dibromofluoromethane	*46.89*	5.0	*50*	0	*93.8*	*71.2-125*	48.38	*3.13*	*20*	
Surr: Toluene-d8	*43.92*	5.0	*50*	0	*87.8*	*75-125*	44.7	*1.76*	*20*	

The following samples were analyzed in this batch: 0612199-02A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-061218** Units: **µg/L** Analysis Date: **12/18/06 11:35**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017955** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*49.84*	5.0	*50*	0	*99.7*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*48.43*	5.0	*50*	0	*96.9*	*72.4-125*		0		
Surr: Dibromofluoromethane	*55.4*	5.0	*50*	0	*111*	*71.2-125*		0		
Surr: Toluene-d8	*57.8*	5.0	*50*	0	*116*	*75-125*		0		

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-061218** Units: **µg/L** Analysis Date: **12/18/06 10:40**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017953** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.59	5.0	50	0	99.2	79.6-120	0			
1,1,2,2-Tetrachloroethane	46.95	5.0	50	0	93.9	78.9-121	0			
1,1,2-Trichloroethane	51.26	5.0	50	0	103	80-120	0			
1,1-Dichloroethane	50.01	5.0	50	0	100	74.2-122	0			
1,1-Dichloroethene	53.61	5.0	50	0	107	75.8-122	0			
1,2-Dichloroethane	50.67	5.0	50	0	101	78.8-120	0			
2-Butanone	108.4	10	100	0	108	69.2-131	0			
2-Chloroethyl vinyl ether	90.4	10	100	0	90.4	60.6-128	0			
2-Hexanone	96.82	10	100	0	96.8	59.1-135	0			
4-Methyl-2-pentanone	96.74	10	100	0	96.7	71.6-124	0			
Acetone	89.55	10	100	0	89.5	60.1-141	0			
Benzene	51.45	5.0	50	0	103	80-120	0			
Bromodichloromethane	52.4	5.0	50	0	105	80-120	0			
Bromoform	48.04	5.0	50	0	96.1	78.1-120	0			
Bromomethane	51.57	5.0	50	0	103	52.8-147	0			
Carbon disulfide	108.1	10	100	0	108	78.8-120	0			
Carbon tetrachloride	48.27	5.0	50	0	96.5	76.8-120	0			
Chlorobenzene	47.1	5.0	50	0	94.2	80-120	0			
Chloroethane	51.32	5.0	50	0	103	74.2-120	0			
Chloroform	50.1	5.0	50	0	100	80-120	0			
Chloromethane	50.91	5.0	50	0	102	63.5-133	0			
cis-1,3-Dichloropropene	51.02	5.0	50	0	102	80-120	0			
Dibromochloromethane	52.41	5.0	50	0	105	80-120	0			
Ethylbenzene	45.9	5.0	50	0	91.8	80-120	0			
m,p-Xylene	100.4	10	100	0	100	80-120	0			
Methylene chloride	46.84	10	50	0	93.7	74.7-120	0			
Styrene	48.4	5.0	50	0	96.8	80-120	0			
Tetrachloroethene	48.76	5.0	50	0	97.5	80-120	0			
Toluene	49.54	5.0	50	0	99.1	80-120	0			
trans-1,3-Dichloropropene	51.89	5.0	50	0	104	80-120	0			
Trichloroethene	50.07	5.0	50	0	100	80-120	0			
Vinyl acetate	117.2	10	100	0	117	61.1-148	0			
Vinyl chloride	47.07	2.0	50	0	94.1	76.2-121	0			
Xylenes, Total	148.2	15	150	0	98.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	*53.68*	5.0	*50*	0	*107*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.89*	5.0	*50*	0	*110*	*72.4-125*	0			
Surr: Dibromofluoromethane	*56.87*	5.0	*50*	0	*114*	*71.2-125*	0			
Surr: Toluene-d8	*58.04*	5.0	*50*	0	*116*	*75-125*	0			

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0612221-63AMS** Units: **µg/L** Analysis Date: **12/18/06 12:56**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.74	5.0	50	0	93.5	79.6-120	0			
1,1,2,2-Tetrachloroethane	51.25	5.0	50	0	103	78.9-121	0			
1,1,2-Trichloroethane	53.81	5.0	50	0	108	80-120	0			
1,1-Dichloroethane	50.99	5.0	50	0	102	74.2-122	0			
1,1-Dichloroethene	46.61	5.0	50	0	93.2	75.8-122	0			
1,2-Dichloroethane	49.45	5.0	50	0	98.9	78.8-120	0			
2-Butanone	118.5	10	100	0	118	69.2-131	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0			S
2-Hexanone	102.1	10	100	0	102	59.1-135	0			
4-Methyl-2-pentanone	113.1	10	100	0	113	71.6-124	0			
Acetone	99.9	10	100	0	99.9	60.1-141	0			
Benzene	50.89	5.0	50	0	102	80-120	0			
Bromodichloromethane	53.44	5.0	50	0	107	80-120	0			
Bromoform	48.91	5.0	50	0	97.8	78.1-120	0			
Bromomethane	47.75	5.0	50	0	95.5	52.8-147	0			
Carbon disulfide	105.7	10	100	0	106	78.8-120	0			
Carbon tetrachloride	76.78	5.0	50	26.11	101	76.8-120	0			
Chlorobenzene	47.77	5.0	50	0	95.5	80-120	0			
Chloroethane	48.53	5.0	50	0	97.1	74.2-120	0			
Chloroform	63.44	5.0	50	7.131	113	80-120	0			
Chloromethane	50.17	5.0	50	0	100	63.5-133	0			
cis-1,3-Dichloropropene	50.82	5.0	50	0	102	80-120	0			
Dibromochloromethane	51.3	5.0	50	0	103	80-120	0			
Ethylbenzene	44.98	5.0	50	0	90	80-120	0			
m,p-Xylene	85.39	10	100	0	85.4	80-120	0			
Methylene chloride	47.78	10	50	0	95.6	74.7-120	0			
Styrene	47.68	5.0	50	0	95.4	80-120	0			
Tetrachloroethene	48.1	5.0	50	2.298	91.6	80-120	0			
Toluene	49.69	5.0	50	0	99.4	80-120	0			
trans-1,3-Dichloropropene	53.57	5.0	50	0	107	80-120	0			
Trichloroethene	113.9	5.0	50	43.84	140	80-120	0			S
Vinyl acetate	124.3	10	100	0	124	61.1-148	0			
Vinyl chloride	48.86	2.0	50	0	97.7	76.2-121	0			
Xylenes, Total	133.6	15	150	0	89.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	*55.76*	5.0	*50*	0	*112*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*53.17*	5.0	*50*	0	*106*	*72.4-125*	0			
Surr: Dibromofluoromethane	*55.85*	5.0	*50*	0	*112*	*71.2-125*	0			
Surr: Toluene-d8	*56.03*	5.0	*50*	0	*112*	*75-125*	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0612221-63AMSD** Units: **µg/L** Analysis Date: **12/18/06 13:24**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017962** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.56	5.0	50	0	91.1	79.6-120	46.74	2.56	20	
1,1,2,2-Tetrachloroethane	55.93	5.0	50	0	112	78.9-121	51.25	8.73	20	
1,1,2-Trichloroethane	51.55	5.0	50	0	103	80-120	53.81	4.3	20	
1,1-Dichloroethane	52.46	5.0	50	0	105	74.2-122	50.99	2.85	20	
1,1-Dichloroethene	45.52	5.0	50	0	91	75.8-122	46.61	2.36	20	
1,2-Dichloroethane	50.89	5.0	50	0	102	78.8-120	49.45	2.87	20	
2-Butanone	122.1	10	100	0	122	69.2-131	118.5	2.99	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0	0	20	S
2-Hexanone	104.3	10	100	0	104	59.1-135	102.1	2.07	20	
4-Methyl-2-pentanone	109.3	10	100	0	109	71.6-124	113.1	3.41	20	
Acetone	100.5	10	100	0	100	60.1-141	99.9	0.578	20	
Benzene	50.54	5.0	50	0	101	80-120	50.89	0.682	20	
Bromodichloromethane	50.75	5.0	50	0	101	80-120	53.44	5.17	20	
Bromoform	49.36	5.0	50	0	98.7	78.1-120	48.91	0.928	20	
Bromomethane	51.95	5.0	50	0	104	52.8-147	47.75	8.42	20	
Carbon disulfide	93.83	10	100	0	93.8	78.8-120	105.7	11.9	20	
Carbon tetrachloride	67.89	5.0	50	26.11	83.6	76.8-120	76.78	12.3	20	
Chlorobenzene	44.62	5.0	50	0	89.2	80-120	47.77	6.81	20	
Chloroethane	45.72	5.0	50	0	91.4	74.2-120	48.53	5.96	20	
Chloroform	59.96	5.0	50	7.131	106	80-120	63.44	5.65	20	
Chloromethane	47.45	5.0	50	0	94.9	63.5-133	50.17	5.58	20	
cis-1,3-Dichloropropene	51.8	5.0	50	0	104	80-120	50.82	1.9	20	
Dibromochloromethane	51.93	5.0	50	0	104	80-120	51.3	1.22	20	
Ethylbenzene	45.1	5.0	50	0	90.2	80-120	44.98	0.265	20	
m,p-Xylene	83.89	10	100	0	83.9	80-120	85.39	1.77	20	
Methylene chloride	50.37	10	50	0	101	74.7-120	47.78	5.29	20	
Styrene	46.6	5.0	50	0	93.2	80-120	47.68	2.29	20	
Tetrachloroethene	46.42	5.0	50	2.298	88.2	80-120	48.1	3.54	20	
Toluene	48.96	5.0	50	0	97.9	80-120	49.69	1.47	20	
trans-1,3-Dichloropropene	50.1	5.0	50	0	100	80-120	53.57	6.7	20	
Trichloroethene	96.42	5.0	50	43.84	105	80-120	113.9	16.7	20	
Vinyl acetate	112.7	10	100	0	113	61.1-148	124.3	9.8	20	
Vinyl chloride	44.32	2.0	50	0	88.6	76.2-121	48.86	9.74	20	
Xylenes, Total	129.1	15	150	0	86.1	80-120	133.6	3.42	20	
Surr: 1,2-Dichloroethane-d4	*56.27*	5.0	*50*	0	*113*	*70-125*	55.76	*0.915*	*20*	
Surr: 4-Bromofluorobenzene	*55.09*	5.0	*50*	0	*110*	*72.4-125*	53.17	*3.54*	*20*	
Surr: Dibromofluoromethane	*57.56*	5.0	*50*	0	*115*	*71.2-125*	55.85	*3.02*	*20*	
Surr: Toluene-d8	*57.05*	5.0	*50*	0	*114*	*75-125*	56.03	*1.8*	*20*	

The following samples were analyzed in this batch: 0612199-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44782** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-121206** Units: **pH units** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212C** SeqNo: **1012683** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	90-110	0			

DUP Sample ID: **0612199-01BDUP** Units: **pH units** Analysis Date: **12/12/06 0:00**
Client ID: **Injection Wells** Run ID: **WETCHEM_061212C** SeqNo: **1012685** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.34	0.10	0	0	0	0-0	7.32	0.273	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44783** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-121206** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012794** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-121206** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012795** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1413	1.0	1413	0	100	80-120	0			

DUP Sample ID: **0612142-01CDUP** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012800** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	767.3	1.0	0	0	0	0-0	765.3	0.261	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44808** Instrument ID **IC201** Method: **E300**

MBLK Sample ID: **WBLKW1-121206** Units: **mg/L** Analysis Date: **12/12/06 20:15**
Client ID: Run ID: **IC201_061212A** SeqNo: **1013297** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Selenate (surr)	*4.903*	0.10	*5*	0	*98.1*	*85-115*		0		

LCS Sample ID: **WLCSW1-364-33-** Units: **mg/L** Analysis Date: **12/12/06 20:37**
Client ID: Run ID: **IC201_061212A** SeqNo: **1013299** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.14	0.50	20	0	101	90-110		0		
Sulfate	20.12	1.0	20	0	101	90-110		0		
Surr: Selenate (surr)	*5.006*	0.10	*5*	0	*100*	*85-115*		0		

MS Sample ID: **0612199-01BMS** Units: **mg/L** Analysis Date: **12/12/06 23:54**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013307** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1005	5.0	100	916.6	88.5	80-120		0		EO
Sulfate	1888	10	100	1812	76.4	80-120		0		SEO
Surr: Selenate (surr)	*47.8*	1.0	*50*	0	*95.6*	*80-120*		0		

MSD Sample ID: **0612199-01BMSD** Units: **mg/L** Analysis Date: **12/13/06 0:16**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013308** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1011	5.0	100	916.6	94.4	80-120	1005	0.594	20	EO
Sulfate	1877	10	100	1812	64.8	80-120	1888	0.613	20	SEO
Surr: Selenate (surr)	*47.92*	1.0	*50*	0	*95.8*	*80-120*	47.8	*0.247*	*20*	

DUP Sample ID: **0612199-01BDUP** Units: **mg/L** Analysis Date: **12/12/06 23:32**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013305** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	924.3	5.0	0	0	0	0-0	916.6	0.835	20	E
Sulfate	1808	10	0	0	0	0-0	1812	0.23	20	E
Surr: Selenate (surr)	*47.29*	1.0	*50*	0	*94.6*	*80-120*	47.18	*0.231*	*20*	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44808** Instrument ID **IC201** Method: **E300**

DUP Sample ID: **0612199-01BDUP** Units: **mg/L** Analysis Date: **12/13/06 1:00**

Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013310** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	933.2	25	0	0	0	0-0	907.3	2.82	20	
Sulfate	1816	50	0	0	0	0-0	1811	0.274	20	
Surr: Selenate (surr)	*233.6*	5.0	*250*	0	*93.5*	*80-120*	232.3	*0.586*	*20*	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44894** Instrument ID **Balance1** Method: **E160.1**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014727** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014728** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	934	10	1000	0	93.4	85-115	0			

DUP Sample ID: **0612223-01DDUP** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014710** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1658	10	0	0	0	0-0	1483	11.1	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45013** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-R45013** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017499** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-R45013** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017500** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1012	5.0	1000	0	101	80-120	0			

DUP Sample ID: **0612285-01DDUP** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017520** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	276.9	5.0	0	0	0	0-0	276.9	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	276.9	5.0	0	0	0	0-0	276.9	0	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical
QUALITY • INTEGRITY • SERVICE

10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Chain of Custody Form

Page 1 of 1

e-Lab Project Manager:

e-Lab Work Order #: 0612199

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Qrtly	A	VOC (8260) Select
Work Order		Project Number		B	Total Metals (6020/7000)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	SVOC (8270) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	Anions (300) Chloride, Sulfate
Address	PO Box 159	Address	PO Box 159	E	Alkalinity
				F	pH
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	Conductivity
Phone	(505) 748-3311	Phone	(505) 748-3311	H	TDS
Fax	(505) 746-5421	Fax	(505) 746-5421	I	RCI Profile
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Wells	12/11/06	1330	L	4		X	X	X	X	X	X	X	X	X		
2	Trip blank			L	4	2	X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Tyler Hall

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☑ Std 10 WK Days ☐ 5 WK Days ☐ Other ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by: Tyler Hall Date: 12/11/06 Time: 1615 Received by:

Relinquished by: Date: Time: Received by (Laboratory): 12/12/06 1185

Logged by (Laboratory): Date: Time: Checked by (Laboratory):

Notes:

e-Lab Analytical Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

ote: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 12/12/2006 10:35:00 AM

Work Order Number 0612199 Received by: RSZ

Checklist completed by Signature 12/12/06 Date Reviewed by Initials 12/13/06 Date

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.5 C	002	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? Checked by

Login Notes:

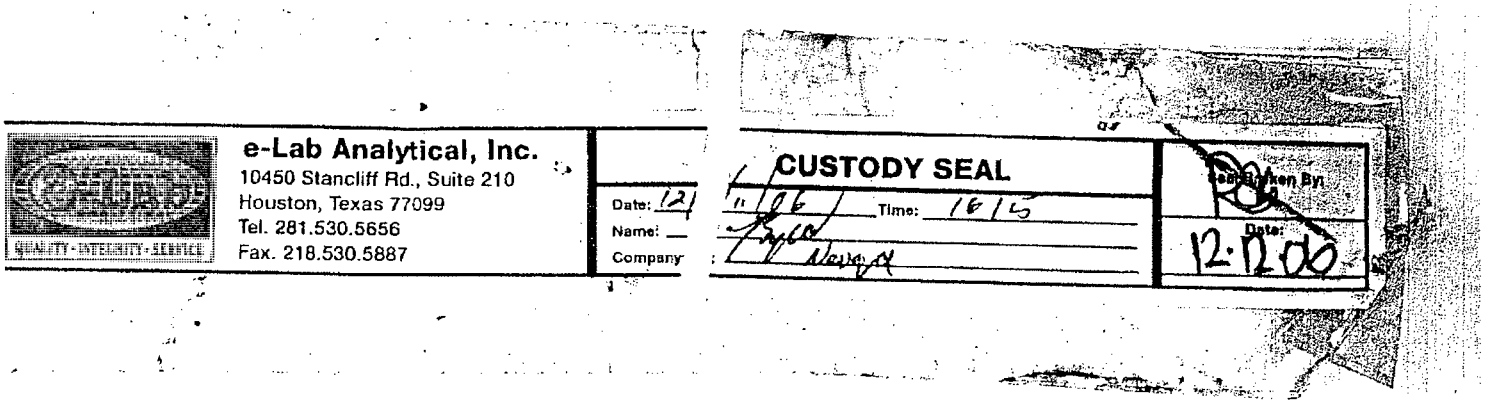
Client contacted: Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action:

062199



e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

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Date: 12/
Name: —
Company:

CUSTODY SEAL

Time: 1615

Relinquished By:

Date: 12.12.00

e-Lab Analytical, Inc

Date: *December 21, 2006*

CLIENT: e-Lab Analytical, Inc
Project: 0612199
Work Order: **0612274**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0612274-01	0612199-01E	Water		12/11/2006 13:30	12/13/2006 11:00	☐

e-Lab Analytical, Inc

Date: *December 21, 2006*

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199
Lab ID: 0612274-01

Client Sample ID: 0612199-01E
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **CES**
Cyanide, Reactive	ND	40.0		mg/Kg	1	12/15/2006
FLASHPOINT, P-M CLOSED-CUP			**ASTM D93**			Analyst: **CES**
Flashpoint, P-M Closed-cup	**>180**			**°F**	1	12/15/2006
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **CES**
Sulfide, Reactive	ND	40.0		mg/Kg	1	12/15/2006

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

Date: *Dec 21 2006*

QC BATCH REPORT

Batch ID: **R44830** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID **WBLKW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704189** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID **WLCSW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704190** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	293.6	40	619	0	47.4	2.8-70	0			

LCSD Sample ID **WLCSDW1-12150** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704196** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	337.7	40	619	0	54.6	2.8-70	293.6	14	35	

MS Sample ID **0612274-01A MS** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: **0612199-01E** Run ID: **WETCHEM_061215D** SeqNo: **704193** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	176.2	40	619	0	28.5	2.8-70	0			

MSD Sample ID **0612274-01A MSD** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: **0612199-01E** Run ID: **WETCHEM_061215D** SeqNo: **704194** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	205.5	40	619	0	33.2	2.8-70	176.2	15.4	35	

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

QC BATCH REPORT

Batch ID: **R44831** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID **WBLKW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**

Client ID: Run ID: **WETCHEM_061215E** SeqNo: **704197** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

QC BATCH REPORT

Batch ID: **R44839** Instrument ID **WETCHEM** Method: **ASTM D93**

LCS Sample ID **WLCSW1-121506** Units: **°F** Analysis Date: **12/15/06 0:00**

Client ID: Run ID: **WETCHEM_061215I** SeqNo: **704314** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	81	0	81	0	100	97-103		0		

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: Dec 12, 2006
COC ID: 4464
Due Date 12/22/2006

0612274

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order	2111061	Project Name	0612199	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C Flashpoint (SW1010)
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd. Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jcroston@elabi.com	eMail CC	oelliston@elabi.com	J

Sample ID	Matrix	Collection Date	Bottle	A	B	C	D	E	F	G	H	I	J
0612199-01E (Inj. Well)	Water	12/11/2006 13:30	(2) 1LPNEAT	X	X	X							

Comments

Please analyze for Reactive Cyanide, Reactive Sulfide, and Ignitability. Results needed by 12/22/06. Please email results to Jeff Croston- jcroston@elabi.com and CC: O. Elliston- oelliston@elabi.com

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
			12/13/06 1100		Std
Relinquished by:	Date/Time	Received by:	Date/Time		

Page 4418 of 5828

e-Lab Analytical, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 12/13/2006 11:00:00 AM

Work Order Number 0612274 Received by: WJC

Checklist completed by Signature 12/13/06 Date Reviewed by Initials 12/13/06 Date

Matrix: Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.6 C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked b _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

01200
004795_P1
16594091
222 of 300

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SHIPMENT FROM

UPS ACCOUNT NO. 698174

REFERENCE NUMBER SUB

TELEPHONE 281.530.5656

E-LAB, INC.

10450 STANCLIFF RD STE #210

HOUSTON TX 77099

MI 495 9-04

UPS Next Day Air Saver® 1P

DELIVERY TO

TELEPHONE 616-399-6070

RECEIVING

E-LAB, INC.

3352 128TH AVE

HOLLAND MI 49424

1Z 698 174 23 1002 7010

SHIPMENT ID NUMBER 6981 7478 4DJ

(URC v.48.0A 10/2005)
0201952542609 1/05 S

United Parcel Service, Louisville, KY

e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

CUSTODY SEAL

Date: 12-12-20 Time: 1600

Name: [illegible]

Company: E-LAB

Seal Broken By:

Date:

Page 4420 of 5828

Navajo REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
OCT 25 2004
OIL CONSERVATION DIVISION

October 21, 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2004 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2004 to September 30, 2004. We have disposed a total of 20,939,501 bbls. of fluid into the two wells as of September 30, 2004. This is broken down as follows: 14,224,878 bbls. into WDW-1 and 6,714,623 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

2004 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jul-04	146	238	102	207	263	172	238	286	192	7110	9021	5901	220,420
Aug-04	175	250	51	216	269	124	254	345	143	7411	9221	4259	229,735
Sep-04	139	154	120	190	201	175	184.9	233.2	101.4	6509	6894	6003	201,778
WDW-2													
Jul-04	156	253	110	127	169	95	441	500	320	4362	5801	3244	135,207
Aug-04	185	266	47	131	176	32	469	500	225	4497	6045	1082	139,421
Sep-04	152	170	129	121	134	103.0	440	498	242	4154	4604	3532	128,764

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5887

July 23, 2004

Darrell Moore
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5281
Fax: (505) 746-5421

Re: Injection Wells Work Order : **0407074**

Dear Darrell Moore,

e-Lab Analytical, Inc. received 2 samples on 7/8/2004 8:40:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. The total number of pages in this report is 38.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Patrina A. Dathorne

Jeffrey L Croston

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0407074

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0407074-01	Inj Wells	Water		7/7/2004 09:00	7/8/2004 08:40	☐
0407074-02	Trip Blank	Water		7/7/2004	7/8/2004 08:40	☐

e-Lab Analytical, Inc. **Date:** *July 23, 2004*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0407074

Case Narrative

Semivolatile (sample Inj. Wells) Surrogates were outside of control limits due to a matrix interference. Sample was re-extracted and re-analyzed and surrogates recoveries were confirmed.

Batch 9539 Metals MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL		**SW7470**			Prep Date: **7/17/2004**	Analyst: **JCJ**
Mercury	ND	0.000200		mg/L	1	7/17/2004 6:08:25 PM
ICP METALS, TOTAL		**SW6020**			Prep Date: **7/9/2004**	Analyst: **ALR**
Aluminum	0.556	0.100		mg/L	10	7/9/2004 10:24:00 PM
Arsenic	0.171	0.0500		mg/L	10	7/9/2004 10:24:00 PM
Barium	0.0354	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Beryllium	ND	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Boron	0.240	0.200		mg/L	10	7/9/2004 10:24:00 PM
Cadmium	ND	0.00200		mg/L	2	7/23/2004 2:11:00 PM
Calcium	216	25.0		mg/L	50	7/9/2004 9:39:00 PM
Chromium	0.00818	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Cobalt	ND	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Copper	0.00655	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Iron	4.42	0.400		mg/L	2	7/23/2004 12:23:00 AM
Lead	ND	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Magnesium	34.1	2.00		mg/L	10	7/9/2004 10:24:00 PM
Manganese	0.116	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Molybdenum	ND	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Nickel	0.0195	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Potassium	24.9	0.400		mg/L	2	7/23/2004 12:23:00 AM
Selenium	0.432	0.0500		mg/L	10	7/9/2004 10:24:00 PM
Silver	ND	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Sodium	1,580	10.0		mg/L	50	7/9/2004 9:39:00 PM
Vanadium	ND	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Zinc	0.0677	0.0100		mg/L	2	7/23/2004 12:23:00 AM
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **7/12/2004**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2,4,5-Trichlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2,4,6-Trichlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Methylnaphthalene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Methylphenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Nitrophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
3-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Methylphenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Nitrophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Acenaphthene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Acenaphthylene	ND	12		µg/L	1	7/15/2004 1:53:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Aniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Anthracene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Benz(a)anthracene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Benzidine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Hexachloroethane	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Indeno(1,2,3-cd)pyrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Isophorone	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodi-n-propylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodimethylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodiphenylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Naphthalene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Nitrobenzene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Pentachlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Phenanthrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Phenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Pyrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Surr: 2,4,6-Tribromophenol	28.6	39-153	S	%REC	1	7/15/2004 1:53:00 AM
Surr: 2-Fluorobiphenyl	45.7	40-147		%REC	1	7/15/2004 1:53:00 AM
Surr: 2-Fluorophenol	12.1	21-110	S	%REC	1	7/15/2004 1:53:00 AM
Surr: 4-Terphenyl-d14	40.9	39-141		%REC	1	7/15/2004 1:53:00 AM
Surr: Nitrobenzene-d5	40.8	37-140		%REC	1	7/15/2004 1:53:00 AM
Surr: Phenol-d6	7.92	11-100	S	%REC	1	7/15/2004 1:53:00 AM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
2-Butanone	16	10		µg/L	1	7/19/2004 2:58:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	7/19/2004 2:58:00 PM
2-Hexanone	ND	10		µg/L	1	7/19/2004 2:58:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Acetone	87	10		µg/L	1	7/19/2004 2:58:00 PM
Benzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromoform	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromomethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Carbon disulfide	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloroform	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Ethylbenzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
m,p-Xylene	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Methylene chloride	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Styrene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Toluene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Trichloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Vinyl acetate	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Vinyl chloride	ND	2.0		µg/L	1	7/19/2004 2:58:00 PM
Xylenes, Total	ND	15		µg/L	1	7/19/2004 2:58:00 PM
Surr: 1,2-Dichloroethane-d4	85.9	71-126		%REC	1	7/19/2004 2:58:00 PM
Surr: 4-Bromofluorobenzene	93.8	74-125		%REC	1	7/19/2004 2:58:00 PM
Surr: Dibromofluoromethane	89.3	73-126		%REC	1	7/19/2004 2:58:00 PM
Surr: Toluene-d8	89.9	75-125		%REC	1	7/19/2004 2:58:00 PM
FLASHPOINT		**SW1010**				Analyst: **MAG**
Ignitability	>200	50		°F	1	7/16/2004
CYANIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Cyanide	ND	0.0300		mg/L	1	7/16/2004
SULFIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Sulfide	ND	40.0		mg/L	1	7/16/2004
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **MG**
Chloride	992	50.0		mg/L	100	7/13/2004 3:25:00 AM
Sulfate	2,270	100		mg/L	100	7/13/2004 3:25:00 AM
Surr: Dichloroacetic acid (surr)	107	80-120		%REC	100	7/13/2004 3:25:00 AM
ALKALINITY		**E310.1**				Analyst: **HDO**
Alkalinity, Bicarbonate (As CaCO3)	157	5.00		mg/L	1	7/12/2004
Alkalinity, Carbonate (As CaCO3)	ND	5.00		mg/L	1	7/12/2004
Alkalinity, Hydroxide (As CaCO3)	ND	5.00		mg/L	1	7/12/2004
Alkalinity, Total (As CaCO3)	157	5.00		mg/L	1	7/12/2004
CONDUCTIVITY		**E120.1**				Analyst: **HDO**
Specific Conductance	7,200	1.00		µmhos/cm	1	7/12/2004

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **LMD**
pH	6.92	0.100		pH units	1	7/8/2004
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **LMD**
Total Dissolved Solids (Residue, Filterable)	4,960	10.0		mg/L	1	7/8/2004

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

Date: *Jul 23 2004*

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MBLK Sample ID: **MBLKW3-070904** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/09/04 21:25**

Client ID: Run ID: **ICP4500_040709A** SeqNo: **505844** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.003459	0.010								J
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

LCS Sample ID: **MLCSW3-070904** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/09/04 21:29**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505845** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.04844	0.010	0.05	0	96.9	79-126	0			
Arsenic	0.04766	0.0050	0.05	0	95.3	80-121	0			
Barium	0.04274	0.0050	0.05	0	85.5	79.8-119	0			
Beryllium	0.04529	0.0020	0.05	0	90.6	78.9-120	0			
Boron	0.4936	0.020	0.5	0	98.7	80-120	0			
Cadmium	0.04849	0.0020	0.05	0	97	79.1-119	0			
Calcium	4.804	0.50	5	0	96.1	80-121	0			
Chromium	0.04798	0.0050	0.05	0	96	79.3-121	0			
Cobalt	0.04761	0.0050	0.05	0	95.2	82-121	0			
Copper	0.04535	0.0050	0.05	0	90.7	83-121	0			
Iron	4.902	0.20	5	0	98	80-120	0			
Lead	0.04454	0.0050	0.05	0	89.1	80-118	0			
Magnesium	5.139	0.20	5	0	103	80-120	0			
Manganese	0.04778	0.0050	0.05	0	95.6	82-119	0			
Molybdenum	0.04486	0.0050	0.05	0	89.7	84.6-115	0			
Nickel	0.04723	0.0050	0.05	0	94.5	85-120	0			
Potassium	4.953	0.20	5	0	99.1	80-120	0			
Selenium	0.0466	0.0050	0.05	0	93.2	79.2-118	0			
Silver	0.04787	0.0050	0.05	0	95.7	83-117	0			
Sodium	5.081	0.20	5	0	102	82.4-120	0			
Vanadium	0.04735	0.0050	0.05	0	94.7	82.1-119	0			
Zinc	0.04587	0.0050	0.05	0	91.7	83-118	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MS Sample ID: **0407028-83CMS** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:14**

Client ID: Run ID: **ICP4500_040709A** SeqNo: **505874** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05038	0.010	0.05	0.002733	95.3	79-126	0			
Arsenic	0.04968	0.0050	0.05	0.003932	91.5	80-121	0			
Barium	0.07232	0.0050	0.05	0.02595	92.7	79.8-119	0			
Beryllium	0.0509	0.0020	0.05	0.0005094	101	78.9-120	0			
Boron	0.623	0.020	0.5	0.09092	106	80-120	0			
Cadmium	0.04574	0.0020	0.05	0.0003332	90.8	79.1-119	0			
Calcium	90.82	0.50	5	84.69	123	80-121	0			SEO
Chromium	0.04515	0.0050	0.05	0	90.3	79.3-121	0			
Cobalt	0.04827	0.0050	0.05	0.004039	88.5	82-121	0			
Copper	0.04228	0.0050	0.05	0.0009502	82.7	83-121	0			S
Iron	5.002	0.20	5	0.2496	95	80-120	0			
Lead	0.04748	0.0050	0.05	0	95	80-118	0			
Magnesium	28.5	0.20	5	23.83	93.4	80-120	0			O
Manganese	0.1942	0.0050	0.05	0.1499	88.6	82-119	0			
Molybdenum	0.04699	0.0050	0.05	0	94	84.6-115	0			
Nickel	0.05298	0.0050	0.05	0.01094	84.1	85-120	0			S
Potassium	7.353	0.20	5	2.353	100	80-120	0			
Selenium	0.046	0.0050	0.05	0.003609	84.8	79.2-118	0			
Silver	0.04262	0.0050	0.05	0	85.2	83-117	0			
Sodium	164.1	0.20	5	161.8	46	82.4-120	0			SEO
Vanadium	0.0482	0.0050	0.05	0.0006576	95.1	82.1-119	0			
Zinc	0.04617	0.0050	0.05	0.004682	83	83-118	0			S

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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MSD Sample ID: **0407028-83CMSD** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:19**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505875** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05215	0.010	0.05	0.002733	98.8	79-126	0.05038	3.45	15	
Arsenic	0.04869	0.0050	0.05	0.003932	89.5	80-121	0.04968	2.01	15	
Barium	0.07266	0.0050	0.05	0.02595	93.4	79.8-119	0.07232	0.469	15	
Beryllium	0.05198	0.0020	0.05	0.0005094	103	78.9-120	0.0509	2.1	15	
Boron	0.6325	0.020	0.5	0.09092	108	80-120	0.623	1.51	15	
Cadmium	0.04625	0.0020	0.05	0.0003332	91.8	79.1-119	0.04574	1.11	15	
Calcium	93.55	0.50	5	84.69	177	80-121	90.82	2.96	15	SEO
Chromium	0.04685	0.0050	0.05	0	93.7	79.3-121	0.04515	3.7	15	
Cobalt	0.04998	0.0050	0.05	0.004039	91.9	82-121	0.04827	3.48	15	
Copper	0.04371	0.0050	0.05	0.0009502	85.5	83-121	0.04228	3.33	15	
Iron	5.13	0.20	5	0.2496	97.6	80-120	5.002	2.53	15	
Lead	0.0471	0.0050	0.05	0	94.2	80-118	0.04748	0.804	15	
Magnesium	30.14	0.20	5	23.83	126	80-120	28.5	5.59	15	SO
Manganese	0.2008	0.0050	0.05	0.1499	102	82-119	0.1942	3.34	15	
Molybdenum	0.04735	0.0050	0.05	0	94.7	84.6-115	0.04699	0.763	15	
Nickel	0.05422	0.0050	0.05	0.01094	86.6	85-120	0.05298	2.31	15	
Potassium	7.483	0.20	5	2.353	103	80-120	7.353	1.75	15	
Selenium	0.04327	0.0050	0.05	0.003609	79.3	79.2-118	0.046	6.12	15	
Silver	0.04351	0.0050	0.05	0	87	83-117	0.04262	2.07	15	
Sodium	173.9	0.20	5	161.8	242	82.4-120	164.1	5.8	15	SEO
Vanadium	0.04997	0.0050	0.05	0.0006576	98.6	82.1-119	0.0482	3.61	15	
Zinc	0.04806	0.0050	0.05	0.004682	86.8	83-118	0.04617	4.01	15	

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

DUP Sample ID: **0407028-83CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:09**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505873** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002615	0.010	0	0	0	0-0	0.002733	0	25	J
Arsenic	0.003323	0.0050	0	0	0	0-0	0.003932	0	25	J
Barium	0.026	0.0050	0	0	0	0-0	0.02595	0.192	25	
Beryllium	0.000439	0.0020	0	0	0	0-0	0.0005094	0	25	J
Boron	0.08249	0.020	0	0	0	0-0	0.09092	9.72	25	
Cadmium	0.0002675	0.0020	0	0	0	0-0	0.0003332	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0003544	0	25	
Cobalt	0.003999	0.0050	0	0	0	0-0	0.004039	0	25	J
Copper	0.001006	0.0050	0	0	0	0-0	0.0009502	0	25	J
Iron	0.2425	0.20	0	0	0	0-0	0.2496	2.89	25	
Lead	ND	0.0050	0	0	0	0-0	0.0001737	0	25	
Magnesium	22.32	0.20	0	0	0	0-0	23.83	6.54	25	
Manganese	0.1501	0.0050	0	0	0	0-0	0.1499	0.133	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.0005272	0	25	
Nickel	0.01059	0.0050	0	0	0	0-0	0.01094	3.25	25	
Potassium	2.237	0.20	0	0	0	0-0	2.353	5.05	25	
Selenium	ND	0.0050	0	0	0	0-0	0.003609	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0001129	0	25	
Vanadium	0.0005641	0.0050	0	0	0	0-0	0.0006576	0	25	J
Zinc	0.00462	0.0050	0	0	0	0-0	0.004682	0	25	J

DUP Sample ID: **0407028-83CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/12/04 20:25**
Client ID: Run ID: **ICP4500_040712A** SeqNo: **506283** Prep Date: **7/9/2004** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	85.98	5.0	0	0	0	0-0	85.98	0	25	
Sodium	175.6	2.0	0	0	0	0-0	175.6	0	25	

The following samples were analyzed in this batch: 0407074-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9641** InstrumentID: **Mercury**

MBLK Sample ID: **GBLKW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:39**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509754** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0			

LCS Sample ID: **GLCSW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:41**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509755** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00503	0.00020	0.005	0	101	83-115	0			

LCSD Sample ID: **GLCSDW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:43**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509756** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	0	101	83-115	0.00503	0.595	20	

MS Sample ID: **0407082-18CMS** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:50**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509759** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00482	0.00020	0.005	-0.000006	96.5	83-115	0			

MSD Sample ID: **0407082-18CMSD** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:51**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509760** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00484	0.00020	0.005	-0.000006	96.9	83-115	0.00482	0.414	20	

DUP Sample ID: **0407082-18CDUP** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:48**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509758** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000006	0	20	

The following samples were analyzed in this batch: 0407074-01B

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J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 15:58**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507356** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	82.25	10	100	0	82.2	39-153	0			
Surr: 2-Fluorobiphenyl	78.39	10	100	0	78.4	40-147	0			
Surr: 2-Fluorophenol	33.79	10	100	0	33.8	21-110	0			
Surr: 4-Terphenyl-d14	84.32	10	100	0	84.3	39-141	0			
Surr: Nitrobenzene-d5	70.65	10	100	0	70.7	37-140	0			
Surr: Phenol-d6	18.81	10	100	0	18.8	11-100	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 16:29**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507357** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	31.26	10	50	0	62.5	50-115	0			
2,4,5-Trichlorophenol	86.7	10	100	0	86.7	68-128	0			
2,4,6-Trichlorophenol	85.39	10	100	0	85.4	66-125	0			
2-Methylnaphthalene	34.79	10	50	0	69.6	47-122	0			
2-Methylphenol	61.44	10	100	0	61.4	51-115	0			
2-Nitroaniline	46.51	10	50	0	93	64-128	0			
2-Nitrophenol	76.92	10	100	0	76.9	60-119	0			
3-Nitroaniline	44.47	10	50	0	88.9	61-118	0			
4-Methylphenol	81.14	10	150	0	54.1	44-115	0			
4-Nitroaniline	44.56	10	50	0	89.1	61-123	0			
4-Nitrophenol	29.12	10	100	0	29.1	17-100	0			
Acenaphthene	40.9	10	50	0	81.8	68-115	0			
Acenaphthylene	40.88	10	50	0	81.8	67-116	0			
Aniline	32.02	10	50	0	64	40-130	0			
Anthracene	43.56	10	50	0	87.1	70-129	0			
Benz(a)anthracene	42.22	10	50	0	84.4	55-131	0			
Benzidine	30.17	10	50	0	60.3	10-115	0			
Hexachloroethane	30.87	10	50	0	61.7	46-115	0			
Indeno(1,2,3-cd)pyrene	48.4	10	50	0	96.8	42-123	0			
Isophorone	39.55	10	50	0	79.1	63-117	0			
N-Nitrosodi-n-propylamine	42.61	10	50	0	85.2	67-115	0			
N-Nitrosodimethylamine	21.15	10	50	0	42.3	28-115	0			
N-Nitrosodiphenylamine	46.31	10	50	0	92.6	72-144	0			
Naphthalene	33.4	10	50	0	66.8	52-115	0			
Nitrobenzene	38.35	10	50	0	76.7	65-115	0			
Pentachlorophenol	70.64	10	100	0	70.6	65-123	0			
Phenanthrene	41.84	10	50	0	83.7	69-119	0			
Phenol	23.79	10	100	0	23.8	16-115	0			
Pyrene	40.12	10	50	0	80.2	51-130	0			
Surr: 2,4,6-Tribromophenol	87.89	10	100	0	87.9	39-153	0			
Surr: 2-Fluorobiphenyl	82.26	10	100	0	82.3	40-147	0			
Surr: 2-Fluorophenol	40.23	10	100	0	40.2	21-110	0			
Surr: 4-Terphenyl-d14	86.41	10	100	0	86.4	39-141	0			
Surr: Nitrobenzene-d5	75.5	10	100	0	75.5	37-140	0			
Surr: Phenol-d6	23.26	10	100	0	23.3	11-100	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

LCSD Sample ID: **SLCSDW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 16:59**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507358** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	31.58	10	50	0	63.2	50-115	31.26	1.01	30	
2,4,5-Trichlorophenol	87.3	10	100	0	87.3	68-128	86.7	0.685	30	
2,4,6-Trichlorophenol	86.39	10	100	0	86.4	66-125	85.39	1.16	30	
2-Methylnaphthalene	33.56	10	50	0	67.1	47-122	34.79	3.61	30	
2-Methylphenol	60.16	10	100	0	60.2	51-115	61.44	2.11	30	
2-Nitroaniline	47.23	10	50	0	94.5	64-128	46.51	1.53	30	
2-Nitrophenol	75.92	10	100	0	75.9	60-119	76.92	1.32	30	
3-Nitroaniline	40.62	10	50	0	81.2	61-118	44.47	9.05	30	
4-Methylphenol	81.3	10	150	0	54.2	44-115	81.14	0.188	30	
4-Nitroaniline	42.15	10	50	0	84.3	61-123	44.56	5.54	30	
4-Nitrophenol	30.34	10	100	0	30.3	17-100	29.12	4.08	30	
Acenaphthene	39.88	10	50	0	79.8	68-115	40.9	2.52	30	
Acenaphthylene	39.7	10	50	0	79.4	67-116	40.88	2.93	30	
Aniline	31.01	10	50	0	62	40-130	32.02	3.2	30	
Anthracene	42.13	10	50	0	84.3	70-129	43.56	3.34	30	
Benz(a)anthracene	41.72	10	50	0	83.4	55-131	42.22	1.2	30	
Benzidine	28.39	10	50	0	56.8	10-115	30.17	6.06	30	
Hexachloroethane	29.4	10	50	0	58.8	46-115	30.87	4.89	30	
Indeno(1,2,3-cd)pyrene	44.19	10	50	0	88.4	42-123	48.4	9.1	30	
Isophorone	38.71	10	50	0	77.4	63-117	39.55	2.15	30	
N-Nitrosodi-n-propylamine	41.17	10	50	0	82.3	67-115	42.61	3.43	30	
N-Nitrosodimethylamine	22.1	10	50	0	44.2	28-115	21.15	4.41	30	
N-Nitrosodiphenylamine	44.6	10	50	0	89.2	72-144	46.31	3.77	30	
Naphthalene	32.74	10	50	0	65.5	52-115	33.4	1.99	30	
Nitrobenzene	38.2	10	50	0	76.4	65-115	38.35	0.387	30	
Pentachlorophenol	72.91	10	100	0	72.9	65-123	70.64	3.15	30	
Phenanthrene	40.12	10	50	0	80.2	69-119	41.84	4.2	30	
Phenol	24.22	10	100	0	24.2	16-115	23.79	1.79	30	
Pyrene	40.25	10	50	0	80.5	51-130	40.12	0.331	30	
Surr: 2,4,6-Tribromophenol	86.61	10	100	0	86.6	39-153	87.89	1.46	30	
Surr: 2-Fluorobiphenyl	81.97	10	100	0	82	40-147	82.26	0.35	30	
Surr: 2-Fluorophenol	39.11	10	100	0	39.1	21-110	40.23	2.82	30	
Surr: 4-Terphenyl-d14	85.17	10	100	0	85.2	39-141	86.41	1.45	30	
Surr: Nitrobenzene-d5	75.33	10	100	0	75.3	37-140	75.5	0.231	30	
Surr: Phenol-d6	23.6	10	100	0	23.6	11-100	23.26	1.46	30	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MS Sample ID: **0407082-18DMS** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 18:00**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507360** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.77	11	53.19	0	72.9	50-115	0			
2,4,5-Trichlorophenol	91.48	11	106.4	0	86	68-128	0			
2,4,6-Trichlorophenol	92.28	11	106.4	0	86.7	66-125	0			
2-Methylnaphthalene	39.59	11	53.19	0	74.4	47-122	0			
2-Methylphenol	68.77	11	106.4	0	64.6	51-115	0			
2-Nitroaniline	49.37	11	53.19	0	92.8	64-128	0			
2-Nitrophenol	82.66	11	106.4	0	77.7	60-119	0			
3-Nitroaniline	39.84	11	53.19	0	74.9	61-118	0			
4-Methylphenol	95.14	11	159.6	0	59.6	44-115	0			
4-Nitroaniline	41.31	11	53.19	0	77.7	61-123	0			
4-Nitrophenol	36.34	11	106.4	0	34.2	17-100	0			
Acenaphthene	46.9	11	53.19	0	88.2	68-115	0			
Acenaphthylene	42.53	11	53.19	0	80	67-116	0			
Aniline	31.51	11	53.19	0	59.2	40-130	0			
Anthracene	45.14	11	53.19	0	84.9	70-129	0			
Benz(a)anthracene	44.52	11	53.19	0	83.7	55-131	0			
Benzidine	24.16	11	53.19	0	45.4	10-115	0			
Hexachloroethane	42.45	11	53.19	0	79.8	46-115	0			
Indeno(1,2,3-cd)pyrene	49.91	11	53.19	0	93.8	42-123	0			
Isophorone	41.24	11	53.19	0	77.5	63-117	0			
N-Nitrosodi-n-propylamine	46.57	11	53.19	0	87.5	67-115	0			
N-Nitrosodimethylamine	26.9	11	53.19	0	50.6	28-115	0			
N-Nitrosodiphenylamine	47.19	11	53.19	0	88.7	72-144	0			
Naphthalene	37.95	11	53.19	0	71.4	52-115	0			
Nitrobenzene	42.36	11	53.19	0	79.6	65-115	0			
Pentachlorophenol	71.64	11	106.4	0	67.3	65-123	0			
Phenanthrene	43.67	11	53.19	0	82.1	69-119	0			
Phenol	29.8	11	106.4	0	28	16-115	0			
Pyrene	41.73	11	53.19	0	78.4	51-130	0			
Surr: 2,4,6-Tribromophenol	88.29	11	106.4	0	83	39-153	0			
Surr: 2-Fluorobiphenyl	88.06	11	106.4	0	82.8	40-147	0			
Surr: 2-Fluorophenol	46.77	11	106.4	0	44	21-110	0			
Surr: 4-Terphenyl-d14	88.44	11	106.4	0	83.1	39-141	0			
Surr: Nitrobenzene-d5	81.74	11	106.4	0	76.8	37-140	0			
Surr: Phenol-d6	27.76	11	106.4	0	26.1	11-100	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MSD Sample ID: **0407082-18DMSD** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 18:30**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507361** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.35	11	53.19	0	72.1	50-115	38.77	1.09	30	
2,4,5-Trichlorophenol	95.8	11	106.4	0	90.1	68-128	91.48	4.61	30	
2,4,6-Trichlorophenol	92.06	11	106.4	0	86.5	66-125	92.28	0.244	30	
2-Methylnaphthalene	39.08	11	53.19	0	73.5	47-122	39.59	1.29	30	
2-Methylphenol	70.25	11	106.4	0	66	51-115	68.77	2.12	30	
2-Nitroaniline	48.77	11	53.19	0	91.7	64-128	49.37	1.21	30	
2-Nitrophenol	83.64	11	106.4	0	78.6	60-119	82.66	1.17	30	
3-Nitroaniline	37.37	11	53.19	0	70.3	61-118	39.84	6.4	30	
4-Methylphenol	94.8	11	159.6	0	59.4	44-115	95.14	0.358	30	
4-Nitroaniline	38.45	11	53.19	0	72.3	61-123	41.31	7.17	30	
4-Nitrophenol	36.01	11	106.4	0	33.8	17-100	36.34	0.923	30	
Acenaphthene	47.64	11	53.19	0	89.6	68-115	46.9	1.56	30	
Acenaphthylene	42.64	11	53.19	0	80.2	67-116	42.53	0.255	30	
Aniline	31.17	11	53.19	0	58.6	40-130	31.51	1.09	30	
Anthracene	45.61	11	53.19	0	85.7	70-129	45.14	1.04	30	
Benz(a)anthracene	45.17	11	53.19	0	84.9	55-131	44.52	1.46	30	
Benzidine	18.51	11	53.19	0	34.8	10-115	24.16	26.5	30	
Hexachloroethane	40.74	11	53.19	0	76.6	46-115	42.45	4.12	30	
Indeno(1,2,3-cd)pyrene	50.25	11	53.19	0	94.5	42-123	49.91	0.68	30	
Isophorone	42.87	11	53.19	0	80.6	63-117	41.24	3.88	30	
N-Nitrosodi-n-propylamine	46.44	11	53.19	0	87.3	67-115	46.57	0.281	30	
N-Nitrosodimethylamine	25.12	11	53.19	0	47.2	28-115	26.9	6.83	30	
N-Nitrosodiphenylamine	47.79	11	53.19	0	89.8	72-144	47.19	1.25	30	
Naphthalene	38.24	11	53.19	0	71.9	52-115	37.95	0.757	30	
Nitrobenzene	42.83	11	53.19	0	80.5	65-115	42.36	1.09	30	
Pentachlorophenol	81.78	11	106.4	0	76.9	65-123	71.64	13.2	30	
Phenanthrene	44.03	11	53.19	0	82.8	69-119	43.67	0.831	30	
Phenol	29.65	11	106.4	0	27.9	16-115	29.8	0.497	30	
Pyrene	42.44	11	53.19	0	79.8	51-130	41.73	1.71	30	
Surr: 2,4,6-Tribromophenol	93.87	11	106.4	0	88.2	39-153	88.29	6.12	30	
Surr: 2-Fluorobiphenyl	87.34	11	106.4	0	82.1	40-147	88.06	0.818	30	
Surr: 2-Fluorophenol	46.17	11	106.4	0	43.4	21-110	46.77	1.28	30	
Surr: 4-Terphenyl-d14	90.02	11	106.4	0	84.6	39-141	88.44	1.78	30	
Surr: Nitrobenzene-d5	80.82	11	106.4	0	76	37-140	81.74	1.14	30	
Surr: Phenol-d6	27.76	11	106.4	0	26.1	11-100	27.76	0.011	30	

The following samples were analyzed in this batch: 0407074-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MBLK Sample ID: **VBLKW-0719** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 11:33**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510670** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	42.27	5.0	50	0	84.5	71-126	0			
Surr: 4-Bromofluorobenzene	43.71	5.0	50	0	87.4	74-125	0			
Surr: Dibromofluoromethane	43.99	5.0	50	0	88	73-126	0			
Surr: Toluene-d8	44.34	5.0	50	0	88.7	75-125	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

LCS Sample ID: **VLCSW-0719** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 10:42**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510669** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.5	5.0	50	0	99	75.2-120	0			
1,1,2,2-Tetrachloroethane	47.64	5.0	50	0	95.3	72.4-121	0			
1,1,2-Trichloroethane	49.05	5.0	50	0	98.1	80-120	0			
1,1-Dichloroethane	40.8	5.0	50	0	81.6	76.9-120	0			
1,1-Dichloroethene	42.24	5.0	50	0	84.5	72.6-123	0			
1,2-Dichloroethane	50.08	5.0	50	0	100	80-120	0			
2-Butanone	98.22	10	100	0	98.2	69-131	0			
2-Chloroethyl vinyl ether	99.78	10	100	0	99.8	60-135	0			
2-Hexanone	109.7	10	100	0	110	55.6-126	0			
4-Methyl-2-pentanone	105.7	10	100	0	106	67.4-121	0			
Acetone	110	10	100	0	110	64.4-140	0			
Benzene	47.36	5.0	50	0	94.7	80-120	0			
Bromodichloromethane	49.67	5.0	50	0	99.3	80-120	0			
Bromoform	52.48	5.0	50	0	105	77.9-121	0			
Bromomethane	46.73	5.0	50	0	93.5	63.3-137	0			
Carbon disulfide	81.78	10	100	0	81.8	74.1-123	0			
Carbon tetrachloride	50.26	5.0	50	0	101	74.7-120	0			
Chlorobenzene	48.77	5.0	50	0	97.5	80-120	0			
Chloroethane	46	5.0	50	0	92	74.7-126	0			
Chloroform	46.23	5.0	50	0	92.5	80-120	0			
Chloromethane	43.9	5.0	50	0	87.8	64.5-132	0			
cis-1,3-Dichloropropene	51.24	5.0	50	0	102	80-120	0			
Dibromochloromethane	50.88	5.0	50	0	102	80-120	0			
Ethylbenzene	49.39	5.0	50	0	98.8	80-120	0			
m,p-Xylene	98.82	10	100	0	98.8	80-120	0			
Methylene chloride	41.13	10	50	0	82.3	76.2-120	0			
Styrene	50.69	5.0	50	0	101	80-120	0			
Tetrachloroethene	51.64	5.0	50	0	103	68.5-130	0			
Toluene	48.46	5.0	50	0	96.9	80-120	0			
trans-1,3-Dichloropropene	52.38	5.0	50	0	105	80-120	0			
Trichloroethene	50.2	5.0	50	0	100	78.9-120	0			
Vinyl acetate	106.1	10	100	0	106	62.4-133	0			
Vinyl chloride	46.69	2.0	50	0	93.4	72.7-128	0			
Xylenes, Total	148.4	15	150	0	98.9	80-120	0			
Surr: 1,2-Dichloroethane-d4	40.65	5.0	50	0	81.3	71-126	0			
Surr: 4-Bromofluorobenzene	46.15	5.0	50	0	92.3	74-125	0			
Surr: Dibromofluoromethane	41.66	5.0	50	0	83.3	73-126	0			
Surr: Toluene-d8	45.05	5.0	50	0	90.1	75-125	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MS Sample ID: **0407154-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 14:05**

Client ID: Run ID: **VOA2_040719A** SeqNo: **510672** Prep Date: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12140	1,200	12500	0	97.1	75.2-120	0			
1,1,2,2-Tetrachloroethane	11150	1,200	12500	0	89.2	72.4-121	0			
1,1,2-Trichloroethane	12470	1,200	12500	0	99.8	80-120	0			
1,1-Dichloroethane	11610	1,200	12500	0	92.9	76.9-120	0			
1,1-Dichloroethene	9668	1,200	12500	0	77.3	72.6-123	0			
1,2-Dichloroethane	12100	1,200	12500	0	96.8	80-120	0			
2-Butanone	24170	2,500	25000	0	96.7	69-131	0			
2-Chloroethyl vinyl ether	23350	2,500	25000	0	93.4	60-135	0			
2-Hexanone	28460	2,500	25000	0	114	55.6-126	0			
4-Methyl-2-pentanone	26920	2,500	25000	0	108	67.4-121	0			
Acetone	28630	2,500	25000	0	115	64.4-140	0			
Benzene	12840	1,200	12500	1617	89.8	80-120	0			
Bromodichloromethane	12110	1,200	12500	0	96.9	80-120	0			
Bromoform	12900	1,200	12500	0	103	77.9-121	0			
Bromomethane	10540	1,200	12500	0	84.3	63.3-137	0			
Carbon disulfide	21710	2,500	25000	0	86.8	74.1-123	0			
Carbon tetrachloride	15530	1,200	12500	3701	94.7	74.7-120	0			
Chlorobenzene	17760	1,200	12500	6761	88	80-120	0			
Chloroethane	11150	1,200	12500	0	89.2	74.7-126	0			
Chloroform	27960	1,200	12500	16690	90.2	80-120	0			
Chloromethane	11340	1,200	12500	0	90.7	64.5-132	0			
cis-1,3-Dichloropropene	12280	1,200	12500	0	98.3	80-120	0			
Dibromochloromethane	12560	1,200	12500	0	101	80-120	0			
Ethylbenzene	12120	1,200	12500	0	97	80-120	0			
m,p-Xylene	24660	2,500	25000	0	98.7	80-120	0			
Methylene chloride	11050	2,500	12500	251	86.4	76.2-120	0			
Styrene	12310	1,200	12500	0	98.5	80-120	0			
Tetrachloroethene	12830	1,200	12500	307.5	100	68.5-130	0			
Toluene	11740	1,200	12500	0	93.9	80-120	0			
trans-1,3-Dichloropropene	12720	1,200	12500	0	102	80-120	0			
Trichloroethene	13050	1,200	12500	382.7	101	78.9-120	0			
Vinyl acetate	16340	2,500	25000	0	65.4	62.4-133	0			
Vinyl chloride	11910	500	12500	0	95.2	72.7-128	0			
Xylenes, Total	36910	3,800	37500	0	98.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	10910	1,200	12500	0	87.3	71-126	0			
Surr: 4-Bromofluorobenzene	12050	1,200	12500	0	96.4	74-125	0			
Surr: Dibromofluoromethane	10810	1,200	12500	0	86.5	73-126	0			
Surr: Toluene-d8	11660	1,200	12500	0	93.3	75-125	0			

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MSD Sample ID: **0407154-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 14:33**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510673** Prep Date: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12300	1,200	12500	0	98.4	75.2-120	12140	1.31	20	
1,1,2,2-Tetrachloroethane	11100	1,200	12500	0	88.8	72.4-121	11150	0.381	20	
1,1,2-Trichloroethane	12660	1,200	12500	0	101	80-120	12470	1.46	20	
1,1-Dichloroethane	10890	1,200	12500	0	87.2	76.9-120	11610	6.37	20	
1,1-Dichloroethene	10340	1,200	12500	0	82.7	72.6-123	9668	6.67	20	
1,2-Dichloroethane	12510	1,200	12500	0	100	80-120	12100	3.41	20	
2-Butanone	25510	2,500	25000	0	102	69-131	24170	5.39	20	
2-Chloroethyl vinyl ether	23900	2,500	25000	0	95.6	60-135	23350	2.29	20	
2-Hexanone	29060	2,500	25000	0	116	55.6-126	28460	2.07	20	
4-Methyl-2-pentanone	27690	2,500	25000	0	111	67.4-121	26920	2.82	20	
Acetone	28630	2,500	25000	0	115	64.4-140	28630	0.0181	20	
Benzene	13310	1,200	12500	1617	93.5	80-120	12840	3.55	20	
Bromodichloromethane	12400	1,200	12500	0	99.2	80-120	12110	2.29	20	
Bromoform	13180	1,200	12500	0	105	77.9-121	12900	2.16	20	
Bromomethane	11380	1,200	12500	0	91	63.3-137	10540	7.65	20	
Carbon disulfide	22610	2,500	25000	0	90.4	74.1-123	21710	4.08	20	
Carbon tetrachloride	16060	1,200	12500	3701	98.9	74.7-120	15530	3.35	20	
Chlorobenzene	18250	1,200	12500	6761	91.9	80-120	17760	2.71	20	
Chloroethane	11550	1,200	12500	0	92.4	74.7-126	11150	3.48	20	
Chloroform	27240	1,200	12500	16690	84.4	80-120	27960	2.59	20	
Chloromethane	11380	1,200	12500	0	91.1	64.5-132	11340	0.38	20	
cis-1,3-Dichloropropene	12670	1,200	12500	0	101	80-120	12280	3.12	20	
Dibromochloromethane	12910	1,200	12500	0	103	80-120	12560	2.71	20	
Ethylbenzene	12480	1,200	12500	0	99.8	80-120	12120	2.91	20	
m,p-Xylene	25180	2,500	25000	0	101	80-120	24660	2.07	20	
Methylene chloride	10390	2,500	12500	251	81.1	76.2-120	11050	6.19	20	
Styrene	12620	1,200	12500	0	101	80-120	12310	2.5	20	
Tetrachloroethene	13110	1,200	12500	307.5	102	68.5-130	12830	2.1	20	
Toluene	12160	1,200	12500	0	97.3	80-120	11740	3.54	20	
trans-1,3-Dichloropropene	12790	1,200	12500	0	102	80-120	12720	0.554	20	
Trichloroethene	13550	1,200	12500	382.7	105	78.9-120	13050	3.73	20	
Vinyl acetate	16770	2,500	25000	0	67.1	62.4-133	16340	2.6	20	
Vinyl chloride	11890	500	12500	0	95.1	72.7-128	11910	0.11	20	
Xylenes, Total	37950	3,800	37500	0	101	80-120	36910	2.78	20	
Surr: 1,2-Dichloroethane-d4	10830	1,200	12500	0	86.7	71-126	10910	0.714	20	
Surr: 4-Bromofluorobenzene	12050	1,200	12500	0	96.4	74-125	12050	0.0324	20	
Surr: Dibromofluoromethane	11040	1,200	12500	0	88.3	73-126	10810	2.07	20	
Surr: Toluene-d8	11800	1,200	12500	0	94.4	75-125	11660	1.17	20	

The following samples were analyzed in this batch: 0407074-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21602** InstrumentID: **WetChem**

LCS Sample ID: **WLCSW1-070804** Test Code: **E150.1** Units: **pH units** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708A** SeqNo: **504779** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.04	0.10	6	0	101	85-115	0			

DUP Sample ID: **0407074-01CDUP** Test Code: **E150.1** Units: **pH units** Analysis Date: **07/08/04 0:00**
Client ID: **Inj Wells** Run ID: **WETCHEM_040708A** SeqNo: **504783** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.91	0.10	0	0	0	0-0	6.92	0.145	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21620** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW1-070804** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505164** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **WLCSW1-070804** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505165** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1058	10	1000	0	106	80-120	0			

DUP Sample ID: **0407068-01EDUP** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505171** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	25900	10	0	0	0	0-0	25620	1.07	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21657** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW-071204** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506101** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-071204** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506102** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	980.7	5.0	0	0.9806	0	0-0	0			
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Total (As CaCO3)	980.7	5.0	1000	0	98.1	80-120	0			

DUP Sample ID: **0407076-01BDUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506130** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	421.7	5.0	0	0	0	0-0	421.7	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	421.7	5.0	0	0	0	0-0	421.7	0	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21661** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW1-071204** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712D** SeqNo: **506172** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-071204** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712D** SeqNo: **506173** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1440	1.0	1409	0	102	80-120	0			

DUP Sample ID: **0407074-01CDUP** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: **Inj Wells** Run ID: **WETCHEM_040712D** SeqNo: **506175** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	7190	1.0	0	0	0	0-0	7200	0.139	20	

The following samples were analyzed in this batch: 0407074-01C

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21698** InstrumentID: **IC201**

MBLK Sample ID: **WBLKW1-071204** Test Code: **E300** Units: **mg/L** Analysis Date: **07/12/04 23:08**
Client ID: Run ID: **IC201_040712B** SeqNo: **506929** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Dichloroacetic acid (surr)	5.26	0.10	5	0	105	80-120		0		

LCS Sample ID: **WLCSW1-071204** Test Code: **E300** Units: **mg/L** Analysis Date: **07/12/04 23:37**
Client ID: Run ID: **IC201_040712B** SeqNo: **506930** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.89	0.50	10	0	98.9	80-120		0		
Sulfate	10.41	1.0	10	0	104	80-120		0		
Surr: Dichloroacetic acid (surr)	5.58	0.10	5	0	112	80-120		0		

LCSD Sample ID: **WLCSW1DUP-071** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 0:05**
Client ID: Run ID: **IC201_040712B** SeqNo: **506931** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.9	0.50	10	0	99	80-120		0		
Sulfate	10.43	1.0	10	0	104	80-120		0		
Surr: Dichloroacetic acid (surr)	5.6	0.10	5	0	112	80-120		0		

MS Sample ID: **0407016-02AMS** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:31**
Client ID: Run ID: **IC201_040712B** SeqNo: **506934** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3695	50	1000	2719	97.6	75-125		0		
Sulfate	1255	100	1000	273	98.2	75-125		0		
Surr: Dichloroacetic acid (surr)	528	10	500	0	106	80-120		0		

MSD Sample ID: **0407016-02AMSD** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:59**
Client ID: Run ID: **IC201_040712B** SeqNo: **506935** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3686	50	1000	2719	96.7	75-125	3695	0.244	20	
Sulfate	1255	100	1000	273	98.2	75-125	1255	0	20	
Surr: Dichloroacetic acid (surr)	534	10	500	0	107	80-120	528	1.13	20	

ND - Not Detected at the Reporting Limit
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P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21698** InstrumentID: **IC201**

DUP Sample ID: **0407016-02ADUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:02**
Client ID: Run ID: **IC201_040712B** SeqNo: **506933** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2515	50	0	0	0	0-0	2719	7.8	20	
Sulfate	259	100	0	0	0	0-0	273	5.26	20	
Surr: Dichloroacetic acid (surr)	538	10	500	0	108	80-120	571	5.95	20	

DUP Sample ID: **0407076-04BDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 11:01**
Client ID: Run ID: **IC201_040712B** SeqNo: **506938** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	844	25	0	0	0	0-0	845.5	0.178	20	
Sulfate	2172	50	0	0	0	0-0	2174	0.115	20	
Surr: Dichloroacetic acid (surr)	279	5.0	250	0	112	80-120	284.5	1.95	20	

DUP Sample ID: **0407076-07BDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 14:49**
Client ID: Run ID: **IC201_040712B** SeqNo: **506944** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3191	0.50	0	0	0	0-0	3183	0.227	20	E
Sulfate	4941	1.0	0	0	0	0-0	4912	0.6	20	E
Surr: Dichloroacetic acid (surr)	4.38	0.10	5	0	87.6	80-120	5.6	24.4	20	R

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab
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☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
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(Fax) 281.530.5887

Chain of Custody Form

Page ____ of ____

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 04070U

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Wells	A	VOC (8260)
Work Order		Project Number		B	SVOC (8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Tot Metals WQCC + Cations (6020)
Send Report To	Charlie Plymale	Invoice Attn	Charlie Plymale	D	Anions: Cl, SO4 (300)
Address	P.O. Box 159	Address	P.O. Box 159	E	Alkalintiy (310.1)
				F	pH
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	TDS
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	Uranium
e-Mail Address		e-Mail Address		J	RCI

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj Wells	7/7/04	900			11	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Charlie Plymale

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ STD 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☐ Other 10 Day TAT

Results Due Date:

Relinquished by:	Date: 7/7/04	Time: 1615	Received by:	Notes:
Relinquished by:	Date:	Time:	Received by (Laboratory):	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory): 7/8/04 09:00	

e-lab Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 7/8/2004 8:40:00 AM

Work Order Number 0407074 Received by: FSM

Checklist completed by RICHARD SANCHEZ 7-8-04 (Signature / Date) Reviewed by (Initials) 7/9/04 (Date)

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.0c	002	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes: Trip blank not on COC; logged in without anlaysis.

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab, Inc **Date:** *July 19, 2004*

CLIENT: e-Lab, Inc
Project: 0407074
Work Order: 0407128

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0407128-01	0407074-01E	Water		7/7/2004 09:00	7/9/2004 10:00	☐

e-Lab, Inc

Date: *July 19, 2004*

CLIENT: e-Lab, Inc
Project: 0407074
Work Order: 0407128

Lab ID: 0407128-01A
Client Sample ID: 0407074-01E
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **KAE**
Cyanide, Reactive	ND	0.0300		mg/Kg	1	7/16/2004
FLASHPOINT, P-M CLOSED-CUP			**ASTM D93**			Analyst: **MB**
Flashpoint, P-M Closed-cup	>200			°F	1	7/16/2004
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **KAE**
Sulfide, Reactive	ND	40.0		mg/Kg	1	7/16/2004

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

Date: *Jul 19 2004*

QC BATCH REPORT

Batch ID: **R22476** InstrumentID: **WETCHEM**

LCS Sample ID: **WLCSW1-071504** Test Code: **ASTM D93** Units: **°F** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716G** SeqNo: **329758** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	80	0	81	0	98.8	97.5-102.4	0			

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

QC BATCH REPORT

Batch ID: **R22479** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-071504** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716I** SeqNo: **329826** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	0.030								

LCS Sample ID: **WLCSW1-071504** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716I** SeqNo: **329827** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	4.238	0.75	19.71	0	21.5	5-100		0		

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

QC BATCH REPORT

Batch ID: **R22482** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-071604** Test Code: **EPA 7.3.4.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716L** SeqNo: **329840** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Page 4458 of 5828

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

04/07/22

CHAIN-OF-CUSTODY RECORD

Client Information	Project Information	Parameters/Methods Required or Analyzed
Purchase Order	Project Name: C-04071	A: Chloride, Sulfate (EPA 300.0)
Work Order	Project Number:	B: BTEX (EPA 8260B)
Company Name:	Bill to Company:	C: TPH (EPA 8015)
Send Report To:	Invoice to:	D:
Address:	Address:	E:
City/State/Zip:	City/State/Zip:	F:
Phone:	Phone:	G:
Fax:	Fax:	H:
Email Address:		I:
		J:

Sample ID	Matrix	Collection Date	Time	A	B	C	D	E	F	G	H	I	J
[illegible] (Area)	Solid	7/12/2024	[illegible] DAT	X	X	X							

Comments:

Relinquished by:	Received by:	Relinquished by:	Received by:	Via:	Special Instructions:

e-Lab, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 7/9/2004 10:00:00 AM

Work Order Number 0407128 Received by: TL

Checklist completed by [signature] 7/9/04 (Signature / Date) Reviewed by [initials] 7/9/04 (Initials / Date)

Matrix: Carrier name FedEx

Shipping container/cooler in good condition?	Yes ✔	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✔	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✔
Chain of custody present?	Yes ✔	No	
Chain of custody signed when relinquished and received?	Yes ✔	No	
Chain of custody agrees with sample labels?	Yes ✔	No	
Samples in proper container/bottle?	Yes ✔	No	
Sample containers intact?	Yes ✔	No	
Sufficient sample volume for indicated test?	Yes ✔	No	
All samples received within holding time?	Yes ✔	No	
Container/Temp Blank temperature in compliance?	Yes ✔	No	
Temperature(s)/Thermometer(s):	1.8 C		
Water - VOA vials have zero headspace?	Yes	No	No VOA vials submitted ✔
Water - pH acceptable upon receipt?	Yes ✔	No	N/A

Adjusted? Checked b

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action

ALIGN OPEN END OF FEDEX AIRBILL POUCH HERE
CUSTODY SEAL
FedEx
PRIORITY OVERNIGHT
FRI
GRR
49424
TR HLMA
Holland MI 49424

Navajo REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
MAY 0 3 2004
OIL CONSERVATION DIVISION

April 30 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2004 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2004 to March 31, 2004. We have disposed a total of 18,858,402 bbls. of fluid into the two wells as of March 31, 2004. This is broken down as follows: 12,908,972 bbls. into WDW-1 and 5,949,430 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jan-04	410	483	241	271	322	165	322	450	179	9281	11030	5641	287,699
Feb-04	313	427	160	253	299	149	65	351	0	8680	10243	5095	269,077
Mar-04	312	463	17	235	294	101	0.2	0.3	0.1	8048	10067	3477	249,489
WDW-2													
Jan-04	461	500	53	143	168	94	278	460	144	4919	5753	3212	152,491
Feb-04	236	452	0	140	249	91	369	500	196	4784	8546	3127	148,313
Mar-04	325	477	1	117	170	0.5	407	500	158	4026	5844	16	124,792

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5658 Fax 281-530-5887

January 26, 2004

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj Wells Work Order : **0401037**

Dear Jeff Byrd,

e-Lab, Inc. received 1 sample on 1/7/2004 9:25:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 36.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Patrina A. Dathorne

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Project: Inj Wells
Work Order: **0401037**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0401037-01	Inj. Wells	Water		1/6/2004 11:00	1/7/2004 09:25	☐

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT: Navajo Refining Company
Project: Inj Wells
Work Order: 0401037

Case Narrative

The analysis for Uranium was performed at American Radiation Services in Baton Rouge, LA.

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL		**SW7470**			Prep Date: **1/13/2004**	Analyst: **JCJ**
Mercury	ND	0.000200		mg/L	1	1/14/2004 4:38:03 PM
ICP METALS, TOTAL		**SW6020**			Prep Date: **1/8/2004**	Analyst: **ALR**
Aluminum	0.0929	0.0200		mg/L	2	1/9/2004 3:23:00 PM
Arsenic	0.130	0.0250		mg/L	5	1/9/2004 3:14:00 PM
Barium	0.0405	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Beryllium	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Boron	0.579	0.0400		mg/L	2	1/9/2004 3:23:00 PM
Cadmium	ND	0.00200		mg/L	2	1/9/2004 3:23:00 PM
Calcium	78.5	2.50		mg/L	5	1/9/2004 3:14:00 PM
Chromium	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Cobalt	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Copper	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Iron	0.424	0.400		mg/L	2	1/9/2004 3:23:00 PM
Lead	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Magnesium	21.2	1.00		mg/L	5	1/9/2004 3:14:00 PM
Manganese	0.0279	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Nickel	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Potassium	84.1	1.00		mg/L	5	1/9/2004 3:14:00 PM
Selenium	0.169	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Silver	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Sodium	2,280	40.0		mg/L	200	1/14/2004 1:00:00 PM
Vanadium	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Zinc	0.0357	0.0100		mg/L	2	1/9/2004 3:23:00 PM
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **1/8/2004**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Methylnaphthalene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Methylphenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Nitrophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
3-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Methylphenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Nitrophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Acenaphthene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Acenaphthylene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Aniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Anthracene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Benz(a)anthracene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Benzidine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Hexachloroethane	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Isophorone	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodimethylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Naphthalene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Nitrobenzene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Pentachlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Phenanthrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Phenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Pyrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Surr: 2,4,6-Tribromophenol	84.1	39-153		%REC	1	1/10/2004 1:04:00 AM
Surr: 2-Fluorobiphenyl	69.6	40-147		%REC	1	1/10/2004 1:04:00 AM
Surr: 2-Fluorophenol	29.1	21-100		%REC	1	1/10/2004 1:04:00 AM
Surr: 4-Terphenyl-d14	65.8	39-141		%REC	1	1/10/2004 1:04:00 AM
Surr: Nitrobenzene-d5	76.6	37-140		%REC	1	1/10/2004 1:04:00 AM
Surr: Phenol-d6	17.0	11-100		%REC	1	1/10/2004 1:04:00 AM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
2-Butanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	1/13/2004 7:54:00 PM
2-Hexanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Acetone	17	10		µg/L	1	1/13/2004 7:54:00 PM
Benzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromoform	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromomethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Carbon disulfide	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chlorobenzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Chloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chloroform	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Ethylbenzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
m,p-Xylene	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Methylene chloride	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Styrene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Toluene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Trichloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Vinyl acetate	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Vinyl chloride	ND	2.0		µg/L	1	1/13/2004 7:54:00 PM
Xylenes, Total	ND	15		µg/L	1	1/13/2004 7:54:00 PM
Surr: 1,2-Dichloroethane-d4	93.7	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: Dibromofluoromethane	93.4	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: Toluene-d8	89.3	70-130		%REC	1	1/13/2004 7:54:00 PM
FLASHPOINT		**SW1010**				Analyst: **MAG**
Ignitability	>200	50		°F	1	1/8/2004
CYANIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Cyanide	ND	0.0300		mg/L	1	1/13/2004
SULFIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Sulfide	ND	40.0		mg/L	1	1/12/2004
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **MG**
Chloride	2,440	50.0		mg/L	100	1/13/2004 12:02:00 PM
Sulfate	1,710	100		mg/L	100	1/13/2004 12:02:00 PM
Surr: Dichloroacetic acid (surr)	115	80-120		%REC	100	1/13/2004 12:02:00 PM
ALKALINITY		**E310.1**				Analyst: **LMD**
Alkalinity, Bicarbonate (As CaCO3)	290	5.00		mg/L	1	1/7/2004
Alkalinity, Carbonate (As CaCO3)	ND	5.00		mg/L	1	1/7/2004
Alkalinity, Hydroxide (As CaCO3)	ND	5.00		mg/L	1	1/7/2004
Alkalinity, Total (As CaCO3)	290	5.00		mg/L	1	1/7/2004
CONDUCTIVITY		**E120.1**				Analyst: **LMD**
Specific Conductance	9,120	1.00		µmhos/cm	1	1/13/2004

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **LMD**
pH	8.43	0.100		pH units	1	1/7/2004
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **JBA**
Total Dissolved Solids (Residue, Filterable)	6,070	10.0		mg/L	1	1/9/2004

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Jan 26 2004*

CLIENT: Navajo Refining Company

Work Order: 0401037

Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MBLK Sample ID: **MBLKW2-010804** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 13:47**

Client ID: Run ID: **ICP4500_040109A** SeqNo: **415496** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0010								
Calcium	ND	0.50								
Chromium	ND	0.0020								
Cobalt	ND	0.0020								
Copper	ND	0.0020								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	0.001716	0.0050								J

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

LCS Sample ID: **MLCSW2-010804** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 13:51**
Client ID: Run ID: **ICP4500_040109A** SeqNo: **415497** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05256	0.010	0.05	0	105	80-120	0			
Arsenic	0.05054	0.0050	0.05	0	101	80-120	0			
Barium	0.04876	0.0050	0.05	0	97.5	80-120	0			
Beryllium	0.0475	0.0020	0.05	0	95	80-120	0			
Boron	0.4771	0.020	0.5	0	95.4	80-120	0			
Cadmium	0.0518	0.0010	0.05	0	104	80-120	0			
Calcium	4.894	0.50	5	0	97.9	80-120	0			
Chromium	0.05086	0.0020	0.05	0	102	80-120	0			
Cobalt	0.05016	0.0020	0.05	0	100	80-120	0			
Copper	0.04837	0.0020	0.05	0	96.7	80-120	0			
Iron	4.695	0.20	5	0	93.9	80-120	0			
Lead	0.04803	0.0050	0.05	0	96.1	80-120	0			
Magnesium	5.03	0.20	5	0	101	80-120	0			
Manganese	0.05203	0.0050	0.05	0	104	80-120	0			
Nickel	0.05031	0.0050	0.05	0	101	80-120	0			
Potassium	5.001	0.20	5	0	100	80-120	0			
Selenium	0.04876	0.0050	0.05	0	97.5	80-120	0			
Silver	0.04905	0.0050	0.05	0	98.1	80-120	0			
Sodium	4.934	0.20	5	0	98.7	80-120	0			
Vanadium	0.05047	0.0050	0.05	0	101	80-120	0			
Zinc	0.04962	0.0050	0.05	0	99.2	80-120	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MS Sample ID: **0401037-01CMS** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:41**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415583** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1386	0.020	0.05	0.09293	91.3	75-125	0			
Arsenic	0.1628	0.010	0.05	0.1222	81.2	75-125	0			
Barium	0.0922	0.010	0.05	0.04055	103	75-125	0			
Beryllium	0.054	0.0040	0.05	0	108	75-125	0			
Boron	1.149	0.040	0.5	0.5787	114	75-125	0			
Cadmium	0.04433	0.0020	0.05	0	88.7	75-125	0			
Calcium	76.14	1.0	5	73.6	50.8	75-125	0			SO
Chromium	0.05061	0.0040	0.05	0.002633	96	75-125	0			
Cobalt	0.04941	0.0040	0.05	0.002671	93.5	75-125	0			
Copper	0.0442	0.0040	0.05	0.003364	81.7	75-125	0			
Iron	4.765	0.40	5	0.4238	86.8	75-125	0			
Lead	0.05518	0.010	0.05	0	110	75-125	0			
Magnesium	23.02	0.40	5	19.15	77.4	75-125	0			
Manganese	0.07355	0.010	0.05	0.02789	91.3	75-125	0			
Nickel	0.05067	0.010	0.05	0.008268	84.8	75-125	0			
Potassium	85.96	0.40	5	82.03	78.6	75-125	0			O
Selenium	0.1903	0.010	0.05	0.1686	43.4	75-125	0			S
Silver	0.04085	0.010	0.05	0.0006825	80.3	75-125	0			
Sodium	400	0.40	5	400	0	75-125	0			SEO
Vanadium	0.05781	0.010	0.05	0.007067	101	75-125	0			
Zinc	0.07138	0.010	0.05	0.03574	71.3	75-125	0			S

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MSD Sample ID: **0401037-01CMSD** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:46**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415584** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1337	0.020	0.05	0.09293	81.5	75-125	0.1386	3.6	25	
Arsenic	0.1586	0.010	0.05	0.1222	72.8	75-125	0.1628	2.61	25	S
Barium	0.08998	0.010	0.05	0.04055	98.9	75-125	0.0922	2.44	25	
Beryllium	0.0523	0.0040	0.05	0	105	75-125	0.054	3.2	25	
Boron	1.11	0.040	0.5	0.5787	106	75-125	1.149	3.45	25	
Cadmium	0.0431	0.0020	0.05	0	86.2	75-125	0.04433	2.81	25	
Calcium	74.74	1.0	5	73.6	22.6	75-125	76.14	1.86	25	SO
Chromium	0.05029	0.0040	0.05	0.002633	95.3	75-125	0.05061	0.634	25	
Cobalt	0.04901	0.0040	0.05	0.002671	92.7	75-125	0.04941	0.813	25	
Copper	0.04405	0.0040	0.05	0.003364	81.4	75-125	0.0442	0.34	25	
Iron	4.732	0.40	5	0.4238	86.2	75-125	4.765	0.695	25	
Lead	0.05415	0.010	0.05	0	108	75-125	0.05518	1.88	25	
Magnesium	22.37	0.40	5	19.15	64.4	75-125	23.02	2.86	25	S
Manganese	0.07227	0.010	0.05	0.02789	68.8	75-125	0.07355	1.76	25	
Nickel	0.05102	0.010	0.05	0.008268	85.5	75-125	0.05067	0.688	25	
Potassium	81.97	0.40	5	82.03	-1.2	75-125	85.96	4.75	25	SO
Selenium	0.179	0.010	0.05	0.1686	20.8	75-125	0.1903	6.12	25	S
Silver	0.03939	0.010	0.05	0.0006825	77.4	75-125	0.04085	3.64	25	
Sodium	400	0.40	5	400	0	75-125	400	0	25	SEO
Vanadium	0.0578	0.010	0.05	0.007067	101	75-125	0.05781	0.0173	25	
Zinc	0.07034	0.010	0.05	0.03574	69.2	75-125	0.07138	1.47	25	S

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:18**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415578** Prep Date: **1/8/2004** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1275	0.025	0	0	0	0-0	0.13	1.94	25	
Calcium	73.74	2.5	0	0	0	0-0	78.49	6.24	25	
Magnesium	19.87	1.0	0	0	0	0-0	21.18	6.38	25	
Potassium	80.79	1.0	0	0	0	0-0	84.06	3.97	25	

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:37**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415582** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09187	0.020	0	0	0	0-0	0.09293	1.15	25	
Barium	0.03947	0.010	0	0	0	0-0	0.04055	2.7	25	
Beryllium	ND	0.0040	0	0	0	0-0	0	0	25	
Boron	0.5767	0.040	0	0	0	0-0	0.5787	0.346	25	
Cadmium	ND	0.0020	0	0	0	0-0	0	0	25	
Chromium	0.002171	0.0040	0	0	0	0-0	0.002633	0	25	J
Cobalt	0.002721	0.0040	0	0	0	0-0	0.002671	0	25	J
Copper	0.003462	0.0040	0	0	0	0-0	0.003364	0	25	J
Iron	0.4287	0.40	0	0	0	0-0	0.4238	1.15	25	
Lead	ND	0.010	0	0	0	0-0	0	0	25	
Manganese	0.02741	0.010	0	0	0	0-0	0.02789	1.74	25	
Nickel	0.008235	0.010	0	0	0	0-0	0.008268	0	25	J
Selenium	0.1445	0.010	0	0	0	0-0	0.1686	15.4	25	
Silver	0.0005242	0.010	0	0	0	0-0	0.0006825	0	25	J
Vanadium	0.006497	0.010	0	0	0	0-0	0.007067	0	25	J
Zinc	0.0343	0.010	0	0	0	0-0	0.03574	4.11	25	

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/14/04 13:04**
Client ID: **Inj. Wells** Run ID: **ICP4500_040114A** SeqNo: **416724** Prep Date: **1/8/2004** DF: **200**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	2229	40	0	0	0	0-0	2285	2.48	25	

The following samples were analyzed in this batch: 0401037-01C

ND - Not Detected at the Reporting Limit
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O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7710** InstrumentID: **Mercury**

MBLK Sample ID: **GBLKW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:33**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416950** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:34**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416951** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00487	0.00020	0.005	0	97.4	83-115	0			

LCSD Sample ID: **GLCSDW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:36**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416952** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00496	0.00020	0.005	0	99.2	83-115	0.00487	1.83	20	

MS Sample ID: **0401037-01CMS** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:41**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416955** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00507	0.00020	0.005	0.000045	100	70-124	0			

MSD Sample ID: **0401037-01CMSD** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:42**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416956** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00495	0.00020	0.005	0.000045	98.1	70-124	0.00507	2.4	20	

DUP Sample ID: **0401037-01CDUP** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:39**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416954** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0.000045	0	20	

The following samples were analyzed in this batch: 0401037-01C

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

MBLK Sample ID: **SBLKW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 16:47**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416012** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	85.07	0	100	0	85.1	39-153	0			
Surr: 2-Fluorobiphenyl	76.23	0	100	0	76.2	40-147	0			
Surr: 2-Fluorophenol	45.21	0	100	0	45.2	21-100	0			
Surr: 4-Terphenyl-d14	75.82	0	100	0	75.8	39-141	0			
Surr: Nitrobenzene-d5	86.87	0	100	0	86.9	37-140	0			
Surr: Phenol-d6	28.99	0	100	0	29	11-100	0			

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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

LCS Sample ID: **SLCSW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 17:13**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416013** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.87	10	50	0	83.7	50-115	0			
2,4,5-Trichlorophenol	82.2	10	100	0	82.2	72-118	0			
2,4,6-Trichlorophenol	83.51	10	100	0	83.5	72-117	0			
2-Methylnaphthalene	42.34	10	50	0	84.7	47-122	0			
2-Methylphenol	71.03	10	100	0	71	51-115	0			
2-Nitroaniline	44.61	10	50	0	89.2	73-119	0			
2-Nitrophenol	87.53	10	100	0	87.5	60-119	0			
3-Nitroaniline	41.16	10	50	0	82.3	61-118	0			
4-Methylphenol	96.92	10	150	0	64.6	44-115	0			
4-Nitroaniline	41.84	10	50	0	83.7	61-123	0			
4-Nitrophenol	38.84	10	100	0	38.8	17-100	0			
Acenaphthene	41.32	10	50	0	82.6	68-115	0			
Acenaphthylene	41.87	10	50	0	83.7	67-116	0			
Anthracene	44.55	10	50	0	89.1	72-124	0			
Benz(a)anthracene	40.18	10	50	0	80.4	55-131	0			
Benzidine	13.03	10	50	0	26.1	10-115	0			
Hexachloroethane	38.29	10	50	0	76.6	46-115	0			
Indeno(1,2,3-cd)pyrene	41.53	10	50	0	83.1	42-123	0			
Isophorone	45.89	10	50	0	91.8	63-117	0			
N-Nitrosodi-n-propylamine	43.72	10	50	0	87.4	67-115	0			
N-Nitrosodimethylamine	25.46	10	50	0	50.9	28-115	0			
N-Nitrosodiphenylamine	50.02	10	50	0	100	72-144	0			
Naphthalene	42.08	10	50	0	84.2	52-115	0			
Nitrobenzene	45.06	10	50	0	90.1	65-115	0			
Pentachlorophenol	84.64	10	100	0	84.6	65-123	0			
Phenanthrene	43.23	10	50	0	86.5	69-119	0			
Phenol	33.5	10	100	0	33.5	16-115	0			
Pyrene	38.95	10	50	0	77.9	51-130	0			
Surr: 2,4,6-Tribromophenol	91.94	0	100	0	91.9	39-153	0			
Surr: 2-Fluorobiphenyl	80.16	0	100	0	80.2	40-147	0			
Surr: 2-Fluorophenol	50.59	0	100	0	50.6	21-100	0			
Surr: 4-Terphenyl-d14	81.09	0	100	0	81.1	39-141	0			
Surr: Nitrobenzene-d5	90.59	0	100	0	90.6	37-140	0			
Surr: Phenol-d6	33.67	0	100	0	33.7	11-100	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

LCSD Sample ID: **SLCSDW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 17:39**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416014** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	42.41	10	50	0	84.8	50-115	41.87	1.29	30	
2,4,5-Trichlorophenol	86.29	10	100	0	86.3	72-118	82.2	4.86	30	
2,4,6-Trichlorophenol	83.53	10	100	0	83.5	72-117	83.51	0.0281	30	
2-Methylnaphthalene	42.19	10	50	0	84.4	47-122	42.34	0.363	30	
2-Methylphenol	67.08	10	100	0	67.1	51-115	71.03	5.73	30	
2-Nitroaniline	46.08	10	50	0	92.2	73-119	44.61	3.24	30	
2-Nitrophenol	87.97	10	100	0	88	60-119	87.53	0.504	30	
3-Nitroaniline	41.24	10	50	0	82.5	61-118	41.16	0.186	30	
4-Methylphenol	90.96	10	150	0	60.6	44-115	96.92	6.35	30	
4-Nitroaniline	43.08	10	50	0	86.2	61-123	41.84	2.91	30	
4-Nitrophenol	34.89	10	100	0	34.9	17-100	38.84	10.7	30	
Acenaphthene	41.74	10	50	0	83.5	68-115	41.32	1.02	30	
Acenaphthylene	42.98	10	50	0	86	67-116	41.87	2.62	30	
Anthracene	45.95	10	50	0	91.9	72-124	44.55	3.09	30	
Benz(a)anthracene	40.72	10	50	0	81.4	55-131	40.18	1.34	30	
Benzidine	19.19	10	50	0	38.4	10-115	13.03	38.2	30	R
Hexachloroethane	38.69	10	50	0	77.4	46-115	38.29	1.04	30	
Indeno(1,2,3-cd)pyrene	42.3	10	50	0	84.6	42-123	41.53	1.84	30	
Isophorone	46.42	10	50	0	92.8	63-117	45.89	1.15	30	
N-Nitrosodi-n-propylamine	43.74	10	50	0	87.5	67-115	43.72	0.0428	30	
N-Nitrosodimethylamine	25.93	10	50	0	51.9	28-115	25.46	1.83	30	
N-Nitrosodiphenylamine	47.58	10	50	0	95.2	72-144	50.02	5.01	30	
Naphthalene	41.54	10	50	0	83.1	52-115	42.08	1.29	30	
Nitrobenzene	45.04	10	50	0	90.1	65-115	45.06	0.0543	30	
Pentachlorophenol	82.68	10	100	0	82.7	65-123	84.64	2.34	30	
Phenanthrene	44.72	10	50	0	89.4	69-119	43.23	3.38	30	
Phenol	33.12	10	100	0	33.1	16-115	33.5	1.13	30	
Pyrene	39.61	10	50	0	79.2	51-130	38.95	1.68	30	
Surr: 2,4,6-Tribromophenol	95.4	0	100	0	95.4	39-153	91.94	3.69	30	
Surr: 2-Fluorobiphenyl	81.18	0	100	0	81.2	40-147	80.16	1.26	30	
Surr: 2-Fluorophenol	48.13	0	100	0	48.1	21-100	50.59	4.98	30	
Surr: 4-Terphenyl-d14	80.48	0	100	0	80.5	39-141	81.09	0.752	30	
Surr: Nitrobenzene-d5	91.03	0	100	0	91	37-140	90.59	0.48	30	
Surr: Phenol-d6	30.39	0	100	0	30.4	11-100	33.67	10.3	30	

The following samples were analyzed in this batch: 0401037-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MBLK Sample ID: **VBLKW-0113** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 11:22**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416622** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	46	5.0	50	0	92	70-130		0		
Surr: 4-Bromofluorobenzene	48.08	5.0	50	0	96.2	70-130		0		
Surr: Dibromofluoromethane	47.06	5.0	50	0	94.1	70-130		0		
Surr: Toluene-d8	46.05	5.0	50	0	92.1	70-130		0		

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

LCS Sample ID: **VLCSW-0113** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 10:28**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416621** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.27	5.0	50	0	96.5	75-118	0			
1,1,2,2-Tetrachloroethane	47.46	5.0	50	0	94.9	79-120	0			
1,1,2-Trichloroethane	48.13	5.0	50	0	96.3	81-119	0			
1,1-Dichloroethane	46.83	5.0	50	0	93.7	80-120	0			
1,1-Dichloroethene	46.32	5.0	50	0	92.6	80-120	0			
1,2-Dichloroethane	53.01	5.0	50	0	106	80-120	0			
2-Butanone	98.39	10	100	0	98.4	70-130	0			
2-Chloroethyl vinyl ether	90.24	10	100	0	90.2	72-120	0			
4-Methyl-2-pentanone	93.51	10	100	0	93.5	78-120	0			
Acetone	113.7	10	100	0	114	60-135	0			
Benzene	46.07	5.0	50	0	92.1	82-119	0			
Bromodichloromethane	51.5	5.0	50	0	103	81-119	0			
Bromoform	50.25	5.0	50	0	100	80-120	0			
Bromomethane	44.31	5.0	50	0	88.6	75-130	0			
Carbon disulfide	89.23	10	100	0	89.2	78-120	0			
Carbon tetrachloride	49.21	5.0	50	0	98.4	77-120	0			
Chlorobenzene	47.05	5.0	50	0	94.1	82-118	0			
Chloroethane	46.72	5.0	50	0	93.4	78-122	0			
Chloroform	49.02	5.0	50	0	98	78-120	0			
Chloromethane	58.33	5.0	50	0	117	75-125	0			
cis-1,3-Dichloropropene	50.41	5.0	50	0	101	81-120	0			
Dibromochloromethane	52.1	5.0	50	0	104	81-118	0			
Ethylbenzene	46.77	5.0	50	0	93.5	82-120	0			
m,p-Xylene	90.81	10	100	0	90.8	82-122	0			
Methylene chloride	47.03	10	50	0	94.1	80-122	0			
Styrene	47.64	5.0	50	0	95.3	82-121	0			
Tetrachloroethene	47.51	5.0	50	0	95	79-118	0			
Toluene	45.44	5.0	50	0	90.9	81-119	0			
trans-1,3-Dichloropropene	50.2	5.0	50	0	100	82-121	0			
Trichloroethene	49.17	5.0	50	0	98.3	78-118	0			
Vinyl acetate	98.67	10	100	0	98.7	75-120	0			
Vinyl chloride	45.63	2.0	50	0	91.3	73-127	0			
Xylenes, Total	138.2	15	150	0	92.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	45.82	5.0	50	0	91.6	70-130	0			
Surr: 4-Bromofluorobenzene	48.79	5.0	50	0	97.6	70-130	0			
Surr: Dibromofluoromethane	46.9	5.0	50	0	93.8	70-130	0			
Surr: Toluene-d8	45.11	5.0	50	0	90.2	70-130	0			

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MS Sample ID: **0401069-08AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 13:36**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416623** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.27	5.0	50	0	88.5	75-125	0			
1,1,2,2-Tetrachloroethane	43.73	5.0	50	0	87.5	75-125	0			
1,1,2-Trichloroethane	45.29	5.0	50	0	90.6	75-125	0			
1,1-Dichloroethane	71.66	5.0	50	31.2	80.9	75-125	0			
1,1-Dichloroethene	104.2	5.0	50	72.85	62.8	65-130	0			S
1,2-Dichloroethane	49.86	5.0	50	0	99.7	70-130	0			
2-Butanone	91.73	10	100	0	91.7	64-128	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	75-125	0			S
4-Methyl-2-pentanone	95.27	10	100	0	95.3	75-125	0			
Acetone	100.1	10	100	0	100	60-130	0			
Benzene	44.02	5.0	50	0	88	76-127	0			
Bromodichloromethane	48.53	5.0	50	0	97.1	75-125	0			
Bromoform	47.61	5.0	50	0	95.2	75-125	0			
Bromomethane	40.26	5.0	50	0	80.5	75-125	0			
Carbon disulfide	81.69	10	100	0	81.7	75-125	0			
Carbon tetrachloride	44.78	5.0	50	0	89.6	70-130	0			
Chlorobenzene	44.91	5.0	50	0	89.8	75-126	0			
Chloroethane	41.03	5.0	50	0	82.1	70-130	0			
Chloroform	47.25	5.0	50	0	94.5	75-125	0			
Chloromethane	53.47	5.0	50	0	107	75-125	0			
cis-1,3-Dichloropropene	47.2	5.0	50	0	94.4	75-125	0			
Dibromochloromethane	49.07	5.0	50	0	98.1	75-125	0			
Ethylbenzene	43.36	5.0	50	0	86.7	75-125	0			
m,p-Xylene	85.04	10	100	0	85	75-125	0			
Methylene chloride	45.19	10	50	0	90.4	75-125	0			
Styrene	40.66	5.0	50	0	81.3	75-125	0			
Tetrachloroethene	43.81	5.0	50	0	87.6	75-125	0			
Toluene	42.83	5.0	50	0	85.7	76-125	0			
trans-1,3-Dichloropropene	48.07	5.0	50	0	96.1	70-130	0			
Trichloroethene	47.03	5.0	50	0	94.1	71-120	0			
Vinyl acetate	88.29	10	100	0	88.3	75-125	0			
Vinyl chloride	39.74	2.0	50	0	79.5	60-135	0			
Xylenes, Total	129	15	150	0	86	75-125	0			
Surr: 1,2-Dichloroethane-d4	46.19	5.0	50	0	92.4	70-130	0			
Surr: 4-Bromofluorobenzene	49.78	5.0	50	0	99.6	70-130	0			
Surr: Dibromofluoromethane	47.52	5.0	50	0	95	70-130	0			
Surr: Toluene-d8	45.36	5.0	50	0	90.7	70-130	0			

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R - RPD outside accepted recovery limits
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MSD Sample ID: **0401069-08AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 14:03**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416624** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.32	5.0	50	0	103	75-125	44.27	14.8	20	
1,1,2,2-Tetrachloroethane	47.81	5.0	50	0	95.6	75-125	43.73	8.9	20	
1,1,2-Trichloroethane	49.39	5.0	50	0	98.8	75-125	45.29	8.66	20	
1,1-Dichloroethane	77.65	5.0	50	31.2	92.9	75-125	71.66	8.03	20	
1,1-Dichloroethene	115.3	5.0	50	72.85	84.9	65-130	104.2	10.1	20	
1,2-Dichloroethane	53.62	5.0	50	0	107	70-130	49.86	7.27	20	
2-Butanone	103.2	10	100	0	103	64-128	91.73	11.8	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	75-125	0	0	20	S
4-Methyl-2-pentanone	100.9	10	100	0	101	75-125	95.27	5.77	20	
Acetone	107.4	10	100	0	107	60-130	100.1	7.09	20	
Benzene	49.06	5.0	50	0	98.1	76-127	44.02	10.8	20	
Bromodichloromethane	53.21	5.0	50	0	106	75-125	48.53	9.21	20	
Bromoform	51.56	5.0	50	0	103	75-125	47.61	7.95	20	
Bromomethane	49.35	5.0	50	0	98.7	75-125	40.26	20.3	20	R
Carbon disulfide	96.66	10	100	0	96.7	75-125	81.69	16.8	20	
Carbon tetrachloride	52.5	5.0	50	0	105	70-130	44.78	15.9	20	
Chlorobenzene	49.89	5.0	50	0	99.8	75-126	44.91	10.5	20	
Chloroethane	49.74	5.0	50	0	99.5	70-130	41.03	19.2	20	
Chloroform	51.66	5.0	50	0	103	75-125	47.25	8.93	20	
Chloromethane	59.73	5.0	50	0	119	75-125	53.47	11.1	20	
cis-1,3-Dichloropropene	52.48	5.0	50	0	105	75-125	47.2	10.6	20	
Dibromochloromethane	52.99	5.0	50	0	106	75-125	49.07	7.7	20	
Ethylbenzene	49.24	5.0	50	0	98.5	75-125	43.36	12.7	20	
m,p-Xylene	97.66	10	100	0	97.7	75-125	85.04	13.8	20	
Methylene chloride	49.52	10	50	0	99	75-125	45.19	9.15	20	
Styrene	44.29	5.0	50	0	88.6	75-125	40.66	8.54	20	
Tetrachloroethene	51.19	5.0	50	0	102	75-125	43.81	15.5	20	
Toluene	47.76	5.0	50	0	95.5	76-125	42.83	10.9	20	
trans-1,3-Dichloropropene	52.51	5.0	50	0	105	70-130	48.07	8.81	20	
Trichloroethene	52.68	5.0	50	0	105	71-120	47.03	11.3	20	
Vinyl acetate	92.99	10	100	0	93	75-125	88.29	5.19	20	
Vinyl chloride	47.65	2.0	50	0	95.3	60-135	39.74	18.1	20	
Xylenes, Total	146.6	15	150	0	97.8	75-125	129	12.8	20	
Surr: 1,2-Dichloroethane-d4	46.39	5.0	50	0	92.8	70-130	46.19	0.429	20	
Surr: 4-Bromofluorobenzene	49.42	5.0	50	0	98.8	70-130	49.78	0.719	20	
Surr: Dibromofluoromethane	47.17	5.0	50	0	94.3	70-130	47.52	0.757	20	
Surr: Toluene-d8	45.25	5.0	50	0	90.5	70-130	45.36	0.243	20	

The following samples were analyzed in this batch: 0401037-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18133** InstrumentID: **Wet Chemistry**

LCS Sample ID: **WLCSW1-010704** Test Code: **E150.1** Units: **pH units** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414646** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	85-115	0			

DUP Sample ID: **0401037-01D DUP** Test Code: **E150.1** Units: **pH units** Analysis Date: **01/07/04 0:00**
Client ID: **Inj. Wells** Run ID: **WET CHEMISTRY_0401** SeqNo: **414648** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.45	0.10	0	0	0	0-0	8.43	0.237	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18137** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WMBW1-010704** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414715** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-010704** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414716** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1000	5.0	1000	0	100	80-120	0			

DUP Sample ID: **0312297-03D DUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414723** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	675.2	5.0	0	0	0	0-0	680.2	0.738	20	
Alkalinity, Carbonate (As CaCO3)	40.01	5.0	0	0	0	0-0	40.01	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	715.2	5.0	0	0	0	0-0	720.2	0.698	20	

DUP Sample ID: **0401024-03D DUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414727** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	600.2	5.0	0	0	0	0-0	605.2	0.83	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	600.2	5.0	0	0	0	0-0	605.2	0.83	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18194** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WBLKW1-010904** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415951** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **WLCSW1-010904** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415952** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1010	10	1000	0	101	80-120	0			

DUP Sample ID: **0401020-01EDUP** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	*849*	*10*	*0*	*0*	*0*	*0-0*	*841*	*0.947*	*20*	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18217** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WMBW1-011304** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416394** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-011304** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416395** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1410	1.0	1409	0	100	80-120	0			

DUP Sample ID: **0401087-03B DUP** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416400** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	978	1.0	0	0	0	0-0	975	0.307	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18226** InstrumentID: **IC201**

MBLK Sample ID: **WBLKW1-011204** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 15:27**
Client ID: Run ID: **IC201_040112A** SeqNo: **416579** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Dichloroacetic acid (surr)	5.31	0.10	5	0	106	80-120	0			

LCS Sample ID: **WLCSW1-011204** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 15:59**
Client ID: Run ID: **IC201_040112A** SeqNo: **416580** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.86	0.50	10	0	98.6	80-120	0			
Sulfate	9.43	1.0	10	0	94.3	80-120	0			
Surr: Dichloroacetic acid (surr)	5.43	0.10	5	0	109	80-120	0			

LCSD Sample ID: **WLCSDW1-01120** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 16:32**
Client ID: Run ID: **IC201_040112A** SeqNo: **416581** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	10	0.50	10	0	100	80-120	9.86	1.41	20	
Sulfate	9.46	1.0	10	0	94.6	80-120	9.43	0.318	20	
Surr: Dichloroacetic acid (surr)	5.45	0.10	5	0	109	80-120	5.43	0.368	20	

MS Sample ID: **0401071-02EMS** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 19:47**
Client ID: Run ID: **IC201_040112A** SeqNo: **416587** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	50.26	0.50	10	39.6	107	75-125	0			E
Sulfate	43.9	1.0	10	33.82	101	75-125	0			
Surr: Dichloroacetic acid (surr)	5.29	0.10	5	0	106	80-120	0			

MSD Sample ID: **0401071-02EMSD** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 20:19**
Client ID: Run ID: **IC201_040112A** SeqNo: **416588** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	50.1	0.50	10	39.6	105	75-125	50.26	0.319	20	E
Sulfate	43.91	1.0	10	33.82	101	75-125	43.9	0.0228	20	
Surr: Dichloroacetic acid (surr)	5.28	0.10	5	0	106	80-120	5.29	0.189	20	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18226** InstrumentID: **IC201**

DUP Sample ID: **0401071-02EDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 19:14**
Client ID: Run ID: **IC201_040112A** SeqNo: **416586** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	39.6	0.50	0	0	0	0-0	39.6	0	20	
Sulfate	33.89	1.0	0	0	0	0-0	33.82	0.207	20	
Surr: Dichloroacetic acid (surr)	5.31	0.10	5	0	106	80-120	5.34	0.563	20	

DUP Sample ID: **0401071-03EDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 23:34**
Client ID: Run ID: **IC201_040112A** SeqNo: **416593** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	57.2	1.0	0	0	0	0-0	57.1	0.175	20	
Sulfate	12.82	2.0	0	0	0	0-0	12.9	0.622	20	
Surr: Dichloroacetic acid (surr)	10.68	0.20	10	0	107	80-120	10.56	1.13	20	

DUP Sample ID: **0401037-01D DUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/13/04 12:35**
Client ID: **Inj. Wells** Run ID: **IC201_040112A** SeqNo: **416601** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2451	50	0	0	0	0-0	2442	0.368	20	
Sulfate	1719	100	0	0	0	0-0	1708	0.642	20	
Surr: Dichloroacetic acid (surr)	567	10	500	0	113	80-120	573	1.05	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

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☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Page ____ of ____

e-Lab Project Manager: | e-Lab Work Order #: 0401037

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	INJ WELLS	A	Volatiles Select (8260)
Work Order		Project Number		B	Semivolatiles select (8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Tot. Metals WQCC+ Cations(6020/7000)
Send Report To	Jeff Byrd / Charlie Plymale	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions: Cl, SO4
				F	Alkalinity
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Solids: TDS
Fax	(505) 746-5421	Fax	(505) 746-5421	I	Conductivity
e-Mail Address		e-Mail Address		J	Uranium

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. wells	1/6/04	1100			10	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Charlie Plymale | Shipment Method: Fed Ex | Required Turnaround Time: (Check Box) ☐ STD 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ Other ☐ 24 Hour | Results Due Date:

Relinquished by:	Date: 1/6/04	Time: 1615	Received by:	Notes:	
Relinquished by:	Date:	Time:	Received by (Laboratory): RICHARD SAHO 1-7-04 0825	e-Lab Cooler ID:	Cooler Temp:
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☐ Level I Std QC ☐ TRRP CheckList
☐ Level II Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 1/7/2004 9:25:00 AM

Work Order Number 0401037 Received by: RSZ

Checklist completed by _____ 1/7/04 Reviewed by _____ 1/8/04

Signature Date Initials Date

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.9 C	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab, Inc **Date:** *January 13, 2004*

CLIENT: e-Lab, Inc
Project: 0401037
Work Order: 0401065

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0401065-01	0401037-01F	Water		1/8/2004	1/8/2004	☐

e-Lab, Inc

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

Date: *Jan 13 2004*

QC BATCH REPORT

Batch ID: R18598 **InstrumentID:** WETCHEM

LCS **Sample ID:** WLCSW1-123003 **Test Code:** ASTM D93 **Units:** °F **Analysis Date** 01/08/04 0:00
Client ID: **Run ID:** WETCHEM_040108E **SeqNo:** 270178 **Prep Date:** **DF:** 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	80.6	0	61	0	99.5	97.8-102.7	0			

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

QC BATCH REPORT

Batch ID: R18853 InstrumentID: WETCHEM

MBLK Sample ID: WBLKW1-011204 Test Code: EPA 7.3.4.2 Units: mg/Kg Analysis Date 01/12/04 0:00
Client ID: Run ID: WETCHEM_040112C SeqNo: 270845 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

QC BATCH REPORT

Batch ID: R18667 InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKR1-011204** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **01/13/04 0:00**
Client ID: Run ID: **WETCHEM_040113F** SeqNo: **271121** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	0.030								

LCS Sample ID: **WLCSR1-011204** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **01/13/04 0:00**
Client ID: Run ID: **WETCHEM_040113F** SeqNo: **271122** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	4.22	0.75	16.95	0	24.9	5-100		0		

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Page 4495 of 5828

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04/01/2004

e-Lab, Inc.

[illegible]

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Laboratories

e-Lab Inc
3352 128th Ave.
Holland, MI 49424-8263

TEL: (616) 399-6070
FAX: (616) 399-6571

Acct #:

Jan 01, 2004

	Sample ID	Matrix	Collection Date	Requested Tests SW-846	SW-8015				
1	0401037-01F (by Wells)	Water	1/1/2004 11:30						

Comments: Please analyze for Benzene, Toluene, Ethylbenzene, and Total Xylenes by 8021B. Analyze for TPH by 8015B.

		Date/Time		Date/Time
Relinquished by:			Received by:	
Relinquished by:			Received by:	

e-Lab, Inc

Sample Receipt Checklist

Client Name: ELAB-HOU

Work Order Number: 2402065

Matrix: Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ✔	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✔	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✔
Chain of custody present?	Yes ✔	No	
Chain of custody signed when relinquished and received?	Yes ✔	No	
Chain of custody agrees with sample labels?	Yes ✔	No	
Samples in proper container/bottle?	Yes ✔	No	
Sample containers intact?	Yes ✔	No	
Sufficient sample volume for indicated test?	Yes ✔	No	
All samples received within holding time?	Yes ✔	No	
Container/Temp Blank temperature in compliance?	Yes ✔	No	
Temperature(s)/Thermometer(s):	0.2°C		
Water VOA vials have zero headspace?	Yes	No	No VOA vials submitted ✔
Water pH acceptable upon receipt?	Yes ✔	No	N/A

Adjusted? Checked by:

Login Notes

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted: Date contacted: Person contacted:

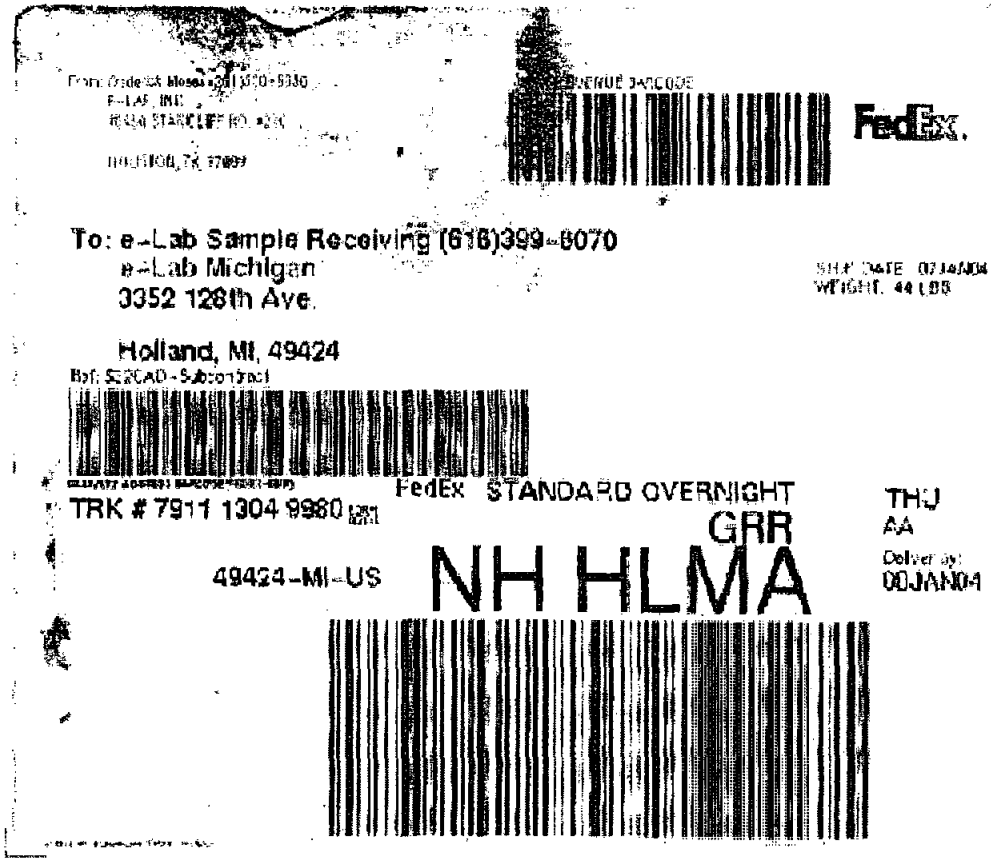
Contacted by: Regarding:

Comments:

Corrective Action:

e-Lab, Inc.
CUSTODY SEAL

Page 4498 of 5828



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ARS
AMERICAN RADIATION SERVICES, INC.

2609 N. River Rd. Port Allen, Louisiana 70767

1(800) 401 - 4277 Fax: (225) 381-2996

ARS Tracking Number:	ARS040096	**P.O. Number:**	NA
Client I.D.:	0401037-01E (Inj. Wells)	**ARS Sample I.D.:**	ARS040096-218
Date Sampled:	1/6/04	**Date Received:**	1/08/04
Time Sample:	11:00	**Time Received:**	1200
Type of Sample:	Liquid	**Date of Report:**	1/23/04
NELAP Certification #:	E87558	**L. A. Agency Interest #:**	30658

Analysis Description	Analysis Result	Analysis Error ±2σ	Detection Limit	Analysis Unit	Analysis Test Method	Analysis Date & Time	Analysis Technician
Total Uranium	0.000	0.000	0.0003	mg/L	ASTM D 5174-97	1/23/04 1535	SM

Quality Assurance Review

Notes: American Radiation Services, Inc assumes no liability for the use or interpretation of any analytical results provided other than the cost of the performed analysis itself. Reproduction of this report in less than full requires the written consent of the client

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ARS AMERICAN RADIATION SERVICES, INC.

2609 North River Road Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2998

Notes:

Comments:

1.0) Soil and Sludge analysis are reported on a wet basis or an as received basis unless otherwise indicated.
2.0) The data in this report are within the limits of uncertainty specified in the reference method unless specified.
3.0) Modified analysis procedures are procedures that are modified to meet the certain specifications. An example may be the use of a water method to analyze a solid matrix due to the lack of an officially recognized procedure for the analysis of the solid matrix.
4.0) Derived Air Concentrations and Effluent Release Concentrations are obtained from 10 CFR 20 Appendix B.
5.0) Total activity is actually total gamma activity and is determined utilizing the prominent gamma emitters from the naturally occurring radioactive decay chains and other prominent radioactive nuclides. Total activity may be lower than the actual total activity due to the extent of secular equilibrium achieved in the various decay chains at the time of analysis. The total activity is not representative of nuclides that emit solely alpha or beta particles.
6.0) Ra-226 is determined via secular equilibrium with its daughter, Actinium 228. (Gamma Spectroscopy only).
7.0) U-238 is determined via secular equilibrium with its daughter, Thorium 234. (Gamma Spectroscopy only).
8.0) All gamma spectroscopy was performed utilizing high purity germanium detectors (HPGe).

Method References:

1.0) EPA 600/4-80-032, Prescribed Procedures for the Measurements of Radioactivity in Drinking Water, August 1980.
2.0) Standard Methods for Examination of Water and Waste Water, 18th, 1992.
3.0) EPA SW-846, Test Methods for Evaluating Solid Waste, Third Edition, (9/86). (Updated through 1995).
4.0) EPA 600/4/79-020, Methods for Chemical Analysis of Water and Waste, March 1983.
5.0) HASL 300

Definitions:

1.0)	BDL	Analyte not detected because the value was below the detection limit.
2.0)	ND	Not detected above the detection limit.
3.0)	Detection Limit	The minimum amount of the analyte that ARS can detect utilizing the specific analysis.
4.0)	B	Method Blank
5.0)	D	Method Duplicate
6.0)	MS	Matrix Spike
7.0)	S	Spike
8.0)	RS	Reference Spike
9.0)	*SC	Subcontracted out to another qualified laboratory
10.0)	NR	Not Referenced
11.0)	N/A	Not Applicable

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

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REFINING COMPANY, L.P.

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(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
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(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
MAY 0 3 2004
OIL CONSERVATION DIVISION

April 30, 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2003 to December 31, 2003. We have disposed a total of 17,626,541 bbls. of fluid into the two wells as of December 31, 2003. This is broken down as follows: 12,102,707 bbls. into WDW-1 and 5,523,834 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Oct-03	196	414	75	198	311	138	260	389	156	6802	10663	4727	210,858
Nov-03	202	472	109	184	310	86	234	386	88	6317	10624	2935	195,817
Dec-03	260	458	30	184	280	93	76	258	15	6315	9610	3182	195,770
WDW-2													
Oct-03	231	431	120	157	210	123	152	159	146	5374	7190	4201	166,606
Nov-03	209	500	0	138	225	14	144	171	35	4733	7722	490	146,717
Dec-03	289	500	64	125	175	84	162	178	143	4294	6009	2864	133,110

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5

October 25, 2003

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj. Wells Work Order : **0310201**

Dear Jeff Byrd,

e-Lab, Inc. received 1 sample on 10/17/2003 8:45:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 16.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Lora Terrill

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: **0310201**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0310201-01	Inj. Wells	Wate1		10/15/2003 10:2(	10/17/2003 08:4:	☐

e-Lab, Inc. **Date:** *October 24, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: 0310201

Case Narrative

Semivolatile Batch 6980 MS/MSD was an unrelated sample.

Semivolatile sample Inj. Wells had surrogate diluted out.

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells
Lab ID: 0310201-01

Client Sample ID: Inj. Wells
Collection Date: 10/15/2003 10:20:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **10/21/2003**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Methylnaphthalene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Methylphenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Nitrophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
3-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Methylphenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Nitrophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Acenaphthene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Acenaphthylene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Aniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Anthracene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Benz(a)anthracene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Benzidine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Hexachloroethane	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Isophorone	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Naphthalene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Nitrobenzene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Pentachlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Phenanthrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Phenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Pyrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Surr: 2,4,6-Tribromophenol	74.6	39-153		%REC	1	10/22/2003 8:15:00 PM
Surr: 2-Fluorobiphenyl	78.4	40-147		%REC	1	10/22/2003 8:15:00 PM
Surr: 2-Fluorophenol	46.2	21-100		%REC	1	10/22/2003 8:15:00 PM
Surr: 4-Terphenyl-d14	89.6	39-141		%REC	1	10/22/2003 8:15:00 PM
Surr: Nitrobenzene-d5	79.1	37-140		%REC	1	10/22/2003 8:15:00 PM
Surr: Phenol-d6	11.7	11-100		%REC	1	10/22/2003 8:15:00 PM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells
Lab ID: 0310201-01

Client Sample ID: Inj. Wells
Collection Date: 10/15/2003 10:20:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
2-Butanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	10/20/2003 8:45:00 PM
2-Hexanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Acetone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Benzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromoform	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromomethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Carbon disulfide	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chlorobenzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloroform	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Ethylbenzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
m,p-Xylene	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Methylene chloride	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Styrene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Toluene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Trichloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Vinyl acetate	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Vinyl chloride	ND	2.0		µg/L	1	10/20/2003 8:45:00 PM
Xylenes, Total	ND	15		µg/L	1	10/20/2003 8:45:00 PM
Surr: 1,2-Dichloroethane-d4	93.2	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: 4-Bromofluorobenzene	97.8	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: Dibromofluoromethane	92.4	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: Toluene-d8	98.7	70-130		%REC	1	10/20/2003 8:45:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Oct 24 2003*

CLIENT: Navajo Refining Company

Work Order: 0310201

Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-031021** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 15:18**

Client ID: Run ID: **SV-2_031021A** SeqNo: **383368** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	91.19	0	100	0	91.2	39-153	0			
Surr: 2-Fluorobiphenyl	86.44	0	100	0	86.4	40-147	0			
Surr: 2-Fluorophenol	57.73	0	100	0	57.7	21-100	0			
Surr:4-Terphenyl-d14	99.11	0	100	0	99.1	39-141	0			
Surr: Nitrobenzene-d5	84.06	0	100	0	84.1	37-140	0			
Surr: Phenol-d6	37.66	0	100	0	37.7	11-100	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-031021** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 15:44**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383369** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.01	10	50	0	82	50-115	0			
2,4,5-Trichlorophenol	92.43	10	100	0	92.4	72-118	0			
2,4,6-Trichlorophenol	89.2	10	100	0	89.2	72-117	0			
2-Methylnaphthalene	41.91	10	50	0	83.8	47-122	0			
2-Methylphenol	81.69	10	100	0	81.7	51-115	0			
2-Nitroaniline	45.36	10	50	0	90.7	73-119	0			
2-Nitrophenol	87.88	10	100	0	87.9	60-119	0			
3-Nitroaniline	45.23	10	50	0	90.5	61-118	0			
4-Methylphenol	115.5	10	150	0	77	44-115	0			
4-Nitroaniline	45.56	10	50	0	91.1	61-123	0			
4-Nitrophenol	50.68	10	100	0	50.7	17-100	0			
Acenaphthene	42.5	10	50	0	85	68-115	0			
Acenaphthylene	42.55	10	50	0	85.1	67-116	0			
Anthracene	46.52	10	50	0	93	72-124	0			
Benz(a)anthracene	46.45	10	50	0	92.9	55-131	0			
Benzidine	51.57	10	50	0	103	10-115	0			
Hexachloroethane	41.88	10	50	0	83.8	46-115	0			
Indeno(1,2,3-cd)pyrene	40.36	10	50	0	80.7	42-123	0			
Isophorone	42.5	10	50	0	85	63-117	0			
N-Nitrosodi-n-propylamine	45.15	10	50	0	90.3	67-115	0			
N-Nitrosodimethylamine	33.23	10	50	0	66.5	28-115	0			
N-Nitrosodiphenylamine	49.76	10	50	0	99.5	72-144	0			
Naphthalene	40.62	10	50	0	81.2	52-115	0			
Nitrobenzene	41.76	10	50	0	83.5	65-115	0			
Pentachlorophenol	91.23	10	100	0	91.2	65-123	0			
Phenanthrene	44.56	10	50	0	89.1	69-119	0			
Phenol	45.92	10	100	0	45.9	16-115	0			
Pyrene	44.48	10	50	0	89	51-130	0			
Surr: 2,4,6-Tribromophenol	93.38	0	100	0	93.4	39-153	0			
Surr: 2-Fluorobiphenyl	85.03	0	100	0	85	40-147	0			
Surr: 2-Fluorophenol	65.69	0	100	0	65.7	21-100	0			
Surr:4-Terphenyl-d14	98.75	0	100	0	98.8	39-141	0			
Surr:Nitrobenzene-d5	83.84	0	100	0	83.8	37-140	0			
Surr: Phenol-d6	44.85	0	100	0	44.9	11-100	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MS Sample ID: **0310174-12HMS** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 19:55**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383378** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	18.97	10	50	0	37.9	45-115	0			S
2,4,5-Trichlorophenol	90.44	10	100	0	90.4	47-129	0			
2,4,6-Trichlorophenol	88.68	10	100	0	88.7	45-127	0			
2-Methylnaphthalene	33.15	10	50	11.91	42.5	30-144	0			
2-Methylphenol	2711	10	100	2579	131	42-115	0			SEO
2-Nitroaniline	48.01	10	50	0	96	48-129	0			
2-Nitrophenol	40.54	10	100	0	40.5	32-144	0			
3-Nitroaniline	26.7	10	50	0	53.4	23-122	0			
4-Methylphenol	2974	10	150	2835	92.2	35-115	0			EO
4-Nitroaniline	32.79	10	50	0	65.6	12-138	0			
4-Nitrophenol	35.6	10	100	0	35.6	10-80	0			
Acenaphthene	44.82	10	50	0	89.6	55-117	0			
Acenaphthylene	42.11	10	50	0	84.2	39-128	0			
Anthracene	49.1	10	50	0	98.2	58-129	0			
Benz(a)anthracene	48.52	10	50	0	97	42-135	0			
Benzidine	ND	10	50	0	0	10-127	0			S
Hexachloroethane	42.95	10	50	0	85.9	45-115	0			
Indeno(1,2,3-cd)pyrene	44.37	10	50	0	88.7	32-132	0			
Isophorone	17.44	10	50	0	34.9	51-122	0			S
N-Nitrosodi-n-propylamine	43.76	10	50	0	87.5	55-115	0			
N-Nitrosodimethylamine	31.94	10	50	0	63.9	30-115	0			
N-Nitrosodiphenylamine	61.5	10	50	0	123	47-146	0			
Naphthalene	36.21	10	50	16.34	39.7	46-116	0			S
Nitrobenzene	20.72	10	50	0	41.4	48-126	0			S
Pentachlorophenol	102.6	10	100	8.707	93.9	53-134	0			
Phenanthrene	45.2	10	50	0	90.4	57-123	0			
Phenol	1008	10	100	955.5	52.6	10-115	0			EO
Pyrene	45.06	10	50	0	90.1	40-130	0			
Surr: 2,4,6-Tribromophenol	95.33	0	100	0	95.3	39-153	0			
Surr: 2-Fluorobiphenyl	86.28	0	100	0	86.3	40-147	0			
Surr: 2-Fluorophenol	45.38	0	100	0	45.4	21-100	0			
Surr:4-Terphenyl-d14	97.58	0	100	0	97.6	39-141	0			
Surr: Nitrobenzene-d5	43.03	0	100	0	43	37-140	0			
Surr: Phenol-d6	31.82	0	100	0	31.8	11-100	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MSD Sample ID: **0310174-12HMSD** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 20:21**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383379** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	18.64	10	50	0	37.3	45-115	18.97	1.78	30	S
2,4,5-Trichlorophenol	86.96	10	100	0	87	47-129	90.44	3.92	30	
2,4,6-Trichlorophenol	87.88	10	100	0	87.9	45-127	88.68	0.898	30	
2-Methylnaphthalene	32.04	10	50	11.91	40.3	30-144	33.15	3.4	30	
2-Methylphenol	2801	10	100	2579	222	42-115	2711	3.27	30	SEO
2-Nitroaniline	44.91	10	50	0	89.8	48-129	48.01	6.67	30	
2-Nitrophenol	40.18	10	100	0	40.2	32-144	40.54	0.888	30	
3-Nitroaniline	24.78	10	50	0	49.6	23-122	26.7	7.47	30	
4-Methylphenol	3082	10	150	2835	164	35-115	2974	3.57	30	SEO
4-Nitroaniline	28.65	10	50	0	57.3	12-138	32.79	13.5	30	
4-Nitrophenol	32.5	10	100	0	32.5	10-80	35.6	9.11	30	
Acenaphthene	46.5	10	50	0	93	55-117	44.82	3.68	30	
Acenaphthylene	41.12	10	50	0	82.2	39-128	42.11	2.38	30	
Anthracene	48.02	10	50	0	96	58-129	49.1	2.21	30	
Benz(a)anthracene	48.14	10	50	0	96.3	42-135	48.52	0.8	30	
Benzidine	ND	10	50	0	0	10-127	0	0	30	S
Hexachloroethane	41.52	10	50	0	83	45-115	42.95	3.38	30	
Indeno(1,2,3-cd)pyrene	46.05	10	50	0	92.1	32-132	44.37	3.73	30	
Isophorone	17.42	10	50	0	34.8	51-122	17.44	0.135	30	S
N-Nitrosodi-n-propylamine	49.82	10	50	0	99.6	55-115	43.76	12.9	30	
N-Nitrosodimethylamine	30.36	10	50	0	60.7	30-115	31.94	5.08	30	
N-Nitrosodiphenylamine	58.53	10	50	0	117	47-146	61.5	4.95	30	
Naphthalene	35.8	10	50	16.34	38.9	46-116	36.21	1.13	30	S
Nitrobenzene	20.54	10	50	0	41.1	48-126	20.72	0.86	30	S
Pentachlorophenol	103.1	10	100	8.707	94.4	53-134	102.6	0.478	30	
Phenanthrene	44.85	10	50	0	89.7	57-123	45.2	0.777	30	
Phenol	1038	10	100	955.5	82.2	10-115	1008	2.89	30	EO
Pyrene	42.82	10	50	0	85.6	40-130	45.06	5.09	30	
Surr: 2,4,6-Tribromophenol	95.87	0	100	0	95.9	39-153	95.33	0.564	30	
Surr: 2-Fluorobiphenyl	85.2	0	100	0	85.2	40-147	86.28	1.26	30	
Surr: 2-Fluorophenol	46.55	0	100	0	46.6	21-100	45.38	2.55	30	
Surr:4-Terphenyl-d14	96.93	0	100	0	96.9	39-141	97.58	0.662	30	
Surr: Nitrobenzene-d5	42.33	0	100	0	42.3	37-140	43.03	1.65	30	
Surr: Phenol-d6	32.6	0	100	0	32.6	11-100	31.82	2.41	30	

Thefollowingsampleswereanalyzedinthisbatch: 0310201-01B

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MBLK Sample ID: **VBLKW-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 11:43**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382009** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10							-	-
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	49.28	5.0	50	0	98.6	70-130		0		
Surr: 4-Bromofluorobenzene	47.48	5.0	50	0	95	70-130		0		
Surr: Dibromofluoromethane	48.16	5.0	50	0	96.3	70-130		0		
Surr: Toluene-d8	48.14	5.0	50	0	96.3	70-130		0		

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

LCS Sample ID: **VLCSW-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 10:50**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382007** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.84	5.0	50	0	104	75-118	0			
1,1,2,2-Tetrachloroethane	42.06	5.0	50	0	84.1	79-120	0			
1,1,2-Trichloroethane	46.47	5.0	50	0	92.9	81-119	0			
1,1-Dichloroethane	51.25	5.0	50	0	103	80-120	0			
1,1-Dichloroethene	52.57	5.0	50	0	105	80-120	0			
1,2-Dichloroethane	51.23	5.0	50	0	102	80-120	0			
2-Butanone	77.82	10	100	0	77.8	70-130	0			
2-Chloroethyl vinyl ether	81.24	10	100	0	81.2	72-120	0			
2-Hexanone	74.07	10	100	0	74.1	70-130	0			
4-Methyl-2-pentanone	80.5	10	80.5	0	100	78-120	0			
Acetone	93.56	10	100	0	93.6	60-135	0			
Benzene	45.85	5.0	50	0	91.7	82-119	0			
Bromodichloromethane	50.42	5.0	50	0	101	81-119	0			
Bromoform	45.67	5.0	50	0	91.3	80-120	0			
Bromomethane	54.57	5.0	50	0	109	75-130	0			
Carbon disulfide	102.2	10	100	0	102	78-120	0			
Carbontetrachloride	51.9	5.0	50	0	104	77-120	0			
Chlorobenzene	47.42	5.0	50	0	94.8	82-118	0			
Chloroethane	52.45	5.0	50	0	105	78-122	0			
Chloroform	51.96	5.0	50	0	104	78-120	0			
Chloromethane	47.7	5.0	50	0	95.4	75-125	0			
cis-1,3-Dichloropropene	51.78	5.0	50	0	104	81-120	0			
Dibromochloromethane	49.32	5.0	50	0	98.6	81-118	0			
Ethylbenzene	48.97	5.0	50	0	97.9	82-120	0			
m,p-Xylene	96.43	10	100	0	96.4	82-122	0			
Methylene chloride	46.51	10	50	0	93	80-122	0			
Styrene	51	5.0	50	0	102	82-121	0			
Tetrachloroethene	47.65	5.0	50	0	95.3	79-118	0			
Toluene	49.89	5.0	50	0	99.8	81-119	0			
trans-1,3-Dichloropropene	55.18	5.0	50	0	110	82-121	0			
Trichloroethene	47.62	5.0	50	0	95.2	78-118	0			
Vinyl acetate	96.94	10	100	0	96.9	75-120	0			
Vinyl chloride	49.42	2.0	50	0	98.8	73-127	0			
Xylenes, Total	145.1	15	150	0	96.7	80-120	0			
Surr:1,2-Dichloroethane-d4	47.63	5.0	50	0	95.3	70-130	0			
Surr:4-Bromofluorobenzene	49.73	5.0	50	0	99.5	70-130	0			
Surr: Dibromofluoromethane	46.8	5.0	50	0	93.6	70-130	0			
Surr: Toluene-d8	48.32	5.0	50	0	96.6	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

LCSD Sample ID: **VLCSWD-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 11:17**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382008** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.43	5.0	50	0	103	75-118	51.84	0.799	20	
1,1,2,2-Tetrachloroethane	43.84	5.0	50	0	87.7	79-120	42.06	4.15	20	
1,1,2-Trichloroethane	46.47	5.0	50	0	92.9	81-119	46.47	0.0198	20	
1,1-Dichloroethane	51.55	5.0	50	0	103	80-120	51.25	0.578	20	
1,1-Dichloroethene	51.22	5.0	50	0	102	80-120	52.57	2.6	20	
1,2-Dichloroethane	51.49	5.0	50	0	103	80-120	51.23	0.509	20	
2-Butanone	81.55	10	100	0	81.5	70-130	77.82	4.68	20	
2-Chloroethyl vinyl ether	82.95	10	100	0	83	72-120	81.24	2.09	20	
2-Hexanone	74.74	10	100	0	74.7	70-130	74.07	0.894	20	
4-Methyl-2-pentanone	80.05	10	80.5	0	99.4	78-120	80.5	0.554	20	
Acetone	102.9	10	100	0	103	60-135	93.56	9.47	20	
Benzene	45.39	5.0	50	0	90.8	82-119	45.85	1	20	
Bromodichloromethane	50.57	5.0	50	0	101	81-119	50.42	0.301	20	
Bromoform	47	5.0	50	0	94	80-120	45.67	2.86	20	
Bromomethane	55.24	5.0	50	0	110	75-130	54.57	1.23	20	
Carbon disulfide	100.7	10	100	0	101	78-120	102.2	1.5	20	
Carbon tetrachloride	50.98	5.0	50	0	102	77-120	51.9	1.79	20	
Chlorobenzene	47.31	5.0	50	0	94.6	82-118	47.42	0.231	20	
Chloroethane	52.14	5.0	50	0	104	78-122	52.45	0.594	20	
Chloroform	51.97	5.0	50	0	104	78-120	51.96	0.0219	20	
Chloromethane	48.58	5.0	50	0	97.2	75-125	47.7	1.83	20	
cis-1,3-Dichloropropene	51.82	5.0	50	0	104	81-120	51.78	0.0892	20	
Dibromochloromethane	49.37	5.0	50	0	98.7	81-118	49.32	0.0895	20	
Ethylbenzene	47.29	5.0	50	0	94.6	82-120	48.97	3.47	20	
m,p-Xylene	95.49	10	100	0	95.5	82-122	96.43	0.978	20	
Methylene chloride	46.3	10	50	0	92.6	80-122	46.51	0.464	20	
Styrene	49.99	5.0	50	0	100	82-121	51	1.99	20	
Tetrachloroethene	46.33	5.0	50	0	92.7	79-118	47.65	2.8	20	
Toluene	47.25	5.0	50	0	94.5	81-119	49.89	5.43	20	
trans-1,3-Dichloropropene	54.77	5.0	50	0	110	82-121	55.18	0.75	20	
Trichloroethene	47.13	5.0	50	0	94.3	78-118	47.62	1.02	20	
Vinyl acetate	96.85	10	100	0	96.9	75-120	96.94	0.0844	20	
Vinyl chloride	49.39	2.0	50	0	98.8	73-127	49.42	0.0583	20	
Xylenes, Total	143.2	15	150	0	95.4	80-120	145.1	1.32	20	
Surr: 1,2-Dichloroethane-d4	47.7	5.0	50	0	95.4	70-130	47.63	0.151	20	
Surr: 4-Bromofluorobenzene	48.96	5.0	50	0	97.9	70-130	49.73	1.55	20	
Surr: Dibromofluoromethane	47.21	5.0	50	0	94.4	70-130	46.8	0.871	20	
Surr: Toluene-d8	47.64	5.0	50	0	95.3	70-130	48.32	1.42	20	

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MS Sample ID: **0310129-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 14:54**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382249** Prep Date: DF: **10000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	514900	50,000	500000	0	103	75-125	0			
1,1,2,2-Tetrachloroethane	470600	50,000	500000	0	94.1	75-125	0			
1,1,2-Trichloroethane	495800	50,000	500000	0	99.2	75-125	0			
1,1-Dichloroethane	543300	50,000	500000	0	109	75-125	0			
1,1-Dichloroethene	505000	50,000	500000	0	101	65-130	0			
1,2-Dichloroethane	519900	50,000	500000	0	104	70-130	0			
2-Butanone	864200	100,000	1000000	0	86.4	64-128	0			
2-Chloroethyl vinyl ether	810300	100,000	1000000	0	81	75-125	0			
2-Hexanone	732000	100,000	1000000	0	73.2	72-124	0			
4-Methyl-2-pentanone	884400	100,000	805000	0	110	75-125	0			
Acetone	835700	100,000	1000000	0	83.6	60-130	0			
Benzene	479300	50,000	500000	0	95.9	76-127	0			
Bromodichloromethane	495000	50,000	500000	0	99	75-125	0			
Bromoform	481900	50,000	500000	0	96.4	75-125	0			
Bromomethane	524400	50,000	500000	0	105	75-125	0			
Carbon disulfide	1008000	100,000	1000000	0	101	75-125	0			
Carbon tetrachloride	504600	50,000	500000	0	101	70-130	0			
Chlorobenzene	487300	50,000	500000	0	97.5	75-126	0			
Chloroethane	503700	50,000	500000	0	101	70-130	0			
Chloroform	524400	50,000	500000	0	105	75-125	0			
Chloromethane	482100	50,000	500000	0	96.4	75-125	0			
cis-1,3-Dichloropropene	526400	50,000	500000	0	105	75-125	0			
Dibromochloromethane	498000	50,000	500000	0	99.6	75-125	0			
Ethylbenzene	505800	50,000	500000	0	101	75-125	0			
m,p-Xylene	1006000	100,000	1000000	0	101	75-125	0			
Methylene chloride	475700	100,000	500000	0	95.1	75-125	0			
Styrene	524400	50,000	500000	0	105	75-125	0			
Tetrachloroethene	481200	50,000	500000	0	96.2	75-125	0			
Toluene	500000	50,000	500000	0	100	76-125	0			
trans-1,3-Dichloropropene	550400	50,000	500000	0	110	70-130	0			
Trichloroethene	470200	50,000	500000	0	94	71-120	0			
Vinyl acetate	1084000	100,000	1000000	0	108	75-125	0			
Vinyl chloride	470400	20,000	500000	0	94.1	60-135	0			
Xylenes, Total	1510000	150,000	1500000	0	101	75-125	0			
Surr:1,2-Dichloroethane-d4	470000	50,000	500000	0	94	70-130	0			
Surr:4-Bromofluorobenzene	500000	50,000	500000	0	100	70-130	0			
Surr:Dibromofluoromethane	466000	50,000	500000	0	93.2	70-130	0			
Surr:Toluene-d8	495300	50,000	500000	0	99.1	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MSD Sample ID: **0310129-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 15:21**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382250** Prep Date: DF: **10000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	503400	50,000	500000	0	101	75-125	514900	2.25	20	
1,1,2,2-Tetrachloroethane	457100	50,000	500000	0	91.4	75-125	470600	2.9	20	
1,1,2-Trichloroethane	485300	50,000	500000	0	97.1	75-125	495800	2.13	20	
1,1-Dichloroethane	535400	50,000	500000	0	107	75-125	543300	1.47	20	
1,1-Dichloroethene	496900	50,000	500000	0	99.4	65-130	505000	1.63	20	
1,2-Dichloroethane	504100	50,000	500000	0	101	70-130	519900	3.08	20	
2-Butanone	833400	100,000	1000000	0	83.3	64-128	864200	3.63	20	
2-Chloroethyl vinyl ether	839400	100,000	1000000	0	83.9	75-125	810300	3.52	20	
2-Hexanone	721800	100,000	1000000	0	72.2	72-124	732000	1.4	20	
4-Methyl-2-pentanone	851400	100,000	805000	0	106	75-125	884400	3.81	20	
Acetone	804100	100,000	1000000	0	80.4	60-130	835700	3.85	20	
Benzene	478800	50,000	500000	0	95.8	76-127	479300	0.12	20	
Bromodichloromethane	494200	50,000	500000	0	98.8	75-125	495000	0.148	20	
Bromoform	466100	50,000	500000	0	93.2	75-125	481900	3.34	20	
Bromomethane	503900	50,000	500000	0	101	75-125	524400	3.99	20	
Carbon disulfide	994300	100,000	1000000	0	99.4	75-125	1008000	1.39	20	
Carbon tetrachloride	494300	50,000	500000	0	98.9	70-130	504600	2.07	20	
Chlorobenzene	478200	50,000	500000	0	95.6	75-126	487300	1.89	20	
Chloroethane	494300	50,000	500000	0	98.9	70-130	503700	1.88	20	
Chloroform	517000	50,000	500000	0	103	75-125	524400	1.42	20	
Chloromethane	476900	50,000	500000	0	95.4	75-125	482100	1.08	20	
cis-1,3-Dichloropropene	524200	50,000	500000	0	105	75-125	526400	0.431	20	
Dibromochloromethane	484000	50,000	500000	0	96.8	75-125	498000	2.85	20	
Ethylbenzene	496400	50,000	500000	0	99.3	75-125	505800	1.87	20	
m,p-Xylene	980500	100,000	1000000	0	98	75-125	1006000	2.61	20	
Methylene chloride	463800	100,000	500000	0	92.8	75-125	475700	2.53	20	
Styrene	514600	50,000	500000	0	103	75-125	524400	1.89	20	
Tetrachloroethene	470400	50,000	500000	0	94.1	75-125	481200	2.27	20	
Toluene	492200	50,000	500000	0	98.4	76-125	500000	1.57	20	
trans-1,3-Dichloropropene	534100	50,000	500000	0	107	70-130	550400	3.01	20	
Trichloroethene	460100	50,000	500000	0	92	71-120	470200	2.17	20	
Vinyl acetate	1059000	100,000	1000000	0	106	75-125	1084000	2.32	20	
Vinyl chloride	458000	20,000	500000	0	91.6	60-135	470400	2.66	20	
Xylenes, Total	1471000	150,000	1500000	0	98.1	75-125	1510000	2.6	20	
Surr: 1,2-Dichloroethane-d4	464700	50,000	500000	0	92.9	70-130	470000	1.14	20	
Surr: 4-Bromofluorobenzene	501900	50,000	500000	0	100	70-130	500000	0.37	20	
Surr: Dibromofluoromethane	462700	50,000	500000	0	92.5	70-130	466000	0.712	20	
Surr: Toluene-d8	491000	50,000	500000	0	98.2	70-130	495300	0.873	20	

Thefollowingsampleswereanalyzedinthisbatch: 0310201-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2022 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab
QUALITY • INTEGRITY • SERVICE

☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager:		e-Lab Work Order #:	193020

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Wells	A	See List
Work Order		Project Number		B	
Company Name	Navajo	Bill To Company		C	
Send Report To	Charlie Plymale / Darrell Moore	Invoice Attn.	Charlie Plymale	D	
Address	501 E. Main	Address		E	
				F	
City/State/Zip	Artesia NM 88210	City/State/Zip		G	
Phone	505 748 3311	Phone		H	
Fax	505 746 5421	Fax		I	
e-Mail Address				J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Wells	10/15/03	1020			5	X										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign: Charlie Plymale

Shipment Method: FedEx

Required Turnaround Time: ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
	10/16/03	1615		
Relinquished by:	Date:	Time:	Received by (Laboratory): 10/16 10/17/03 08:45	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

QC Package: (Check Box Below)
Level II: Standard QC
Level III: Standard QC + Raw Data
Level IV: SW846 Methods/CLP
Other: _____

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 10/17/2003 8:45:00 AM

Work Order Number 0310201 Received by: RNG

Checklist completed by [signature] 10/17/03 (Signature / Date) Reviewed by LT 10/17/03 (Initials / Date)

Matrix: W Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.5c	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

October 9, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2003 to September 30, 2003. We have disposed a total of 16,577,663 bbls. of fluid into the two wells as of September 30, 2003. This is broken down as follows: 11,500,262 bbls. into WDW-1 and 5,077,401 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jul-03	191	274	94	181	215	143	477	500	417	6204	7387	4901	192,336
Aug-03	155	251	52	186	245	102	378	497	203	6361	8386	3486	197,176
Sep-03	190	353	113	198	284	110	364	500	249	6802	9737	3775	210,853
WDW-2													
Jul-03	195	285	59	142	164	83	138	144	132	4868	5630	2847	150,906
Aug-03	175	261	72	137	172	80	151	193	142	4707	5909	2759	145,913
Sep-03	216	389	57	152	203	43	152	161	148	5220	6958	1486	161,810

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5887

September 08, 2003

Darrell Moore
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5281
Fax: (505) 746-5421

Re: Inj. Wells Work Order : **0308325**

Dear Darrell Moore,

e-Lab, Inc. received 1 sample on 8/29/2003 9:30:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 14. If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Georgia Jones

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: **0308325**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0308325-01	Injection Wells	Wate1		8/28/2003 10:0C	8/29/2003 09:3C	☐

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells
Lab ID: 0308325-01

Client Sample ID: Injection Wells
Collection Date: 8/28/2003 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **8/29/2003**		Analyst: **HV**
1,2,4-Trichlorobenzene	U	0.83	10		µg/L	1	9/3/2003
2,4,5-Trichlorophenol	U	2.4	10		µg/L	1	9/3/2003
2,4,6-Trichlorophenol	U	2.7	10		µg/L	1	9/3/2003
2-Methylnaphthalene	U	0.86	10		µg/L	1	9/3/2003
2-Methylphenol	U	2.8	10		µg/L	1	9/3/2003
2-Nitroaniline	U	1.1	10		µg/L	1	9/3/2003
2-Nitrophenol	U	2.6	10		µg/L	1	9/3/2003
3-Nitroaniline	U	1.2	10		µg/L	1	9/3/2003
4-Methylphenol	U	4.6	10		µg/L	1	9/3/2003
4-Nitroaniline	U	0.95	10		µg/L	1	9/3/2003
4-Nitrophenol	U	2.7	10		µg/L	1	9/3/2003
Acenaphthene	U	1.1	10		µg/L	1	9/3/2003
Acenaphthylene	U	1.0	10		µg/L	1	9/3/2003
Aniline	U	10	10		µg/L	1	9/3/2003
Anthracene	U	0.36	10		µg/L	1	9/3/2003
Benz(a)anthracene	U	0.77	10		µg/L	1	9/3/2003
Benzidine	U	0.34	10		µg/L	1	9/3/2003
Hexachloroethane	U	0.64	10		µg/L	1	9/3/2003
Indeno(1,2,3-cd)pyrene	U	0.77	10		µg/L	1	9/3/2003
Isophorone	U	1.2	10		µg/L	1	9/3/2003
N-Nitrosodi-n-propylamine	U	1.5	10		µg/L	1	9/3/2003
N-Nitrosodimethylamine	U	1.1	10		µg/L	1	9/3/2003
N-Nitrosodiphenylamine	U	1.3	10		µg/L	1	9/3/2003
Naphthalene	U	1.0	10		µg/L	1	9/3/2003
Nitrobenzene	U	1.7	10		µg/L	1	9/3/2003
Pentachlorophenol	U	1.5	10		µg/L	1	9/3/2003
Phenanthrene	U	1.2	10		µg/L	1	9/3/2003
Phenol	U	3.5	10		µg/L	1	9/3/2003
Pyrene	U	0.92	10		µg/L	1	9/3/2003
Surr: 2,4,6-Tribromophenol	103	0	10-123		%REC	1	9/3/2003
Surr: 2-Fluorobiphenyl	92.9	0	43-116		%REC	1	9/3/2003
Surr: 2-Fluorophenol	37.2	0	21-100		%REC	1	9/3/2003
Surr: 4-Terphenyl-d14	99.3	0	33-141		%REC	1	9/3/2003
Surr: Nitrobenzene-d5	88.4	0	35-114		%REC	1	9/3/2003
Surr: Phenol-d6	23.9	0	10-94		%REC	1	9/3/2003
VOLATILES BY GC/MS		**SW8260**			Prep Date:		Analyst: **HLBW**
1,1,1-Trichloroethane	U	0.62	5.0		µg/L	1	9/4/2003
1,1,2,2-Tetrachloroethane	U	0.58	5.0		µg/L	1	9/4/2003
1,1,2-Trichloroethane	U	0.41	5.0		µg/L	1	9/4/2003

Qualifiers

U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells
Lab ID: 0308325-01

Client Sample ID: Injection Wells
Collection Date: 8/28/2003 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	U	0.43	5.0		µg/L	1	9/4/2003
1,1-Dichloroethene	U	0.53	5.0		µg/L	1	9/4/2003
1,2-Dichloroethane	U	0.38	5.0		µg/L	1	9/4/2003
2-Butanone	3.5	0.70	10	J	µg/L	1	9/4/2003
2-Chloroethyl vinyl ether	U	0.63	10		µg/L	1	9/4/2003
2-Hexanone	U	1.1	10		µg/L	1	9/4/2003
4-Methyl-2-pentanone	U	0.64	10		µg/L	1	9/4/2003
Acetone	41	1.2	10		µg/L	1	9/4/2003
Benzene	U	0.66	5.0		µg/L	1	9/4/2003
Bromodichloromethane	U	0.45	5.0		µg/L	1	9/4/2003
Bromoform	U	0.40	5.0		µg/L	1	9/4/2003
Bromomethane	U	0.70	5.0		µg/L	1	9/4/2003
Carbon disulfide	U	0.76	10		µg/L	1	9/4/2003
Carbon tetrachloride	U	0.65	5.0		µg/L	1	9/4/2003
Chlorobenzene	U	0.43	5.0		µg/L	1	9/4/2003
Chloroethane	U	0.56	5.0		µg/L	1	9/4/2003
Chloroform	U	0.52	5.0		µg/L	1	9/4/2003
Chloromethane	U	1.1	5.0		µg/L	1	9/4/2003
cis-1,3-Dichloropropene	U	0.47	5.0		µg/L	1	9/4/2003
Dibromochloromethane	U	0.53	5.0		µg/L	1	9/4/2003
Ethylbenzene	1.8	0.77	5.0	J	µg/L	1	9/4/2003
m,p-Xylene	3.0	1.3	10	J	µg/L	1	9/4/2003
Methyl tert-butyl ether	1.9	0.30	5.0	J	µg/L	1	9/4/2003
Methylene chloride	U	0.60	10		µg/L	1	9/4/2003
Styrene	U	0.56	5.0		µg/L	1	9/4/2003
Tetrachloroethene	U	0.43	5.0		µg/L	1	9/4/2003
Toluene	U	0.69	5.0		µg/L	1	9/4/2003
trans-1,3-Dichloropropene	U	0.44	5.0		µg/L	1	9/4/2003
Trichloroethene	U	0.70	5.0		µg/L	1	9/4/2003
Vinyl acetate	U	0.92	10		µg/L	1	9/4/2003
Vinyl chloride	U	0.79	2.0		µg/L	1	9/4/2003
Xylenes, Total	3.0	1.8	15	J	µg/L	1	9/4/2003
Surr: 1,2-Dichloroethane-d4	84.2	0	70-130		%REC	1	9/4/2003
Surr: 4-Bromofluorobenzene	92.1	0	70-130		%REC	1	9/4/2003
Surr: Dibromofluoromethane	93.3	0	70-130		%REC	1	9/4/2003
Surr: Toluene-d8	97.8	0	70-130		%REC	1	9/4/2003

Qualifiers

U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Sep 05 2003*

CLIENT: Navajo Refining Company

QC BATCH REPORT

Work Order: 0308325

Project: Inj. Wells

Batch ID: **6544** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 20:27**

Client ID: Run ID: **SV-2_030902A** SeqNo: **363914** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	U	10								
2,4,5-Trichlorophenol	U	10								
2,4,6-Trichlorophenol	U	10								
2-Methylnaphthalene	U	10								
2-Methylphenol	U	10								
2-Nitroaniline	U	10								
2-Nitrophenol	U	10								
3-Nitroaniline	U	10								
4-Methylphenol	U	10								
4-Nitroaniline	U	10								
4-Nitrophenol	U	10								
Acenaphthene	U	10								
Acenaphthylene	U	10								
Aniline	U	10								
Anthracene	U	10								
Benz(a)anthracene	U	10								
Benzidine	U	10								
Hexachloroethane	U	10								
Indeno(1,2,3-cd)pyrene	U	10								
Isophorone	U	10								
N-Nitrosodi-n-propylamine	U	10								
N-Nitrosodimethylamine	U	10								
N-Nitrosodiphenylamine	U	10								
Naphthalene	U	10								
Nitrobenzene	U	10								
Pentachlorophenol	U	10								
Phenanthrene	U	10								
Phenol	U	10								
Pyrene	U	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	94.95	0	100	0	94.9	10-123	0			
Surr: 2-Fluorobiphenyl	83.93	0	100	0	83.9	43-116	0			
Surr: 2-Fluorophenol	47.33	0	100	0	47.3	21-100	0			
Surr:4-Terphenyl-d14	96.76	0	100	0	96.8	33-141	0			
Surr: Nitrobenzene-d5	83.45	0	100	0	83.5	35-114	0			
Surr: Phenol-d6	29.37	0	100	0	29.4	10-94	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6544** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 20:52**
Client ID: Run ID: **SV-2_030902A** SeqNo: **363915** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	36.24	10	50	0	72.5	51-110	0			
2,4,5-Trichlorophenol	99.21	10	100	0	99.2	55-130	0			
2,4,6-Trichlorophenol	96.5	10	100	0	96.5	55-130	0			
2-Methylnaphthalene	37.11	10	50	0	74.2	50-125	0			
2-Methylphenol	75.67	10	100	0	75.7	45-120	0			
2-Nitroaniline	48.86	10	50	0	97.7	55-130	0			
2-Nitrophenol	92.95	10	100	0	92.9	55-125	0			
3-Nitroaniline	50.32	10	50	0	101	55-120	0			
4-Methylphenol	102.9	10	150	0	68.6	40-120	0			
4-Nitroaniline	49.51	10	50	0	99	60-130	0			
4-Nitrophenol	56.88	10	100	0	56.9	25-100	0			
Acenaphthene	44.06	10	50	0	88.1	50-120	0			
Acenaphthylene	44.04	10	50	0	88.1	55-130	0			
Anthracene	49.51	10	50	0	99	60-130	0			
Benz(a)anthracene	47.1	10	50	0	94.2	60-130	0			
Benzidine	18.48	10	50	0	37	10-85	0			
Hexachloroethane	33.99	10	50	0	68	40-120	0			
Indeno(1,2,3-cd)pyrene	48.89	10	50	0	97.8	60-130	0			
Isophorone	47.07	10	50	0	94.1	60-130	0			
N-Nitrosodi-n-propylamine	46.01	10	50	0	92	55-120	0			
N-Nitrosodimethylamine	25.79	10	50	0	51.6	35-110	0			
N-Nitrosodiphenylamine	53.89	10	50	0	108	60-130	0			
Naphthalene	38.88	10	50	0	77.8	55-130	0			
Nitrobenzene	45.5	10	50	0	91	60-130	0			
Pentachlorophenol	92.37	10	100	0	92.4	45-125	0			
Phenanthrene	47.78	10	50	0	95.6	60-130	0			
Phenol	35.14	10	100	0	35.1	20-100	0			
Pyrene	45.89	10	50	0	91.8	45-120	0			
Surr: 2,4,6-Tribromophenol	104.1	0	100	0	104	10-123	0			
Surr: 2-Fluorobiphenyl	90.54	0	100	0	90.5	43-116	0			
Surr: 2-Fluorophenol	54.46	0	100	0	54.5	21-100	0			
Surr:4-Terphenyl-d14	99.22	0	100	0	99.2	33-141	0			
Surr: Nitrobenzene-d5	90.28	0	100	0	90.3	35-114	0			
Surr: Phenol-d6	34.99	0	100	0	35	10-94	0			

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6544** InstrumentID: **SV-2**

LCSD Sample ID: **SLCSDW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 21:18**
Client ID: Run ID: **SV-2_030902A** SeqNo: **363917** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	36.57	10	50	0	73.1	51-110	36.24	0.907	30	
2,4,5-Trichlorophenol	100.9	10	100	0	101	55-130	99.21	1.73	30	
2,4,6-Trichlorophenol	96.17	10	100	0	96.2	55-130	96.5	0.35	30	
2-Methylnaphthalene	37.8	10	50	0	75.6	50-125	37.11	1.85	30	
2-Methylphenol	76.54	10	100	0	76.5	45-120	75.67	1.14	30	
2-Nitroaniline	50.36	10	50	0	101	55-130	48.86	3.03	30	
2-Nitrophenol	93.07	10	100	0	93.1	55-125	92.95	0.131	30	
3-Nitroaniline	52.17	10	50	0	104	55-120	50.32	3.61	30	
4-Methylphenol	105.4	10	150	0	70.2	40-120	102.9	2.41	30	
4-Nitroaniline	51.7	10	50	0	103	60-130	49.51	4.33	30	
4-Nitrophenol	58.66	10	100	0	58.7	25-100	56.88	3.09	30	
Acenaphthene	43.86	10	50	0	87.7	50-120	44.06	0.443	30	
Acenaphthylene	44.01	10	50	0	88	55-130	44.04	0.0744	30	
Anthracene	49.66	10	50	0	99.3	60-130	49.51	0.298	30	
Benz(a)anthracene	46.45	10	50	0	92.9	60-130	47.1	1.39	30	
Benzidine	30.71	10	50	0	61.4	10-85	18.48	49.7	30	R
Hexachloroethane	34.69	10	50	0	69.4	40-120	33.99	2.05	30	
Indeno(1,2,3-cd)pyrene	45.54	10	50	0	91.1	60-130	48.89	7.11	30	
Isophorone	47.79	10	50	0	95.6	60-130	47.07	1.52	30	
N-Nitrosodi-n-propylamine	46.64	10	50	0	93.3	55-120	46.01	1.35	30	
N-Nitrosodimethylamine	26.37	10	50	0	52.7	35-110	25.79	2.2	30	
N-Nitrosodiphenylamine	53.46	10	50	0	107	60-130	53.89	0.802	30	
Naphthalene	39.15	10	50	0	78.3	55-130	38.88	0.703	30	
Nitrobenzene	45.91	10	50	0	91.8	60-130	45.5	0.893	30	
Pentachlorophenol	87.99	10	100	0	88	45-125	92.37	4.86	30	
Phenanthrene	47.34	10	50	0	94.7	60-130	47.78	0.921	30	
Phenol	36.53	10	100	0	36.5	20-100	35.14	3.9	30	
Pyrene	46.24	10	50	0	92.5	45-120	45.89	0.777	30	
Surr: 2,4,6-Tribromophenol	101.1	0	100	0	101	10-123	104.1	2.89	30	
Surr: 2-Fluorobiphenyl	90.67	0	100	0	90.7	43-116	90.54	0.141	30	
Surr: 2-Fluorophenol	54.74	0	100	0	54.7	21-100	54.46	0.517	30	
Surr:4-Terphenyl-d14	100.8	0	100	0	101	33-141	99.22	1.55	30	
Surr: Nitrobenzene-d5	91.28	0	100	0	91.3	35-114	90.28	1.1	30	
Surr: Phenol-d6	35.67	0	100	0	35.7	10-94	34.99	1.94	30	

Thefollowingsampleswereanalyzedinthisbatch: 0308325-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MBLK Sample ID: **VBLKW-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 11:19**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364169** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2-Dichloroethane	U	5.0								
2-Butanone	U	10								
2-Chloroethyl vinyl ether	U	10								
2-Hexanone	U	10								
4-Methyl-2-pentanone	U	10								
Acetone	U	10								
Benzene	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	5.0								
Carbon disulfide	U	10								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Dibromochloromethane	U	5.0								
Ethylbenzene	U	5.0								
m,p-Xylene	U	10								
Methyl tert-butyl ether	U	5.0								
Methylene chloride	U	10								
Styrene	U	5.0								
Tetrachloroethene	U	5.0								
Toluene	U	5.0								
trans-1,3-Dichloropropene	U	5.0								
Trichloroethene	U	5.0								
Vinyl acetate	U	10								
Vinyl chloride	U	2.0								
Xylenes, Total	U	15								
Surr:1,2-Dichloroethane-d4	44.69	5.0	50	0	89.4	70-130	0			
Surr:4-Bromofluorobenzene	46.1	5.0	50	0	92.2	70-130	0			
Surr: Dibromofluoromethane	48.14	5.0	50	0	96.3	70-130	0			
Surr: Toluene-d8	47.88	5.0	50	0	95.8	70-130	0			

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

LCS Sample ID: **VLCSW-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 9:51**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364167** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	50.1	5.0	50	0	100	75-118	0			
1,1,2,2-Tetrachloroethane	51.87	5.0	50	0	104	79-120	0			
1,1,2-Trichloroethane	52.32	5.0	50	0	105	81-119	0			
1,1-Dichloroethane	52.71	5.0	50	0	105	80-120	0			
1,1-Dichloroethene	55.71	5.0	50	0	111	80-120	0			
1,2-Dichloroethane	52.78	5.0	50	0	106	80-120	0			
2-Butanone	98.7	10	100	0	98.7	70-130	0			
2-Chloroethyl vinyl ether	93.51	10	100	0	93.5	72-120	0			
2-Hexanone	101.5	10	100	0	102	70-130	0			
4-Methyl-2-pentanone	99.44	10	100	0	99.4	78-120	0			
Acetone	92.2	10	100	0	92.2	60-135	0			
Benzene	53.97	5.0	50	0	108	82-119	0			
Bromodichloromethane	52.6	5.0	50	0	105	81-119	0			
Bromoform	52.48	5.0	50	0	105	80-120	0			
Bromomethane	44.47	5.0	50	0	88.9	75-130	0			
Carbon disulfide	103.7	10	100	0	104	78-120	0			
Carbon tetrachloride	52.38	5.0	50	0	105	77-120	0			
Chlorobenzene	51.44	5.0	50	0	103	82-118	0			
Chloroethane	49.51	5.0	50	0	99	78-122	0			
Chloroform	51.9	5.0	50	0	104	78-120	0			
Chloromethane	45.43	5.0	50	0	90.9	75-125	0			
cis-1,3-Dichloropropene	53.12	5.0	50	0	106	81-120	0			
Dibromochloromethane	52.07	5.0	50	0	104	81-118	0			
Ethylbenzene	51.27	5.0	50	0	103	82-120	0			
m,p-Xylene	103.4	10	100	0	103	82-122	0			
Methyl tert-butyl ether	51.57	5.0	50	0	103	79-120	0			
Methylene chloride	51.14	10	50	0	102	80-122	0			
Styrene	52.77	5.0	50	0	106	82-121	0			
Tetrachloroethene	40.92	5.0	50	0	81.8	79-118	0			
Toluene	52.09	5.0	50	0	104	81-119	0			
trans-1,3-Dichloropropene	53.38	5.0	50	0	107	82-121	0			
Trichloroethene	53.57	5.0	50	0	107	78-118	0			
Vinyl acetate	108.7	10	100	0	109	75-120	0			
Vinyl chloride	49.29	2.0	50	0	98.6	73-127	0			
Xylenes, Total	155	15	150	0	103	80-120	0			
Surr:1,2-Dichloroethane-d4	43.49	5.0	50	0	87	70-130	0			
Surr:4-Bromofluorobenzene	47.03	5.0	50	0	94.1	70-130	0			
Surr:Dibromofluoromethane	46.93	5.0	50	0	93.9	70-130	0			
Surr: Toluene-d8	47.28	5.0	50	0	94.6	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

LCSD Sample ID: **VLCSWD-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 10:20**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364168** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.77	5.0	50	0	104	75-118	50.1	3.29	20	
1,1,2,2-Tetrachloroethane	54.18	5.0	50	0	108	79-120	51.87	4.35	20	
1,1,2-Trichloroethane	53.26	5.0	50	0	107	81-119	52.32	1.79	20	
1,1-Dichloroethane	53.86	5.0	50	0	108	80-120	52.71	2.14	20	
1,1-Dichloroethene	57.86	5.0	50	0	116	80-120	55.71	3.78	20	
1,2-Dichloroethane	53.38	5.0	50	0	107	80-120	52.78	1.14	20	
2-Butanone	99.95	10	100	0	100	70-130	98.7	1.26	20	
2-Chloroethyl vinyl ether	93.68	10	100	0	93.7	72-120	93.51	0.182	20	
2-Hexanone	104.3	10	100	0	104	70-130	101.5	2.63	20	
4-Methyl-2-pentanone	103	10	100	0	103	78-120	99.44	3.49	20	
Acetone	104.1	10	100	0	104	60-135	92.2	12.1	20	
Benzene	55.75	5.0	50	0	112	82-119	53.97	3.25	20	
Bromodichloromethane	53.22	5.0	50	0	106	81-119	52.6	1.17	20	
Bromoform	53.44	5.0	50	0	107	80-120	52.48	1.81	20	
Bromomethane	45.67	5.0	50	0	91.3	75-130	44.47	2.65	20	
Carbon disulfide	108.4	10	100	0	108	78-120	103.7	4.43	20	
Carbon tetrachloride	55.55	5.0	50	0	111	77-120	52.38	5.87	20	
Chlorobenzene	52.68	5.0	50	0	105	82-118	51.44	2.38	20	
Chloroethane	50.08	5.0	50	0	100	78-122	49.51	1.14	20	
Chloroform	52.38	5.0	50	0	105	78-120	51.9	0.912	20	
Chloromethane	45.93	5.0	50	0	91.9	75-125	45.43	1.09	20	
cis-1,3-Dichloropropene	53.98	5.0	50	0	108	81-120	53.12	1.6	20	
Dibromochloromethane	52.74	5.0	50	0	105	81-118	52.07	1.28	20	
Ethylbenzene	53.86	5.0	50	0	108	82-120	51.27	4.92	20	
m,p-Xylene	106.1	10	100	0	106	82-122	103.4	2.63	20	
Methyl tert-butyl ether	53.01	5.0	50	0	106	79-120	51.57	2.74	20	
Methylene chloride	54.25	10	50	0	108	80-122	51.14	5.89	20	
Styrene	53.8	5.0	50	0	108	82-121	52.77	1.93	20	
Tetrachloroethene	49.07	5.0	50	0	98.1	79-118	40.92	18.1	20	
Toluene	53.44	5.0	50	0	107	81-119	52.09	2.57	20	
trans-1,3-Dichloropropene	53.15	5.0	50	0	106	82-121	53.38	0.431	20	
Trichloroethene	54.67	5.0	50	0	109	78-118	53.57	2.02	20	
Vinyl acetate	106.9	10	100	0	107	75-120	108.7	1.69	20	
Vinyl chloride	48.41	2.0	50	0	96.8	73-127	49.29	1.8	20	
Xylenes, Total	159.1	15	150	0	106	80-120	155	2.57	20	
Surr: 1,2-Dichloroethane-d4	45.22	5.0	50	0	90.4	70-130	43.49	3.89	20	
Surr: 4-Bromofluorobenzene	46.99	5.0	50	0	94	70-130	47.03	0.0948	20	
Surr: Dibromofluoromethane	47.99	5.0	50	0	96	70-130	46.93	2.23	20	
Surr: Toluene-d8	47.65	5.0	50	0	95.3	70-130	47.28	0.774	20	

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CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MS Sample ID: **0309018-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 15:47**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364394** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	515	50	500	0	103	75-125	0			
1,1,2,2-Tetrachloroethane	543.4	50	500	0	109	75-125	0			
1,1,2-Trichloroethane	532.2	50	500	0	106	75-125	0			
1,1-Dichloroethane	567.7	50	500	11.67	111	75-125	0			
1,1-Dichloroethene	603.4	50	500	0	121	65-130	0			
1,2-Dichloroethane	482.3	50	500	0	96.5	70-130	0			
2-Butanone	1033	100	1000	0	103	64-128	0			
2-Chloroethyl vinyl ether	81.14	100	1000	0	8.11	75-125	0			JS
2-Hexanone	1050	100	1000	0	105	72-124	0			
4-Methyl-2-pentanone	1042	100	1000	0	104	75-125	0			
Acetone	772.7	100	1000	53.14	72	60-130	0			
Benzene	558.9	50	500	0	112	76-127	0			
Bromodichloromethane	501.3	50	500	0	100	75-125	0			
Bromoform	517.9	50	500	0	104	75-125	0			
Bromomethane	472.4	50	500	0	94.5	75-125	0			
Carbon disulfide	1120	100	1000	0	112	75-125	0			
Carbontetrachloride	2713	50	500	1890	165	70-130	0			SE
Chlorobenzene	510	50	500	0	102	75-126	0			
Chloroethane	486.6	50	500	0	97.3	70-130	0			
Chloroform	854.1	50	500	288.6	113	75-125	0			
Chloromethane	471	50	500	0	94.2	75-125	0			
cis-1,3-Dichloropropene	526.1	50	500	0	105	75-125	0			
Dibromochloromethane	499.6	50	500	0	99.9	75-125	0			
Ethylbenzene	522.2	50	500	0	104	75-125	0			
m,p-Xylene	1040	100	1000	0	104	75-125	0			
Methyl tert-butyl ether	529	50	500	0	106	75-125	0			
Methylene chloride	620.2	100	500	50.99	114	75-125	0			
Styrene	525.3	50	500	0	105	75-125	0			
Tetrachloroethene	406.4	50	500	20.72	77.1	75-125	0			
Toluene	533.9	50	500	0	107	76-125	0			
trans-1,3-Dichloropropene	506.8	50	500	0	101	70-130	0			
Trichloroethene	1042	50	500	447.3	119	71-120	0			
Vinyl acetate	1178	100	1000	0	118	75-125	0			
Vinyl chloride	502.1	20	500	0	100	60-135	0			
Xylenes, Total	1560	150	1500	0	104	75-125	0			
Surr:1,2-Dichloroethane-d4	428.6	50	500	0	85.7	70-130	0			
Surr:4-Bromofluorobenzene	444.2	50	500	0	88.8	70-130	0			
Surr: Dibromofluoromethane	477.1	50	500	0	95.4	70-130	0			
Surr: Toluene-d8	487.1	50	500	0	97.4	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MSD Sample ID: **0309018-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 16:17**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364553** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	536.2	50	500	0	107	75-125	515	4.05	20	
1,1,2,2-Tetrachloroethane	572.7	50	500	0	115	75-125	543.4	5.25	20	
1,1,2-Trichloroethane	562.9	50	500	0	113	75-125	532.2	5.61	20	
1,1-Dichloroethane	589.5	50	500	11.67	116	75-125	567.7	3.77	20	
1,1-Dichloroethene	627.1	50	500	0	125	65-130	603.4	3.86	20	
1,2-Dichloroethane	498	50	500	0	99.6	70-130	482.3	3.19	20	
2-Butanone	1103	100	1000	0	110	64-128	1033	6.56	20	
2-Chloroethyl vinyl ether	16.9	100	1000	0	1.69	75-125	81.14	0	20	JS
2-Hexanone	1106	100	1000	0	111	72-124	1050	5.16	20	
4-Methyl-2-pentanone	1115	100	1000	0	112	75-125	1042	6.8	20	
Acetone	861.8	100	1000	53.14	80.9	60-130	772.7	10.9	20	
Benzene	608.7	50	500	0	122	76-127	558.9	8.54	20	
Bromodichloromethane	530.8	50	500	0	106	75-125	501.3	5.71	20	
Bromoform	548.7	50	500	0	110	75-125	517.9	5.77	20	
Bromomethane	471.8	50	500	0	94.4	75-125	472.4	0.119	20	
Carbon disulfide	1171	100	1000	0	117	75-125	1120	4.44	20	
Carbontetrachloride	2764	50	500	1890	175	70-130	2713	1.85	20	SE
Chlorobenzene	545.2	50	500	0	109	75-126	510	6.67	20	
Chloroethane	551.8	50	500	0	110	70-130	486.6	12.6	20	
Chloroform	882.7	50	500	288.6	119	75-125	854.1	3.29	20	
Chloromethane	514	50	500	0	103	75-125	471	8.73	20	
cis-1,3-Dichloropropene	554.8	50	500	0	111	75-125	526.1	5.3	20	
Dibromochloromethane	528.8	50	500	0	106	75-125	499.6	5.68	20	
Ethylbenzene	556.5	50	500	0	111	75-125	522.2	6.35	20	
m,p-Xylene	1106	100	1000	0	111	75-125	1040	6.09	20	
Methyl tert-butyl ether	549.4	50	500	0	110	75-125	529	3.78	20	
Methylene chloride	621.1	100	500	50.99	114	75-125	620.2	0.148	20	
Styrene	558.2	50	500	0	112	75-125	525.3	6.09	20	
Tetrachloroethene	426.8	50	500	20.72	81.2	75-125	406.4	4.9	20	
Toluene	568.6	50	500	0	114	76-125	533.9	6.29	20	
trans-1,3-Dichloropropene	525.6	50	500	0	105	70-130	506.8	3.65	20	
Trichloroethene	1083	50	500	447.3	127	71-120	1042	3.87	20	S
Vinyl acetate	1204	100	1000	0	120	75-125	1178	2.22	20	
Vinyl chloride	543.7	20	500	0	109	60-135	502.1	7.96	20	
Xylenes, Total	1665	150	1500	0	111	75-125	1560	6.53	20	
Surr:1,2-Dichloroethane-d4	426	50	500	0	85.2	70-130	428.6	0.621	20	
Surr:4-Bromofluorobenzene	459.3	50	500	0	91.9	70-130	444.2	3.34	20	
Surr:Dibromofluoromethane	465.5	50	500	0	93.1	70-130	477.1	2.45	20	
Surr: Toluene-d8	490.6	50	500	0	98.1	70-130	487.1	0.705	20	

Thefollowingsampleswereanalyzedinthisbatch: 0308325-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2022 11:19:15 AM
Received by OCD: 5/16/2022 2:12:41 PM

■ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

□ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager:

e-Lab Work Order #: 0308325

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Wells	A	TCLP VOCs (1311/8260)
Work Order		Project Number		B	TCLP SVOCs (1311/8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	TCLP Metals (1311/6020/7470)
Send Report To	Darrell Moore/Charlie Plymale	Invoice Attn	Charlie Plymale	D	Semi volatiles
Address	P.O. Box 159	Address	P.O. Box 159	E	Volatiles
				F	
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	
Phone	(505) 748-3311	Phone	(505) 748-3311	H	
Fax	(505) 746-5421	Fax	(505) 746-5421	I	
e-Mail Address				J	

No	Sample Description	Date	Time	Matrix	Pres	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. wells	8/28/03	1000			5				X	X						
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign: Charles Plymale

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☒ STD 10 Wk Days □ 5 Wk Days □ 2 Wk Days □ 24 Hour □ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
	8/28/03	1615		
Relinquished by:	Date:	Time:	Received by (Laboratory):	e-Lab Cooler ID: / Cooler Temp:
			RICHARD SANDOVAL 8/29/03 0930	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

QC Package: (Check Box Below)

- Level II: Standard QC — X
- Level III: Standard QC + Raw Data
- Level IV: SW846 Methods/CLP
- Other:

Preservative Key: 1- HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING COMPAN Date/Time Received: 8/29/2003 9:30:00 AM

Work Order Number 0308325 Received by: RSZ

Checklist completed by RICHARD SANCHEZ 8.29.03 (Signature / Date) Reviewed by LT 9/2/03 (Initials / Date)

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.2c	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
JUL 14 2003
OIL CONSERVATION DIVISION

July 11, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2003 to March 31, 2003. We have disposed a total of 13,448,129 bbls. of fluid into the two wells as of March 31 2003. This is broken down as follows: 9,732,076 bbls. into WDW-1 and 3,715,473 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 2 of 15
N/A | Injection Wells | N/A

Analytical Report

Sample: 215473 - Inj Wells

Analysis: Alkalinity | Analytical Method: E 310.1 | QC Batch: QC25706 | Date Analyzed: 12/17/02
Analyst: MS | Preparation Method: N/A | Prep Batch: PB23811 | Date Prepared: 12/17/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		146	mg/L as CaCo3	1	4
Total Alkalinity		146	mg/L as CaCo3	1	4

Sample: 215473 - Inj Wells

Analysis: Conductivity | Analytical Method: SM 2510B | QC Batch: QC25592 | Date Analyzed: 12/16/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB23722 | Date Prepared: 12/16/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5070	µMHOS/cm	1	

Sample: 215473 - Inj Wells

Analysis: Corrosivity | Analytical Method: S 1110 | QC Batch: QC25828 | Date Analyzed: 12/26/02
Analyst: JH | Preparation Method: N/A | Prep Batch: PB23933 | Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non-corrosive	mm/yr	1	
pH		8.2	s.u.	1	

Sample: 215473 - Inj Wells

Analysis: Hg, Total | Analytical Method: S 7470A | QC Batch: QC25555 | Date Analyzed: 12/12/02
Analyst: BC | Preparation Method: N/A | Prep Batch: PB23652 | Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		0.00022	mg/L	1	0.0002

Sample: 215473 - Inj Wells

Analysis: Ignitability | Analytical Method: SW-846 Ch. 7.1 | QC Batch: QC25826 | Date Analyzed: 12/26/02
Analyst: JH | Preparation Method: N/A | Prep Batch: PB23931 | Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 215473 - Inj Wells

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC25539 | Date Analyzed: 12/11/02
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB23675 | Date Prepared: 12/11/02

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 15
N/A Injection Wells N/A

Param	Flag	Result	Units	Dilution	RDL
Chloride		1000	mg/L	100	1
Fluoride		66.05	mg/L	5	0.20
Nitrate-N		<1.0	mg/L	5	0.20
Sulfate		663	mg/L	100	1

Sample: 215473 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC25829 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23934 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 215473 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC25566 Date Analyzed: 12/12/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB23664 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		158	mg/L	1	0.50
Dissolved Magnesium		31.5	mg/L	1	0.50
Dissolved Potassium		17.2	mg/L	1	0.50
Dissolved Sodium		698	mg/L	1	0.50

Sample: 215473 - Inj Wells

Analysis: TDS Analytical Method: E 160.1 QC Batch: QC25540 Date Analyzed: 12/12/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23674 Date Prepared: 12/10/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		3005	mg/L	5	10

Sample: 215473 - Inj Wells

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC25543 Date Analyzed: 12/12/02
Analyst: RR Preparation Method: N/A Prep Batch: PB23651 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.411	mg/L	1	0.05
Total Arsenic		0.135	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.158	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		0.950	mg/L	1	0.05

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 4 of 15
N/A Injection Wells N/A

... *Continued* Sample: 215473 Analysis: Total Metals

Param	Flag	Result	Units	Dilution	RDL
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.0672	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.122	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.0586	mg/L	1	0.02

Sample: 215473 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC25623	Date Analyzed:	12/14/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB23747	Date Prepared:	12/14/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 5 of 15
N/A | Injection Wells | N/A

... *Continued* Sample: 215473 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.6	µg/L	5	50	99	70 - 130
Toluene-d8		50.1	µg/L	5	50	100	70 - 130
4-Bromofluorobenzene		45.6	µg/L	5	50	91	70 - 130

Sample: 215473 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC25527	Date Analyzed:	12/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB23667	Date Prepared:	12/10/02

Param	Flag	Result	Units	Dilution	RDL
pH	[2]	7.5	s.u.	1	1

[1] elevated reporting limit due to matrix difficulty.
[2] The sample was received out of holding time

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 6 of 15
N/A | Injection Wells | N/A

Quality Control Report
Method Blank

Method Blank QCBatch: QC25539

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC25540

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC25543

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.05
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		0.0166	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC25555

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 7 of 15
N/A | Injection Wells | N/A

Method Blank

QCBatch: QC25566

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank

QCBatch: QC25592

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		9.25	µMHOS/cm	

Method Blank

QCBatch: QC25623

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene	3	<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1

Continued ...

[3]estimated concentration=0.16 µg/L. Reported between MDL (.054 µg/L) and reporting limit.

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 8 of 15
N/A | Injection Wells | N/A

... *Continued*

Param	Flag	Results	Units	Reporting Limit
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene	4	<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene	5	<1.00	µg/L	1
m,p-Xylene	6	<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene	7	<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	70 - 130
Toluene-d8		52.8	µg/L	1	50	106	70 - 130
4-Bromofluorobenzene		47.7	µg/L	1	50	95	70 - 130

[4]estimated concentration=0.19 µg/L. Reported between MDL (.042 µg/L) and reporting limit.
[5]estimated concentration=0.04 µg/L. Reported between MDL (.018 µg/L) and reporting limit.
[6]estimated concentration=0.09 µg/L. Reported between MDL (.051 µg/L) and reporting limit.
[7]estimated concentration=0.05 µg/L. Reported between MDL (.028 µg/L) and reporting limit.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 9 of 15
N/A | Injection Wells | N/A

Method Blank QCBatch: QC25706

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	4
Total Alkalinity		<4.0	mg/L as CaCo3	4

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC25527

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.8	8.8	s.u.	1	0	0

Duplicate QCBatch: QC25540

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1270	1234	mg/L	1	2	9.7

Duplicate QCBatch: QC25592

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4130	4040	µMHOS/cm	1	2	20

Duplicate QCBatch: QC25706

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		690	684	mg/L as CaCo3	1	0	9.2
Total Alkalinity		690	684	mg/L as CaCo3	1	0	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC25539

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 10 of 15
N/A Injection Wells N/A

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.63	13.13	mg/L	1	12.50	<1.0	93	12	90 - 110	20
Fluoride	2.36	2.38	mg/L	1	2.50	<0.2	94	0	90 - 110	20
Nitrate-N	2.45	2.45	mg/L	1	2.50	<0.2	98	0	90 - 110	20
Sulfate	12.12	12.26	mg/L	1	12.50	<1.0	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25543

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Calcium	99.4	98.8	mg/L	1	100	<0.5	99	0	75 - 125	20
Total Iron	0.512	0.515	mg/L	1	0.50	<0.050	102	0	75 - 125	20
Total Magnesium	103	99.8	mg/L	1	100	<0.5	103	3	75 - 125	20
Total Potassium	105	105	mg/L	1	100	<0.5	105	0	75 - 125	20
Total Sodium	106	104	mg/L	1	100	<0.5	106	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25555

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00113	0.00116	mg/L	1	0.001	<0.0002	113	2	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25623

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	91.7	91.7	µg/L	1	100	<1.00	92	0	70 - 130	20
Benzene	98.7	100	µg/L	1	100	<1.00	99	1	70 - 130	20
Trichloroethene (TCE)	89.8	89.8	µg/L	1	100	<1.00	90	0	70 - 130	20
Toluene	98.8	99.6	µg/L	1	100	<1.00	99	1	70 - 130	20
Chlorobenzene	96.5	96.6	µg/L	1	100	<1.00	96	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	47.7	47.6	µg/L	1	50	95	95	70 - 130
Toluene-d8	50.5	50.0	µg/L	1	50	101	100	70 - 130
4-Bromofluorobenzene	47.2	45.4	µg/L	1	50	94	91	70 - 130

Quality Control Report
Matrix Spikes and Duplicate Spikes

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 11 of 15
N/A Injection Wells N/A

Matrix Spikes QCBatch: QC25539

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	1300	1270	mg/L	1	1250	225	86	2	48 - 127	20
Fluoride	235	236	mg/L	1	250	4.10	92	0	82 - 101	20
Nitrate-N	260	258	mg/L	1	250	2.34	103	0	87 - 100	20
Sulfate	3030	3040	mg/L	1	1250	1840	95	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC25543

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	0.971	0.965	mg/L	1	1		97	0	75 - 125	20
Total Arsenic	0.495	0.490	mg/L	1	0.50		99	1	75 - 125	20
Total Barium	1.06	1.05	mg/L	1	1		106	0	75 - 125	20
Total Beryllium	0.0233	0.023	mg/L	1	0.02		93	1	75 - 125	20
Total Boron	0.127	0.128	mg/L	1	0.05		95	2	75 - 125	20
Total Cadmium	0.218	0.216	mg/L	1	0.25		87	0	75 - 125	20
Total Chromium	0.0878	0.087	mg/L	1	0.10		87	0	75 - 125	20
Total Iron	0.855	0.843	mg/L	1	0.50	0.0801	98	2	75 - 125	20
Total Lead	0.453	0.455	mg/L	1	0.50		90	0	75 - 125	20
Total Molybdenum	0.537	0.533	mg/L	1	0.50		107	0	75 - 125	20
Total Selenium	0.458	0.455	mg/L	1	0.50		91	0	75 - 125	20
Total Silver	0.126	0.125	mg/L	1	0.12		100	0	75 - 125	20
Total Uranium	0.991	0.981	mg/L	1	1		99	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC25555

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00110	0.00116	mg/L	1	0.001	<0.0002	110	5	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1) QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 12 of 15
N/A | Injection Wells | N/A

ICV (1) QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

CCV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.83	94	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.38	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.46	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.32	98	90 - 110	12/11/02

ICV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	12.01	96	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.39	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.47	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.59	100	90 - 110	12/11/02

CCV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1013	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	995	99	90 - 110	12/12/02

CCV (1) QCBatch: QC25543

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 13 of 15
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	23.6	94	90 - 110	12/12/02
Total Iron		mg/L	1	1.028	103	90 - 110	12/12/02
Total Magnesium		mg/L	25	23.8	95	90 - 110	12/12/02
Total Potassium		mg/L	25	26.1	104	90 - 110	12/12/02
Total Sodium		mg/L	25	26.4	105	90 - 110	12/12/02

ICV (1) QCBatch: QC25543

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	25.1	100	90 - 110	12/12/02
Total Iron		mg/L	1	1.04	104	90 - 110	12/12/02
Total Magnesium		mg/L	25	24.4	97	90 - 110	12/12/02
Total Potassium		mg/L	25	25	100	90 - 110	12/12/02
Total Sodium		mg/L	25	24.3	97	90 - 110	12/12/02

CCV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00098	98	80 - 120	12/12/02

ICV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	12/12/02

CCV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	24.6	98	90 - 110	12/12/02
Dissolved Magnesium		mg/L	25	24.8	99	90 - 110	12/12/02
Dissolved Potassium		mg/L	25	25.6	102	90 - 110	12/12/02
Dissolved Sodium		mg/L	25	25.3	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25566

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 14 of 15
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.1	100	95 - 105	12/12/02
Dissolved Magnesium		mg/L	25	24.4	97	95 - 105	12/12/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	12/12/02
Dissolved Sodium		mg/L	25	24.3	97	95 - 105	12/12/02

CCV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1414	100	90 - 110	12/16/02

ICV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1437	101	90 - 110	12/16/02

CCV (1) QCBatch: QC25623

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	49.0	98	80 - 120	12/14/02
1,1-Dichloroethene		µg/L	50	49.0	98	80 - 120	12/14/02
Chloroform		µg/L	50	54.0	108	80 - 120	12/14/02
1,2-Dichloropropane		µg/L	50	53.0	106	80 - 120	12/14/02
Toluene		µg/L	50	55.0	110	80 - 120	12/14/02
Chlorobenzene		µg/L	50	53.0	106	80 - 120	12/14/02
Ethylbenzene		µg/L	50	55.0	110	80 - 120	12/14/02
Dibromofluoromethane		µg/L	50	50.2	100	80 - 120	12/14/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	12/14/02
4-Bromofluorobenzene		µg/L	50	50.2	100	80 - 120	12/14/02

CCV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	16	0	-	12/17/02

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Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 15 of 15
N/A | Injection Wells | N/A

... Continued

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

ICV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	20	0	-	12/17/02
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

Released to Imaging: 7/12/2024 10:49:45 AM

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215473 - Inj Wells

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		146	mg/L as CaCo3
Total Alkalinity		146	mg/L as CaCo3
Specific Conductance		5070	µMHOS/cm
Corrosivity		Non-corrosive	mm/yr
pH		8.2	s.u.
Total Mercury		0.00022	mg/L
Ignitability		non-ignitable	
Chloride		1000	mg/L
Fluoride		66.05	mg/L
Nitrate-N		<1.0	mg/L
Sulfate		663	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		158	mg/L
Dissolved Magnesium		31.5	mg/L
Dissolved Potassium		17.2	mg/L
Dissolved Sodium		698	mg/L
Total Dissolved Solids		3005	mg/L
Total Aluminum		0.411	mg/L
Total Arsenic		0.135	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.158	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

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Received by OCD: 5/16/2022 2:12:41 PM

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215479 continued ...

Param	Flag	Result	Units
Total Copper		<0.0125	mg/L
Total Iron		0.950	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.0672	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.122	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.0586	mg/L
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<25.0	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone		<50.0	µg/L
Iodomethane (methyl iodide)		<25.0	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L

Continued on next page ...

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215479 continued ...

Param	Flag	Result	Units
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroethene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene (meta)		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortho)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Test Comments	1	note:	µg/L
pH	2	7.5	s.u.

[1]elevated reporting limit due to matrix difficulty.
[2]The sample was received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

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'15473

Page ____ of ____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 402121013

mpany Name: NAVAJO
Phone #: 505 748 3311
dress: (Street, City, Zip) 501 E Main
Fax #: 505 746 5421
ntact Person: Darrell Moore
oice to: (different from above)
ject #:
Project Name: Inj. wells
ject Location: Artesia
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
15473	Inj. wells	4	40ml	X				X				X		12/9/02	940
	" "	1	500ml	X					X			X		12/9/02	940
	" "	2	1L	X								X	X	12/9/02	940

MTBE 8021B/602
BTEX 8021B/602
TPH 418.1/TX1005
PAH 8270C
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7
TCLP Metals Ag As Ba Cd Cr Pb Se Hg
TCLP Volatiles
TCLP Semi Volatiles
TCLP Pesticides
RCI
GC/MS Vol. 8260B/624
GC/MS Semi. Vol. 8270C/625
PCB's 8082/608
Pesticides 8081A/608
BOD, TSS, pH
X 8240, ECs
X anions, cations, TDS, cond, pH
X Al, As, Ba, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mn, Mo, Ni, Se, Ag, V, Zn, U
Turn Around Time if different from standard
Hold

Relinquished by: Date: 12/9/02 Time: 1615
Received by: Date: Time:
Relinquished by: Date: Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received at Laboratory by: Vicki Crosby Date: 12-10-02 Time: 1000

LAB USE ONLY
Intact (Y) / N
Headspace Y (N)
Temp -1° C
Log-in Review MH

REMARKS:
8270 will be re-sampled per Charlie 12/10
12/31 SP
☐ Check if Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 2, 2003

Order ID Number: A02121224

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215707	Inj Well	Water	12/11/02	14:30	12/12/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.
Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 8 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 2 of 8
N/A Injection Wells N/A

Analytical Report

Sample: 215707 - Inj Well

Analysis: Semivolatiles Analytical Method: S 8270C QC Batch: QC25941 Date Analyzed: 12/16/02
Analyst: RC Preparation Method: E 3510C Prep Batch: PB23757 Date Prepared: 12/12/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 3 of 8
N/A Injection Wells N/A

... *Continued* Sample: 215707 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		14.66	mg/L	1	80	18	0 - 66
Phenol-d5		11.44	mg/L	1	80	14	0 - 70

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 4 of 8
N/A Injection Wells N/A

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		33.80	mg/L	1	80	42	23 - 99
2-Fluorobiphenyl		39.19	mg/L	1	80	48	27 - 95
2,4,6-Tribromophenol		22.97	mg/L	1	80	28	0 - 199
Terphenyl-d14		25.21	mg/L	1	80	31	20 - 96

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Page 4559 of 5828

Report Date: January 2, 2003 | Order Number: A02121224 | Page Number: 5 of 8
N/A | Injection Wells | N/A

Quality Control Report
Method Blank

Method Blank QCBatch: QC25941

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005

Continued ...

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Report Date: January 2, 2003 | Order Number: A02121224 | Page Number: 6 of 8
N/A | Injection Wells | N/A

... *Continued*

Param	Flag	Results	Units	Reporting Limit
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		44.87	mg/L	1	80	56	0 - 66

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 7 of 8
N/A Injection Wells N/A

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Phenol-d5		43.42	mg/L	1	80	54	0 - 70
Nitrobenzene-d5		78.46	mg/L	1	80	98	23 - 99
2-Fluorobiphenyl		71.61	mg/L	1	80	89	27 - 95
2,4,6-Tribromophenol		53.86	mg/L	1	80	67	0 - 199
Terphenyl-d14		79.78	mg/L	1	80	99	20 - 96

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC25941

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	26.07	26.38	mg/L	1	80	<0.005	32	1	0 - 81	20
2-Chlorophenol	54.17	54.37	mg/L	1	80	<0.005	67	0	12 - 83	20
1,4-Dichlorobenzene	55.34	55.94	mg/L	1	80	<0.005	69	1	13 - 88	20
n-Nitrosodi-n-propylamine	64.45	63.76	mg/L	1	80	<0.005	80	1	9 - 101	20
1,2,4-Trichlorobenzene	57.51	57.66	mg/L	1	80	<0.005	71	0	21 - 87	20
4-Chloro-3-methylphenol	61.52	57.96	mg/L	1	80	<0.005	76	5	14 - 92	20
Acenaphthene	59.82	60.39	mg/L	1	80	<0.005	74	0	26 - 86	20
4-Nitrophenol	27.77	29.00	mg/L	1	80	<0.005	34	4	0 - 104	20
2,4-Dinitrotoluene	75.52	76.08	mg/L	1	80	<0.005	94	0	29 - 94	20
Pentachlorophenol	46.25	47.91	mg/L	1	80	<0.005	57	3	1 - 97	20
Pyrene	62.21	61.37	mg/L	1	80	<0.005	77	1	25 - 90	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	44.68	44.6	mg/L	1	80	55	55	0 - 66
Phenol-d5	33.33	37.22	mg/L	1	80	41	46	0 - 70
Nitrobenzene-d5	66.47	66.99	mg/L	1	80	83	83	23 - 99
2-Fluorobiphenyl	60.84	65.5	mg/L	1	80	76	81	27 - 95
2,4,6-Tribromophenol	67.69	68.69	mg/L	1	80	84	85	0 - 199
Terphenyl-d14	70.81	68.74	mg/L	1	80	88	85	20 - 96

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25941

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	63.89	106	80 - 120	12/16/02
1,4-Dichlorobenzene		mg/L	60	62.2	103	80 - 120	12/16/02
2-Nitrophenol		mg/L	60	66.21	110	80 - 120	12/16/02
2,4-Dichlorophenol		mg/L	60	67.75	112	80 - 120	12/16/02
Hexachlorobutadiene		mg/L	60	54.23	90	80 - 120	12/16/02

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 8 of 8
N/A Injection Wells N/A

... *Continued*

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
4-Chloro-3-methylphenol		mg/L	60	69.15	115	80 - 120	12/16/02
2,4,6-Trichlorophenol		mg/L	60	58.89	98	80 - 120	12/16/02
Acenaphthene		mg/L	60	60.52	100	80 - 120	12/16/02
Diphenylamine		mg/L	60	58.92	98	80 - 120	12/16/02
Pentachlorophenol		mg/L	60	58.79	97	80 - 120	12/16/02
Fluoranthene		mg/L	60	55.22	92	80 - 120	12/16/02
Di-n-octylphthalate		mg/L	60	59.71	99	80 - 120	12/16/02
Benzo(a)pyrene		mg/L	60	64.45	107	80 - 120	12/16/02
2-Fluorophenol		mg/L	60	63.66	106	80 - 120	12/16/02
Phenol-d5		mg/L	60	71.01	118	80 - 120	12/16/02
Nitrobenzene-d5		mg/L	60	60.76	101	80 - 120	12/16/02
2-Fluorobiphenyl		mg/L	60	57.7	96	80 - 120	12/16/02
2,4,6-Tribromophenol		mg/L	60	52.2	87	80 - 120	12/16/02
Terphenyl-d14		mg/L	60	49.65	82	80 - 120	12/16/02

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 2, 2003

Order ID Number: A02121224

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215707	Inj Well	Water	12/11/02	14:30	12/12/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215707 - Inj Well

Param	Flag	Result	Units
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene (meta)		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215707 continued ...

Param	Flag	Result	Units
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene*		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215707 continued ...

Param	Flag	Result	Units
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L

This is only a summary. Please, refer to the complete report package for quality control data.

15707

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:29 PM

Page ____ of ____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # AD212122-4

Company Name: Navajo
Phone #: 505748-3311
Address: (Street, City, Zip) 501 E. Main
Fax #: 505746-5421
Contact Person: Darrell Moore
Invoice to: (if different from above)
Project #:
Project Name: Inj. wells
Project Location: Aztesia
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
15707	Inj. Wells	1	1L	X								X	X	12/1/02	1430

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

All | Vol | All

Relinquished by: Date: 12/1/02 Time: 1615
Received by: Date: Time:
Relinquished by: Date: Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received at Laboratory by: Dick Dang Date: 12-2-02 Time: 10:10

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp -2°
Log-in Review MA

REMARKS:
Svol only
PAF
12/03

☐ Check If Special Reporting Limits Are Needed

Carrier # Fed Ex 7912 5997 1447

TRACEANALYSIS

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

January 15, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2002 to December 31, 2003. We have disposed a total of 12,330,037 bbls. of fluid into the two wells as of December 31 2002. This is broken down as follows: 9,100,909 bbls. into WDW-1 and 3,229,128 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215473 - Inj Wells

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		146	mg/L as CaCo3
Total Alkalinity		146	mg/L as CaCo3
Specific Conductance		5070	μMHOS/cm
Corrosivity		Non-corrosive	mm/yr
pH		8.2	s.u.
Total Mercury		0.00022	mg/L
Ignitability		non-ignitable	
Chloride		1000	mg/L
Fluoride		66.05	mg/L
Nitrate-N		<1.0	mg/L
Sulfate		663	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		158	mg/L
Dissolved Magnesium		31.5	mg/L
Dissolved Potassium		17.2	mg/L
Dissolved Sodium		698	mg/L
Total Dissolved Solids		3005	mg/L
Total Aluminum		0.411	mg/L
Total Arsenic		0.135	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.158	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215473 continued ...

Param	Flag	Result	Units
Total Copper		<0.0125	mg/L
Total Iron		0.950	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.0672	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.122	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.0586	mg/L
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<25.0	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone		<50.0	µg/L
Iodomethane (methyl iodide)		<25.0	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215473 continued ...

Param	Flag	Result	Units
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroetbene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene (meta)		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortbo)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Test Comments	[1]	note:	µg/L
pH	[2]	7.5	s.u.

[1]elevated reporting limit due to matrix difficulty.
[2]The sample was received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

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Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Analytical Report

Sample: 215473 - Inj Wells

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC25706 Date Analyzed: 12/17/02
Analyst: MS Preparation Method: N/A Prep Batch: PB23811 Date Prepared: 12/17/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		146	mg/L as CaCo3	1	4
Total Alkalinity		146	mg/L as CaCo3	1	4

Sample: 215473 - Inj Wells

Analysis: Conductivity Analytical Method: SM 2510B QC Batch: QC25592 Date Analyzed: 12/16/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23722 Date Prepared: 12/16/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5070	μMHOS/cm	1	

Sample: 215473 - Inj Wells

Analysis: Corrosivity Analytical Method: S 1110 QC Batch: QC25828 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23933 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non-corrosive	mm/yr	1	
pH		8.2	s.u.	1	

Sample: 215473 - Inj Wells

Analysis: Hg, Total Analytical Method: S 7470A QC Batch: QC25555 Date Analyzed: 12/12/02
Analyst: BC Preparation Method: N/A Prep Batch: PB23652 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		0.00022	mg/L	1	0.0002

Sample: 215473 - Inj Wells

Analysis: Ignitability Analytical Method: SW-846 Ch. 7.1 QC Batch: QC25826 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23931 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 215473 - Inj Wells

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC25539 Date Analyzed: 12/11/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23675 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		1000	mg/L	100	1
Fluoride		66.05	mg/L	5	0.20
Nitrate-N		<1.0	mg/L	5	0.20
Sulfate		663	mg/L	100	1

Sample: 215473 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC25829 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23934 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 215473 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC25566 Date Analyzed: 12/12/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB23664 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		158	mg/L	1	0.50
Dissolved Magnesium		31.5	mg/L	1	0.50
Dissolved Potassium		17.2	mg/L	1	0.50
Dissolved Sodium		698	mg/L	1	0.50

Sample: 215473 - Inj Wells

Analysis: TDS Analytical Method: E 160.1 QC Batch: QC25540 Date Analyzed: 12/12/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23674 Date Prepared: 12/10/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		3005	mg/L	5	10

Sample: 215473 - Inj Wells

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC25543 Date Analyzed: 12/12/02
Analyst: RR Preparation Method: N/A Prep Batch: PB23651 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.411	mg/L	1	0.05
Total Arsenic		0.135	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.158	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		0.950	mg/L	1	0.05

Continued ...

... *Continued* Sample: 215473 Analysis: Total Metals

Param	Flag	Result	Units	Dilution	RDL
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.0672	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.122	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.0586	mg/L	1	0.02

Sample: 215473 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC25623	Date Analyzed:	12/14/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB23747	Date Prepared:	12/14/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1

Continued ...

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... *Continued* Sample: 215473 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.6	µg/L	5	50	99	70 - 130
Toluene-d8		50.1	µg/L	5	50	100	70 - 130
4-Bromofluorobenzene		45.6	µg/L	5	50	91	70 - 130

Sample: 215473 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC25527	Date Analyzed:	12/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB23667	Date Prepared:	12/10/02

Param	Flag	Result	Units	Dilution	RDL
pH	[2]	7.5	s.u.	1	1

[1] elevated reporting limit due to matrix difficulty.
[2] The sample was received out of holding time

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Quality Control Report
Method Blank

Method Blank QCBatch: QC25539

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC25540

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC25543

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.05
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		0.0166	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC25555

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

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Method Blank

QCBatch: QC25566

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank

QCBatch: QC25592

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		9.25	μMHOS/cm	

Method Blank

QCBatch: QC25623

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene	[3]	<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1

Continued ...

[3]estimated concentration=0.16 μg/L. Reported between MDL (.054 μg/L) and reporting limit.

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Param	Flag	Results	Units	Reporting Limit
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene	[4]	<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene	[5]	<1.00	µg/L	1
m,p-Xylene	[6]	<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene	[7]	<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	70 - 130
Toluene-d8		52.8	µg/L	1	50	106	70 - 130
4-Bromofluorobenzene		47.7	µg/L	1	50	95	70 - 130

[4]estimated concentration=0.19 µg/L. Reported between MDL (.042 µg/L) and reporting limit.
[5]estimated concentration=0.04 µg/L. Reported between MDL (.018 µg/L) and reporting limit.
[6]estimated concentration=0.09 µg/L. Reported between MDL (.051 µg/L) and reporting limit.
[7]estimated concentration=0.05 µg/L. Reported between MDL (.028 µg/L) and reporting limit.

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Method Blank QCBatch: QC25706

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	4
Total Alkalinity		<4.0	mg/L as CaCo3	4

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC25527

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.8	8.8	s.u.	1	0	0

Duplicate QCBatch: QC25540

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1270	1234	mg/L	1	2	9.7

Duplicate QCBatch: QC25592

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4130	4040	µMHOS/cm	1	2	20

Duplicate QCBatch: QC25706

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		690	684	mg/L as CaCo3	1	0	9.2
Total Alkalinity		690	684	mg/L as CaCo3	1	0	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC25539

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.63	13.13	mg/L	1	12.50	<1.0	93	12	90 - 110	20
Fluoride	2.36	2.38	mg/L	1	2.50	<0.2	94	0	90 - 110	20
Nitrate-N	2.45	2.45	mg/L	1	2.50	<0.2	98	0	90 - 110	20
Sulfate	12.12	12.26	mg/L	1	12.50	<1.0	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25543

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Calcium	99.4	98.8	mg/L	1	100	<0.5	99	0	75 - 125	20
Total Iron	0.512	0.515	mg/L	1	0.50	<0.050	102	0	75 - 125	20
Total Magnesium	103	99.8	mg/L	1	100	<0.5	103	3	75 - 125	20
Total Potassium	105	105	mg/L	1	100	<0.5	105	0	75 - 125	20
Total Sodium	106	104	mg/L	1	100	<0.5	106	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25555

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00113	0.00116	mg/L	1	0.001	<0.0002	113	2	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25623

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	91.7	91.7	µg/L	1	100	<1.00	92	0	70 - 130	20
Benzene	98.7	100	µg/L	1	100	<1.00	99	1	70 - 130	20
Trichloroethene (TCE)	89.8	89.8	µg/L	1	100	<1.00	90	0	70 - 130	20
Toluene	98.8	99.6	µg/L	1	100	<1.00	99	1	70 - 130	20
Chlorobenzene	96.5	96.6	µg/L	1	100	<1.00	96	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	47.7	47.6	µg/L	1	50	95	95	70 - 130
Toluene-d8	50.5	50.0	µg/L	1	50	101	100	70 - 130
4-Bromofluorobenzene	47.2	45.4	µg/L	1	50	94	91	70 - 130

Quality Control Report
Matrix Spikes and Duplicate Spikes

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Matrix Spikes

QCBatch: QC25539

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	1300	1270	mg/L	1	1250	225	86	2	48 - 127	20
Fluoride	235	236	mg/L	1	250	4.10	92	0	82 - 101	20
Nitrate-N	260	258	mg/L	1	250	2.34	103	0	87 - 100	20
Sulfate	3030	3040	mg/L	1	1250	1840	95	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25543

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	0.971	0.965	mg/L	1	1		97	0	75 - 125	20
Total Arsenic	0.495	0.490	mg/L	1	0.50		99	1	75 - 125	20
Total Barium	1.06	1.05	mg/L	1	1		106	0	75 - 125	20
Total Beryllium	0.0233	0.023	mg/L	1	0.02		93	1	75 - 125	20
Total Boron	0.127	0.128	mg/L	1	0.05		95	2	75 - 125	20
Total Cadmium	0.218	0.216	mg/L	1	0.25		87	0	75 - 125	20
Total Chromium	0.0878	0.087	mg/L	1	0.10		87	0	75 - 125	20
Total Iron	0.855	0.843	mg/L	1	0.50	0.0801	98	2	75 - 125	20
Total Lead	0.453	0.455	mg/L	1	0.50		90	0	75 - 125	20
Total Molybdenum	0.537	0.533	mg/L	1	0.50		107	0	75 - 125	20
Total Selenium	0.458	0.455	mg/L	1	0.50		91	0	75 - 125	20
Total Silver	0.126	0.125	mg/L	1	0.12		100	0	75 - 125	20
Total Uranium	0.991	0.981	mg/L	1	1		99	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25555

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00110	0.00116	mg/L	1	0.001	<0.0002	110	5	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

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ICV (1) QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

CCV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.83	94	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.38	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.46	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.32	98	90 - 110	12/11/02

ICV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	12.01	96	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.39	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.47	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.59	100	90 - 110	12/11/02

CCV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1013	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	995	99	90 - 110	12/12/02

CCV (1) QCBatch: QC25543

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 13 of 15
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	23.6	94	90 - 110	12/12/02
Total Iron		mg/L	1	1.028	103	90 - 110	12/12/02
Total Magnesium		mg/L	25	23.8	95	90 - 110	12/12/02
Total Potassium		mg/L	25	26.1	104	90 - 110	12/12/02
Total Sodium		mg/L	25	26.4	105	90 - 110	12/12/02

ICV (1) QCBatch: QC25543

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	25.1	100	90 - 110	12/12/02
Total Iron		mg/L	1	1.04	104	90 - 110	12/12/02
Total Magnesium		mg/L	25	24.4	97	90 - 110	12/12/02
Total Potassium		mg/L	25	25	100	90 - 110	12/12/02
Total Sodium		mg/L	25	24.3	97	90 - 110	12/12/02

CCV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00098	98	80 - 120	12/12/02

ICV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	12/12/02

CCV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	24.6	98	90 - 110	12/12/02
Dissolved Magnesium		mg/L	25	24.8	99	90 - 110	12/12/02
Dissolved Potassium		mg/L	25	25.6	102	90 - 110	12/12/02
Dissolved Sodium		mg/L	25	25.3	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.1	100	95 - 105	12/12/02
Dissolved Magnesium		mg/L	25	24.4	97	95 - 105	12/12/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	12/12/02
Dissolved Sodium		mg/L	25	24.3	97	95 - 105	12/12/02

CCV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1414	100	90 - 110	12/16/02

ICV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1437	101	90 - 110	12/16/02

CCV (1) QCBatch: QC25623

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	49.0	98	80 - 120	12/14/02
1,1-Dichloroethene		µg/L	50	49.0	98	80 - 120	12/14/02
Chloroform		µg/L	50	54.0	108	80 - 120	12/14/02
1,2-Dichloropropane		µg/L	50	53.0	106	80 - 120	12/14/02
Toluene		µg/L	50	55.0	110	80 - 120	12/14/02
Chlorobenzene		µg/L	50	53.0	106	80 - 120	12/14/02
Ethylbenzene		µg/L	50	55.0	110	80 - 120	12/14/02
Dibromofluoromethane		µg/L	50	50.2	100	80 - 120	12/14/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	12/14/02
4-Bromofluorobenzene		µg/L	50	50.2	100	80 - 120	12/14/02

CCV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	16	0	-	12/17/02

Continued ...

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... *Continued*

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

ICV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	20	0	-	12/17/02
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

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Page ____ of ____

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # AO212013

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 746 5421
Contact Person: Darrell Moore
Invoice to: (if different from above)
Project #:
Project Name: Inj. wells
Project Location: Artesia
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
215473	Inj. wells	4 2	40ml	X				X				X		12/9/02	940
	" "	1	500ml	X					X			X		12/9/02	940
	" "	2	1L	X								X	X	12/9/02	940

ANALYSIS REQUEST (Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	8240, 8260	cations, TDS, cond, pH	Al, As, Be, B, Cd, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, Se, Ag, V, Zn, U, Pb	Turn Around Time if different from standard	Hold
				See List											X	X	X		

Relinquished by: Date: 12/9/02 Time: 1615
Received by: Date: Time:
Relinquished by: Date: Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received at Laboratory by: Vicki Crowley Date: 12-10-02 Time: 10:00

LAB USE ONLY
Intact (Y) / N
Headspace Y (N)
Temp -1.0 °
Log-in Review mm

REMARKS:
8270 will be re-sampled per Charlie 12/10
12/31 FIP
☐ Check If Special Reporting Limits Are Needed

Carrier # FedEx 7906-4982-1807

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Oct-02	217	386	115	184	240	113	196	495	140	6325	8240	3882	196,066
Nov-02	158	279	70	197	266	141	128	210	1	6747	9118	4840	209,162
Dec-02	145	197	1	177	218	78	143	342	0	6084	7472	2667	188,597
WDW-2													
Oct-02	218	420	21	121	178	10	189	344	116	4161	6100	357	128,994
Nov-02	92	197	0	79	150	0	375	500	22	2699	5141	4	83,655
Dec-02	189	233	129	136	151	117	129	145	34	4676	5185	4011	144,963

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

October 15, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2002 to September 30, 2002. We have disposed a total of 11,378,600 bbls. of fluid into the two wells as of September 30 2002. This is broken down as follows: 8,507,084 bbls. into WDW-1 and 2,871,516 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: September 20, 2002 Order Number: A02091009 Page Number: 1 of 2
N/A ABT Inlet/RO Reject Artesia

Summary Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: September 20, 2002

Order ID Number: A02091009

Project Number: N/A
Project Name: ABT Inlet/RO Reject
Project Location: Artesia

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
207619	ABT Inlet Tk 836	Water	9/9/02	14:45	9/10/02
207620	RO Reject	Water	9/9/02	15:30	9/10/02

0 This report consists of a total of 2 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 207619 - ABT Inlet Tk 836

Param	Flag	Result	Units
Biological Oxygen Demand		1440	mg/L
Chemical Oxygen Demand		2820	mg/L
Phenolics		114	mg/L
Total Kjeldahl Nitrogen - N		166	mg/L

Sample: 207620 - RO Reject

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		618	mg/L as CaCo3
Total Alkalinity		618	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
Chloride		166	mg/L
Fluoride	[1]	3.46	mg/L
Nitrate-N	[2]	2.21	mg/L
Sulfate		1760	mg/L
Dissolved Calcium		609	mg/L
Dissolved Magnesium		205	mg/L
Dissolved Potassium		7.21	mg/L
Dissolved Sodium		114	mg/L
Total Aluminum		<0.100	mg/L
Total Arsenic		<0.050	mg/L

Continued on next page ...

[1]Reran on IC091602-2: LCS = 90 RPD = 4; ICV = 90 and CCV = 94.
[2]Reran on IC091602-2: LCS = 92 RPD = 0; ICV = 92 and CCV = 92.

This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: September 20, 2002 Order Number: A02091009 Page Number: 2 of 2
N/A ABT Inlet/RO Reject Artesia

Sample 207620 continued ...

Param	Flag	Result	Units
Total Barium		0.110	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.0713	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		<0.0125	mg/L
Total Iron		<0.050	mg/L
Total Lead		<0.010	mg/L
Total Manganese		<0.025	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		<0.050	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		<0.025	mg/L

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: September 20, 2002

Order ID Number: A02091009

Project Number: N/A
Project Name: ABT Inlet/RO Reject
Project Location: Artesia

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
207619	ABT Inlet Tk 836	Water	9/9/02	14:45	9/10/02
207620	RO Reject	Water	9/9/02	15:30	9/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 13 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

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Analytical Report

Sample: 207619 - ABT Inlet Tk 836

Analysis:	BOD5	Analytical Method:	SM 5210B	QC Batch:	QC23572	Date Analyzed:	9/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22068	Date Prepared:	9/11/02

Param	Flag	Result	Units	Dilution	RDL
Biological Oxygen Demand		1440	mg/L	1	1

Sample: 207619 - ABT Inlet Tk 836

Analysis:	COD	Analytical Method:	E 410.4	QC Batch:	QC23573	Date Analyzed:	9/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22067	Date Prepared:	9/16/02

Param	Flag	Result	Units	Dilution	RDL
Chemical Oxygen Demand		2820	mg/L	10	20

Sample: 207619 - ABT Inlet Tk 836

Analysis:	Phenolics	Analytical Method:	SM 5530D	QC Batch:	QC23594	Date Analyzed:	9/17/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB22084	Date Prepared:	9/17/02

Param	Flag	Result	Units	Dilution	RDL
Phenolics		114	mg/L	200	0.12

Sample: 207619 - ABT Inlet Tk 836

Analysis:	TKN	Analytical Method:	E 351.3	QC Batch:	QC23460	Date Analyzed:	9/11/02
Analyst:	MW	Preparation Method:	N/A	Prep Batch:	PB21990	Date Prepared:	9/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Kjeldahl Nitrogen - N		166	mg/L	1	4

Sample: 207620 - RO Reject

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC23490	Date Analyzed:	9/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22006	Date Prepared:	9/10/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		618	mg/L as CaCo3	1	1
Total Alkalinity		618	mg/L as CaCo3	1	1

Sample: 207620 - RO Reject

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC23549	Date Analyzed:	9/16/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB22048	Date Prepared:	9/16/02

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Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 207620 - RO Reject

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC23557 Date Analyzed: 9/11/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB22050 Date Prepared: 9/11/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		166	mg/L	5	1
Fluoride	[1]	3.46	mg/L	5	0.20
Nitrate-N	[2]	2.21	mg/L	5	0.20
Sulfate		1760	mg/L	50	1

Sample: 207620 - RO Reject

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC23525 Date Analyzed: 9/14/02
Analyst: RR Preparation Method: S 3005A Prep Batch: PB21982 Date Prepared: 9/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		609	mg/L	1.10	0.50
Dissolved Magnesium		205	mg/L	1.10	0.50
Dissolved Potassium		7.21	mg/L	1.10	0.50
Dissolved Sodium		114	mg/L	1.10	0.50

Sample: 207620 - RO Reject

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC23583 Date Analyzed: 9/17/02
Analyst: RR Preparation Method: S 3010A Prep Batch: PB22031 Date Prepared: 9/13/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		<0.050	mg/L	1	0.05
Total Barium		0.110	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.0713	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		<0.050	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		<0.025	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		<0.050	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		<0.025	mg/L	1	0.02

[1]Reran on IC091602-2: LCS = 90 RPD = 4; ICV = 90 and CCV = 94.
[2]Reran on IC091602-2: LCS = 92 RPD = 0; ICV = 92 and CCV = 92.

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Quality Control Report
Method Blank

Method Blank QCBatch: QC23460

Param	Flag	Results	Units	Reporting Limit
Total Kjeldahl Nitrogen - N		<4.0	mg/L	4

Method Blank QCBatch: QC23490

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank QCBatch: QC23525

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.550	mg/L	0.50
Dissolved Magnesium		<0.550	mg/L	0.50
Dissolved Potassium		<0.550	mg/L	0.50
Dissolved Sodium		<0.550	mg/L	0.50

Method Blank QCBatch: QC23549

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank QCBatch: QC23557

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC23572

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Param	Flag	Results	Units	Reporting Limit
Biological Oxygen Demand		< 1	mg/L	1

Method Blank QCBatch: QC23573

Param	Flag	Results	Units	Reporting Limit
Chemical Oxygen Demand		<20	mg/L	20

Method Blank QCBatch: QC23583

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.10
Total Arsenic		<0.050	mg/L	0.05
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		<0.0125	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.02	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC23594

Param	Flag	Results	Units	Reporting Limit
Phenolics		<0.12	mg/L	0.12

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC23490

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Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		50	49	mg/L as CaCo3	1	2	9.2
Total Alkalinity		50	49	mg/L as CaCo3	1	2	9.2

Duplicate

QCBatch: QC23572

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Biological Oxygen Demand		295	277	mg/L	1	6	25

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC23460

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Kjeldahl Nitrogen - N	45.1	44.0	mg/L	1	50	<4.0	90	2	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23525

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	98.2	99.9	mg/L	1.12	100	<0.550	98	1	75 - 125	20
Dissolved Magnesium	97.4	99.5	mg/L	1.12	100	<0.550	97	2	75 - 125	20
Dissolved Potassium	92.1	93.2	mg/L	1.12	100	<0.550	92	1	75 - 125	20
Dissolved Sodium	94.3	94.4	mg/L	1.12	100	<0.550	94	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23549

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00106	0.00107	mg/L	1	0.001	<0.0002	106	0	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23557

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.23	11.19	mg/L	1	12.50	<1.0	89	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23572

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Biological Oxygen Demand	206	196	mg/L	1	198	0.24	104	4	76 - 132	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23573

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chemical Oxygen Demand	246	251	mg/L	1	250	<20	98	2	95 - 105	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23583

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	1.01	1.00	mg/L	1	1	<0.100	101	1	75 - 125	20
Total Arsenic	0.569	0.585	mg/L	1	0.50	<0.050	114	3	75 - 125	20
Total Barium	1.06	1.06	mg/L	1	1	<0.100	106	0	75 - 125	20
Total Beryllium	0.0257	0.0257	mg/L	1	0.02	<0.0025	103	0	75 - 125	20
Total Boron	0.0479	0.0465	mg/L	1	0.05	<0.005	96	3	75 - 125	20
Total Cadmium	0.263	0.263	mg/L	1	0.25	<0.005	100	0	75 - 125	20
Total Chromium	0.105	0.105	mg/L	1	0.10	<0.010	105	0	75 - 125	20
Total Cobalt	0.262	0.262	mg/L	1	0.25	<0.025	105	0	75 - 125	20
Total Copper	0.133	0.132	mg/L	1	0.12	<0.0125	106	0	75 - 125	20
Total Iron	0.521	0.518	mg/L	1	0.50	<0.050	104	0	75 - 125	20
Total Lead	0.515	0.522	mg/L	1	0.50	<0.01	98	1	75 - 125	20
Total Manganese	0.265	0.263	mg/L	1	0.25	<0.025	106	1	75 - 125	20
Total Molybdenum	0.545	0.548	mg/L	1	0.50	<0.050	109	0	75 - 125	20
Total Nickel	0.265	0.265	mg/L	1	0.25	<0.025	106	0	75 - 125	20
Total Selenium	0.449	0.444	mg/L	1	0.50	<0.050	90	1	75 - 125	20
Total Silver	0.129	0.129	mg/L	1	0.12	<0.0125	103	0	75 - 125	20
Total Uranium	0.522	0.529	mg/L	1	0.50	<0.02	99	1	75 - 125	20
Total Vanadium	0.266	0.265	mg/L	1	0.25	<0.025	106	0	75 - 125	20
Total Zinc	0.268	0.268	mg/L	1	0.25	<0.025	107	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23594

Released to Imaging: 7/12/2024 10:49:45 AM

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenolics	0.829	0.850	mg/L	1	0.80	<0.12	103	2	95 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC23460

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Kjeldahl Nitrogen - N	[3] 23.8	[4] 24.6	mg/L	1	50	<4.0	47	3	18 - 158	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23525

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	118	116	mg/L	1.12	100	23.1	94	2	75 - 125	20
Dissolved Magnesium	128	126	mg/L	1.12	100	38.4	89	2	75 - 125	20
Dissolved Potassium	105	104	mg/L	1.12	100	14.6	90	1	75 - 125	20
Dissolved Sodium	195	195	mg/L	1.12	100	86.6	108	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23549

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00140	0.00141	mg/L	1	0.001	0.00021	119	0	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23557

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	2131	2135	mg/L	1	1250	974	92	0	48 - 127	20
Sulfate	2402	2387	mg/L	1	1250	1190	96	1	59 - 121	20

[3]Matrix spike difficulties.
[4]Matrix spike difficulties.

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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23573

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chemical Oxygen Demand	291	287	mg/L	1	250	61.4	91	1	75 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23583

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	1.16	1.18	mg/L	1	1	<0.100	116	2	75 - 125	20
Total Arsenic	0.552	0.542	mg/L	1	0.50	<0.050	110	2	75 - 125	20
Total Barium	1.05	1.06	mg/L	1	1	0.110	93	1	75 - 125	20
Total Beryllium	0.0233	0.0237	mg/L	1	0.02	<0.0025	93	2	75 - 125	20
Total Boron	0.119	0.120	mg/L	1	0.05	0.0713	95	2	75 - 125	20
Total Cadmium	0.233	0.234	mg/L	1	0.25	<0.005	93	0	75 - 125	20
Total Chromium	0.0979	0.0979	mg/L	1	0.10	<0.010	98	0	75 - 125	20
Total Cobalt	0.247	0.250	mg/L	1	0.25	<0.025	99	1	75 - 125	20
Total Copper	0.141	0.144	mg/L	1	0.12	<0.0125	112	2	75 - 125	20
Total Iron	0.495	0.494	mg/L	1	0.50	<0.050	99	0	75 - 125	20
Total Lead	0.510	0.513	mg/L	1	0.50	<0.010	102	0	75 - 125	20
Total Manganese	0.249	0.253	mg/L	1	0.25	<0.025	100	2	75 - 125	20
Total Molybdenum	0.513	0.518	mg/L	1	0.50	<0.050	103	1	75 - 125	20
Total Nickel	0.238	0.240	mg/L	1	0.25	<0.025	95	1	75 - 125	20
Total Selenium	0.460	0.474	mg/L	1	0.50	<0.050	92	3	75 - 125	20
Total Silver	0.125	0.128	mg/L	1	0.12	<0.0125	100	2	75 - 125	20
Total Uranium	0.528	0.542	mg/L	1	0.50	<0.020	106	3	75 - 125	20
Total Vanadium	0.254	0.259	mg/L	1	0.25	<0.025	102	2	75 - 125	20
Total Zinc	0.238	0.240	mg/L	1	0.25	<0.025	95	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23594

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenolics	0.801	0.818	mg/L	1	0.80	<0.10	100	2	68 - 154	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC23460

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5	4.48	89	85 - 115	9/11/02

ICV (1) QCBatch: QC23460

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5	4.82	96	85 - 115	9/11/02

CCV (1) QCBatch: QC23490

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	9/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	240	0	90 - 110	9/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	9/10/02
Total Alkalinity		mg/L as CaCo3	250	246	98	90 - 110	9/10/02

ICV (1) QCBatch: QC23490

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	9/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	90 - 110	9/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	11	0	90 - 110	9/10/02
Total Alkalinity		mg/L as CaCo3	250	243	97	90 - 110	9/10/02

CCV (1) QCBatch: QC23525

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.0	100	90 - 110	9/14/02
Dissolved Magnesium		mg/L	25	24.7	99	90 - 110	9/14/02
Dissolved Potassium		mg/L	25	25.1	100	90 - 110	9/14/02
Dissolved Sodium		mg/L	25	25.0	100	90 - 110	9/14/02

ICV (1) QCBatch: QC23525

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.2	101	95 - 105	9/14/02
Dissolved Magnesium		mg/L	25	25.0	100	95 - 105	9/14/02
Dissolved Potassium		mg/L	25	25.4	102	95 - 105	9/14/02
Dissolved Sodium		mg/L	25	25.3	101	95 - 105	9/14/02

CCV (1) QCBatch: QC23549

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00099	99	80 - 120	9/16/02

ICV (1) QCBatch: QC23549

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	9/16/02

CCV (1) QCBatch: QC23557

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.19	89	90 - 110	9/11/02

ICV (1) QCBatch: QC23557

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.51	92	90 - 110	9/11/02

CCV (1) QCBatch: QC23573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chemical Oxygen Demand		mg/L	250	246	98	95 - 105	9/16/02

Received by OCD: 5/16/2022 2:12:41 PM

ICV (1) QCBatch: QC23573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chemical Oxygen Demand		mg/L	250	242	96	95 - 105	9/16/02

CCV (1) QCBatch: QC23583

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.98	99	90 - 110	9/17/02
Total Arsenic		mg/L	1	0.987	99	90 - 110	9/17/02
Total Barium		mg/L	2	2.00	100	90 - 110	9/17/02
Total Beryllium		mg/L	0.05	0.0499	100	90 - 110	9/17/02
Total Boron		mg/L	0.10	0.105	105	90 - 110	9/17/02
Total Cadmium		mg/L	0.50	0.496	97	90 - 110	9/17/02
Total Chromium		mg/L	0.20	0.200	100	90 - 110	9/17/02
Total Cobalt		mg/L	0.50	0.498	100	90 - 110	9/17/02
Total Copper		mg/L	0.25	0.250	100	90 - 110	9/17/02
Total Iron		mg/L	1	0.983	98	90 - 110	9/17/02
Total Lead		mg/L	1	0.989	96	90 - 110	9/17/02
Total Manganese		mg/L	0.50	0.501	100	90 - 110	9/17/02
Total Molybdenum		mg/L	1	1.00	100	90 - 110	9/17/02
Total Nickel		mg/L	0.50	0.502	100	90 - 110	9/17/02
Total Selenium		mg/L	1	0.993	99	90 - 110	9/17/02
Total Silver		mg/L	0.25	0.249	100	90 - 110	9/17/02
Total Uranium		mg/L	1	0.990	96	90 - 110	9/17/02
Total Vanadium		mg/L	0.50	0.501	100	90 - 110	9/17/02
Total Zinc		mg/L	0.50	0.499	100	90 - 110	9/17/02

ICV (1) QCBatch: QC23583

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	2.02	101	95 - 105	9/17/02
Total Arsenic		mg/L	1	1.03	103	95 - 105	9/17/02
Total Barium		mg/L	2	2.06	103	95 - 105	9/17/02
Total Beryllium		mg/L	0.05	0.0513	103	95 - 105	9/17/02
Total Boron		mg/L	0.10	0.109	109	95 - 105	9/17/02
Total Cadmium		mg/L	0.50	0.512	100	95 - 105	9/17/02
Total Chromium		mg/L	0.20	0.206	103	95 - 105	9/17/02
Total Cobalt		mg/L	0.50	0.513	103	95 - 105	9/17/02
Total Copper		mg/L	0.25	0.255	102	95 - 105	9/17/02
Total Iron		mg/L	1	1.03	103	95 - 105	9/17/02
Total Lead		mg/L	1	1.02	100	95 - 105	9/17/02
Total Manganese		mg/L	0.50	0.515	103	95 - 105	9/17/02
Total Molybdenum		mg/L	1	1.03	103	95 - 105	9/17/02
Total Nickel		mg/L	0.50	0.515	103	95 - 105	9/17/02

Continued ...

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... Continued

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1	1.02	102	95 - 105	9/17/02
Total Silver		mg/L	0.25	0.256	102	95 - 105	9/17/02
Total Uranium		mg/L	1	1.01	98	95 - 105	9/17/02
Total Vanadium		mg/L	0.50	0.514	103	95 - 105	9/17/02
Total Zinc		mg/L	0.50	0.515	103	95 - 105	9/17/02

CCV (1)

QCBatch: QC23594

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenolics		mg/L	0.80	0.801	100	85 - 115	9/17/02

ICV (1)

QCBatch: QC23594

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenolics		mg/L	0.80	0.822	102	85 - 115	9/17/02

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207619-20

Page_____of_____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 1D0291009

Company Name: NAVAJO
Phone #: 5057483311
Address: (Street, City, Zip) 501 E Main
Fax #: 5057465421
Contact Person: Charlie Plymale
Invoice to: (If different from above)
Project #:
Project Name: ABT Inlet / RO Reject
Project Location: Artesia
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
207619	ABT Inlet JK836	1	1L	X						X		X		9/9/02	1445
	" "	1	1L	X								X	X	9/9/02	1445
	" "	1	500ml	X						X		X		9/9/02	1445
207620	RO Reject	1	1L	X								X	X	9/9/02	1530
	" "	1	1L	X					X			X		9/9/02	1530

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Turn Around Time if different from standard	Hold
				See List												

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	9/9/02	1615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
				9-10-02	10 am

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp -1 °
Log-in Review MS

REMARKS:

☐ Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

Carrier # Fed Ex 7900-5576-0049

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MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo refining Company

WDW-1	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
Jul-02	443	500	0	205	232	0	213	240	0	7037	7939	0	218,136
Aug-02	279	500	157	197	232	149	169	240	146	6744	7949	5112	209,077
Sep-02	198	261	97	167	199	117	145	152	142	5737	6809	3999	177,855
WDW-2													
Jul-02	172	268	0	113	160	0	99	152	0	3887	5485	0	120,499
Aug-02	219	303	104	130	160	58	187	311	112	4448	5472	1976	137,893
Sep-02	228	287	128	130	154	94	180	257	128	4473	5271	3223	138,649

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NAVAJO REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

October 30, 2001

RECEIVED
NOV 13 2001
Environmental Bureau
Oil Conservation Division

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2001 to September 30, 2001. We have disposed a total of 8,443,165 bbls. of fluid down the two wells as of September 30, 2001. This is broken down as follows: 6,446,668 bbls. down WDW-1 and 1,996,497 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 17, 2001

Order ID Number: A01100310

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
180928	Inj Well	Water	10/2/01	14:00	10/3/01

This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 180928 - Inj Well

Param	Flag	Result	Units
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L

Continued on next page ...

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 180928 continued ...

Param	Flag	Result	Units
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L

Continued on next page ...

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 180928 continued ...

Param	Flag	Result	Units
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 17, 2001

Order ID Number: A01100310

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
180928	Inj Well	Water	10/2/01	14:00	10/3/01

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 7 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report

Sample: 180928 - Inj Well

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC14881	Date Analyzed:	10/11/01
Analyst:	RC	Preparation Method:	E 3510C	Prep Batch:	PB12651	Date Prepared:	10/4/01

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 180928 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		16.26	mg/L	1	80	20	21 - 100
Phenol-d5		9.68	mg/L	1	80	12	11 - 94
Nitrobenzene-d5		47.77	mg/L	1	80	59	35 - 114
2-Fluorobiphenyl		47.08	mg/L	1	80	58	43 - 116
2,4,6-Tribromophenol		53.59	mg/L	1	80	66	10 - 123
Terphenyl-d14		28.71	mg/L	1	80	35	33 - 141

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Quality Control Report
Method Blank

Method Blank QCBatch: QC14881

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2.6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005

Continued ...

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... Continued

Param	Flag	Results	Units	Reporting Limit
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		14.24	mg/L	1	80	17	21 - 100
Phenol-d5		11.8	mg/L	1	80	14	11 - 94
Nitrobenzene-d5		68.41	mg/L	1	80	85	35 - 114
2-Fluorobiphenyl		63.26	mg/L	1	80	79	43 - 116
2,4,6-Tribromophenol		41.79	mg/L	1	80	52	10 - 123

Continued ...

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Terphenyl-d14		45.95	mg/L	1	80	57	33 - 141

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC14881

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	11.26	12.83	mg/L	1	80	<0.005	14	13	5 - 112	20
2-Chlorophenol	38.17	38.8	mg/L	1	80	<0.005	47	1	23 - 134	20
1,4-Dichlorobenzene	43.6	40.39	mg/L	1	80	<0.005	54	7	20 - 124	20
n-Nitrosodi-n-propylamine	46.61	48.78	mg/L	1	80	<0.005	58	4	0 - 230	20
1,2,4-Trichlorobenzene	53.13	55.74	mg/L	1	80	<0.005	66	4	44 - 142	20
4-Chloro-3-methylphenol	53.26	56.33	mg/L	1	80	<0.005	66	5	22 - 147	20
Acenaphthene	52.05	56.45	mg/L	1	80	<0.005	65	8	47 - 145	20
4-Nitrophenol	42.19	43.08	mg/L	1	80	<0.005	52	2	0 - 132	20
2,4-Dinitrotoluene	66.19	63.9	mg/L	1	80	<0.005	82	3	39 - 139	20
Pentachlorophenol	40.55	40.31	mg/L	1	80	<0.005	50	0	14 - 176	20
Pyrene	45.78	43.03	mg/L	1	80	<0.005	57	6	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	18.4	17.84	mg/L	1	80	23	22	21 - 100
Phenol-d5	10.42	10.48	mg/L	1	80	13	13	11 - 94
Nitrobenzene-d5	52.8	55.69	mg/L	1	80	66	69	35 - 114
2-Fluorobiphenyl	53.81	58.92	mg/L	1	80	67	73	43 - 116
2,4,6-Tribromophenol	71.61	67.1	mg/L	1	80	89	83	10 - 123
Terphenyl-d14	52.04	46.76	mg/L	1	80	65	58	33 - 141

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC14881

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	48.43	35.14	mg/L	1	80	<0.005	60	31	5 - 112	20
2-Chlorophenol	61.18	45.54	mg/L	1	80	<0.005	76	29	23 - 134	20
1,4-Dichlorobenzene	63.47	46.48	mg/L	1	80	<0.005	79	30	20 - 124	20
n-Nitrosodi-n-propylamine	63.08	47.76	mg/L	1	80	<0.005	78	27	0 - 230	20
1,2,4-Trichlorobenzene	77.67	60.88	mg/L	1	80	<0.005	97	24	44 - 142	20
4-Chloro-3-methylphenol	77.4	65.29	mg/L	1	80	<0.005	96	16	22 - 147	20
Acenaphthene	65.07	59.15	mg/L	1	80	<0.005	81	9	47 - 145	20
4-Nitrophenol	58.12	51.88	mg/L	1	80	<0.005	72	11	0 - 132	20
2,4-Dinitrotoluene	70.23	64.91	mg/L	1	80	<0.005	87	7	39 - 139	20
Pentachlorophenol	50.86	40.63	mg/L	1	80	<0.005	63	22	14 - 176	20
Pyrene	44.83	43.46	mg/L	1	80	<0.005	56	3	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dilution	Spike Amount	MS % Rec	MSD % Rec	Recovery Limits
2-Fluorophenol	51.96	38.64	mg/L	1	80	64	48	21 - 100
Phenol-d5	48.84	35.33	mg/L	1	80	61	44	11 - 94
Nitrobenzene-d5	71.74	57.13	mg/L	1	80	89	71	35 - 114
2-Fluorobiphenyl	70.11	60.74	mg/L	1	80	87	75	43 - 116
2,4,6-Tribromophenol	76.72	67.75	mg/L	1	80	95	84	10 - 123
Terphenyl-d14	45.3	41.26	mg/L	1	80	56	51	33 - 141

Quality Control Report
Continuing Calibration Verification Standards

CCV (1) QCBatch: QC14881

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	61.43	102	80 - 120	10/11/01
1,4-Dichlorobenzene		mg/L	60	62.38	103	80 - 120	10/11/01
2-Nitrophenol		mg/L	60	65.94	109	80 - 120	10/11/01
2,4-Dichlorophenol		mg/L	60	63.42	105	80 - 120	10/11/01
Hexachlorobutadiene		mg/L	60	66.39	110	80 - 120	10/11/01
4-Chloro-3-methylphenol		mg/L	60	60.2	100	80 - 120	10/11/01
2,4,6-Trichlorophenol		mg/L	60	65.44	109	80 - 120	10/11/01
Acenaphthene		mg/L	60	63.64	106	80 - 120	10/11/01
Diphenylamine		mg/L	60	60.27	100	80 - 120	10/11/01
Pentachlorophenol		mg/L	60	50.96	84	80 - 120	10/11/01
Fluoranthene		mg/L	60	68.23	113	80 - 120	10/11/01
Di-n-octylphthalate		mg/L	60	55.81	93	80 - 120	10/11/01
Benzo(a)pyrene		mg/L	60	60.73	101	80 - 120	10/11/01
2-Fluorophenol		mg/L	60	61.9	103	80 - 120	10/11/01
Phenol-d5		mg/L	60	61.44	102	80 - 120	10/11/01
Nitrobenzene-d5		mg/L	60	62.82	104	80 - 120	10/11/01
2-Fluorobiphenyl		mg/L	60	66.48	110	80 - 120	10/11/01
2,4,6-Tribromophenol		mg/L	60	67.15	111	80 - 120	10/11/01
Terphenyl-d14		mg/L	60	46.12	76	80 - 120	10/11/01

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180928

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A0110031O

Company Name: Navajo
Phone #: 505 7483311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 7465421
Contact Person: Darrell Moore or Charlie Bynum
Invoice to: (if different from above)
Project #:
Project Name: Inj well
Project Location:
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
180928	Inj well	1	1L	X								X	X	10/2/01	200

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See List

Extra bottle requested by Vicki

	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
		10/2/01	1615			
	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Hensley	10-3-01	10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact Y / N
Headspace Y / N
Temp 4 °
Log-in Review MF

REMARKS:

10/8

☐ Check If Special Reporting Limits Are Needed

Carrier # UPS 1Z 762 46 6 03 452 3845

Page 4618 of 5828

Quarterly Injection Pressures, Rates, and Volumes

NAVAJO REFINING COMPANY

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max Pressure (psig)	Monthly Min Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max Flow Volume (bpd)	Monthly Min Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min Annular Pressure (psig)	Total Volume (bbls)
July 2001	258	412	0	200	393	0	6850	8267	5608	259	360	120	212,543
August 2001	262	500	0	195	482	0	6773	8857	1782	255	372	118	207,732
September 2001	201	326	0	259	381	0	8876	10148	5044	188	328	113	266,295
WDW-2	**Monthly Avg. Pressure (psig)**	**Monthly Max Pressure (psig)**	**Monthly Min Pressure (psig)**	**Monthly Avg. Flow Rate (gpm)**	**Monthly Max Flow Rate (gpm)**	**Monthly Min. Flow Rate (gpm)**	**Monthly Avg. Flow Volume (bpd)**	**Monthly Max Flow Volume (bpd)**	**Monthly Min Flow Volume (bpd)**	**Monthly Avg. Annular Pressure (psig)**	**Monthly Max Annular Pressure (psig)**	**Monthly Min Annular Pressure (psig)**	**Total Volume (bbls)**
July 2001	143	341	0	28	178	0	3281	5913	25	161	500	17	98,443
August 2001	183	500	0	106	520	0	3529	7171	6	213	495	25	108,769
September 2001	48	277	0	94	206	0	1101	6097	4	132	500	22	33,040

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Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

February 12, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2001 to December 31, 2001. We have disposed a total of 9,429,075 bbls. of fluid down the two wells as of December 31, 2001. This is broken down as follows: 7,171,582 bbls. down WDW-1 and 2,257,493 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 1 of 5
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 30, 2002

Order ID Number: A02010402

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
188362	Inj. Wells	Water	1/3/01	9:00	1/4/02

0 This report consists of a total of 5 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 188362 - Inj. Wells

Param	Flag	Result	Units
Bromochloromethane		<1.00	µg/L
Dichlorodifluoromethane		<1.00	µg/L
Chloromethane (methyl chloride)		<1.00	µg/L
Vinyl Chloride		<1.00	µg/L
Bromomethane (methyl bromide)		<5.00	µg/L
Chloroethane		<1.00	µg/L
Trichlorofluoromethane		<1.00	µg/L
Acetone		17.4	µg/L
Iodomethane (methyl iodide)		<5.00	µg/L
Carbon Disulfide		<1.00	µg/L
Acrylonitrile		<1.00	µg/L
2-Butanone (MEK)		<5.00	µg/L
4-methyl-2-pentanone (MIBK)		<5.00	µg/L
2-hexanone		<5.00	µg/L
trans 1,4-Dichloro-2-butene		<10.0	µg/L
1,1-Dichloroethene		<1.00	µg/L
Methylene chloride		<5.00	µg/L
MTBE		<1.00	µg/L
trans-1,2-Dichloroethene		<1.00	µg/L
1,1-Dichloroethane		<1.00	µg/L
cis-1,2-Dichloroethene		<1.00	µg/L
2,2-Dichloropropane		<1.00	µg/L
1,2-Dichloroethane (EDC)		<1.00	µg/L
Chloroform		<1.00	µg/L
1,1,1-Trichloroethane		<1.00	µg/L
1,1-Dichloropropene		<1.00	µg/L
Benzene		<1.00	µg/L
Carbon Tetrachloride		<1.00	µg/L
1,2-Dichloropropane		<1.00	µg/L
Trichloroethene (TCE)		<1.00	µg/L
Dibromomethane (methylene bromide)		<1.00	µg/L
Bromodichloromethane		<1.00	µg/L

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This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 2 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
2-Chloroethyl vinyl ether		<5.00	µg/L
cis-1,3-Dichloropropene		<1.00	µg/L
trans-1,3-Dichloropropene		<1.00	µg/L
Toluene		<1.00	µg/L
1,1,2-Trichloroethane		<1.00	µg/L
1,3-Dichloropropane		<1.00	µg/L
Dibromochloromethane		<1.00	µg/L
1,2-Dibromoethane (EDB)		<1.00	µg/L
Tetrachloroethene (PCE)		<1.00	µg/L
Chlorobenzene		<1.00	µg/L
1,1,1,2-Tetrachloroethane		<1.00	µg/L
Ethylbenzene		2.20	µg/L
m,p-Xylene		3.72	µg/L
Bromoform		<1.00	µg/L
Styrene		<1.00	µg/L
o-Xylene		1.19	µg/L
1,1,2,2-Tetrachloroethane		<1.00	µg/L
2-Chlorotoluene		<1.00	µg/L
1,2,3-Trichloropropane		<1.00	µg/L
Isopropylbenzene		<1.00	µg/L
Bromobenzene		<1.00	µg/L
n-Propylbenzene		<1.00	µg/L
1,3,5-Trimethylbenzene		<1.00	µg/L
tert-Butylbenzene		<1.00	µg/L
1,2,4-Trimethylbenzene		1.08	µg/L
1,4-Dichlorobenzene (para)		<1.00	µg/L
sec-Butylbenzene		<1.00	µg/L
1,3-Dichlorobenzene		<1.00	µg/L
p-Isopropyltoluene		<1.00	µg/L
4-Chlorotoluene		<1.00	µg/L
1,2-Dichlorobenzene (ortho)		<1.00	µg/L
n-Butylbenzene		<1.00	µg/L
1,2-Dibromo-3-chloropropane		<5.00	µg/L
1,2,3-Trichlorobenzene		<5.00	µg/L
1,2,4-Trichlorobenzene		<5.00	µg/L
Naphthalene		<5.00	µg/L
Hexachlorobutadiene		<5.00	µg/L
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 3 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L

Continued on next page ...

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Report Date: January 30, 2002 Order Number: A02010402 Page Number: 4 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		12	mg/L as CaCo3
Bicarbonate Alkalinity		282	mg/L as CaCo3
Total Alkalinity		294	mg/L as CaCo3
Specific Conductance		4150	μMHOS/cm
Corrosivity		non-corrosive	mm/yr
pH		8.5	s.u.
Flashpoint	[1]	>150	F
Total Mercury		<0.0002	mg/L
Chloride		718	mg/L
Sulfate	[2]	500	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		157	mg/L
Dissolved Magnesium		25.3	mg/L
Dissolved Potassium		38.3	mg/L
Dissolved Sodium		452	mg/L
Total Dissolved Solids		1990	mg/L
Total Aluminum		0.842	mg/L
Total Arsenic		0.181	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.207	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L

Continued on next page ...

[1]There was not enough sample to duplicate.
[2]Sulfate re-ran on IC011002-1.sch (PB17016; QC17285). ICV %IA = 94; CCV %IA = 93; matrix spikes RPD = 0, %EA = 85; LCS spikes RPD = 1, %EA = 93.

This is only a summary. Please, refer to the complete report package for quality control data.

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Report Date: January 30, 2002 Order Number: A02010402 Page Number: 5 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Total Cobalt		<0.025	mg/L
Total Copper		0.0129	mg/L
Total Iron		1.77	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.080	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.292	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		0.0759	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.182	mg/L
pH	[3]	8.5	s.u.

[3] received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

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TRACEANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 30, 2002

Order ID Number: A02010402

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
188362	Inj. Wells	Water	1/3/01	9:00	1/4/02

0
These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.

This report consists of a total of 19 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

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Analytical Report

Sample: 188362 - Inj. Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC17387	Date Analyzed:	1/7/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB17091	Date Prepared:	1/7/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<1.00	µg/L	1	1
Dichlorodifluoromethane		<1.00	µg/L	1	1
Chloromethane (methyl chloride)		<1.00	µg/L	1	1
Vinyl Chloride		<1.00	µg/L	1	1
Bromomethane (methyl bromide)		<5.00	µg/L	1	5
Chloroethane		<1.00	µg/L	1	1
Trichlorofluoromethane		<1.00	µg/L	1	1
Acetone		17.4	µg/L	1	10
Iodomethane (methyl iodide)		<5.00	µg/L	1	5
Carbon Disulfide		<1.00	µg/L	1	1
Acrylonitrile		<1.00	µg/L	1	1
2-Butanone (MEK)		<5.00	µg/L	1	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	1	5
2-hexanone		<5.00	µg/L	1	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	1	10
1,1-Dichloroethene		<1.00	µg/L	1	1
Methylene chloride		<5.00	µg/L	1	5
MTBE		<1.00	µg/L	1	1
trans-1,2-Dichloroethene		<1.00	µg/L	1	1
1,1-Dichloroethane		<1.00	µg/L	1	1
cis-1,2-Dichloroethene		<1.00	µg/L	1	1
2,2-Dichloropropane		<1.00	µg/L	1	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1
Chloroform		<1.00	µg/L	1	1
1,1,1-Trichloroethane		<1.00	µg/L	1	1
1,1-Dichloropropene		<1.00	µg/L	1	1
Benzene		<1.00	µg/L	1	1
Carbon Tetrachloride		<1.00	µg/L	1	1
1,2-Dichloropropane		<1.00	µg/L	1	1
Trichloroethene (TCE)		<1.00	µg/L	1	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1
Bromodichloromethane		<1.00	µg/L	1	1
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5
cis-1,3-Dichloropropene		<1.00	µg/L	1	1
trans-1,3-Dichloropropene		<1.00	µg/L	1	1
Toluene		<1.00	µg/L	1	1
1,1,2-Trichloroethane		<1.00	µg/L	1	1
1,3-Dichloropropane		<1.00	µg/L	1	1
Dibromochloromethane		<1.00	µg/L	1	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1
Tetrachloroethene (PCE)		<1.00	µg/L	1	1
Chlorobenzene		<1.00	µg/L	1	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1
Ethylbenzene		2.20	µg/L	1	1
m,p-Xylene		3.72	µg/L	1	1
Bromoform		<1.00	µg/L	1	1
Styrene		<1.00	µg/L	1	1
o-Xylene		1.19	µg/L	1	1

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

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... *Continued* Sample: 188362 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1
2-Chlorotoluene		<1.00	µg/L	1	1
1,2,3-Trichloropropane		<1.00	µg/L	1	1
Isopropylbenzene		<1.00	µg/L	1	1
Bromobenzene		<1.00	µg/L	1	1
n-Propylbenzene		<1.00	µg/L	1	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1
tert-Butylbenzene		<1.00	µg/L	1	1
1,2,4-Trimethylbenzene		1.08	µg/L	1	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1
sec-Butylbenzene		<1.00	µg/L	1	1
1,3-Dichlorobenzene		<1.00	µg/L	1	1
p-Isopropyltoluene		<1.00	µg/L	1	1
4-Chlorotoluene		<1.00	µg/L	1	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1	1
n-Butylbenzene		<1.00	µg/L	1	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	1	5
1,2,3-Trichlorobenzene		<5.00	µg/L	1	5
1,2,4-Trichlorobenzene		<5.00	µg/L	1	5
Naphthalene		<5.00	µg/L	1	5
Hexachlorobutadiene		<5.00	µg/L	1	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	84 - 122
Toluene-d8		48.5	µg/L	1	50	97	95 - 105
4-Bromofluorobenzene		50	µg/L	1	50	100	91 - 108

Sample: 188362 - Inj. Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC17449	Date Analyzed:	1/10/02
Analyst:	RC	Preparation Method:	E 3510C	Prep Batch:	PB17140	Date Prepared:	1/7/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

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... *Continued* Sample: 188362 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 188362 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		11.27	mg/L	1	80	14	21 - 100
Phenol-d5	[1]	6.21	mg/L	1	80	7	11 - 94
Nitrobenzene-d5		33.48	mg/L	1	80	41	35 - 114
2-Fluorobiphenyl		31.91	mg/L	1	80	39	43 - 116
2,4,6-Tribromophenol		55.66	mg/L	1	80	69	10 - 123
Terphenyl-d14		33.05	mg/L	1	80	41	33 - 141

Sample: 188362 - Inj. Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC17283	Date Analyzed:	1/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB17018	Date Prepared:	1/10/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		12	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		282	mg/L as CaCo3	1	1
Total Alkalinity		294	mg/L as CaCo3	1	1

Sample: 188362 - Inj. Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC17280	Date Analyzed:	1/9/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17013	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		4150	μMHOS/cm	1	

[1] Sample surrogate out of limits due to sample matrix.

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Sample: 188362 - Inj. Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC17689	Date Analyzed:	1/24/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17318	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		non-corrosive	mm/yr	1	
pH		8.5	s.u.	1	

Sample: 188362 - Inj. Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC17688	Date Analyzed:	1/23/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17317	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Flashpoint	[2]	>150	F	1	

Sample: 188362 - Inj. Wells

Analysis:	Hg, Total	Analytical Method:	E 245.2	QC Batch:	QC17473	Date Analyzed:	1/17/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB17163	Date Prepared:	1/16/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 188362 - Inj. Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC17284	Date Analyzed:	1/8/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17015	Date Prepared:	1/8/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		718	mg/L	50	0.50
Sulfate	[3]	500	mg/L	50	0.50

Sample: 188362 - Inj. Wells

Analysis:	Reactivity	Analytical Method:	ASTM D 5049-90/4978-95	QC Batch:	QC17690	Date Analyzed:	1/23/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17319	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 188362 - Inj. Wells

Analysis:	Salts	Analytical Method:	E 200.7	QC Batch:	QC17367	Date Analyzed:	1/14/02
Analyst:	BC	Preparation Method:	S 3005A	Prep Batch:	PB16960	Date Prepared:	1/10/02

[2]There was not enough sample to duplicate.
[3]Sulfate re-ran on IC011002-1.sch (PB17016; QC17285). ICV %IA = 94; CCV %IA = 93; matrix spikes RPD = 0, %EA = 85; LCS spikes RPD = 1, %EA = 93.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		157	mg/L	1	0.50
Dissolved Magnesium		25.3	mg/L	1	0.50
Dissolved Potassium		38.3	mg/L	1	0.50
Dissolved Sodium		452	mg/L	1	0.50

Sample: 188362 - Inj. Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC17251	Date Analyzed:	1/10/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB16995	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		1990	mg/L	5	10

Sample: 188362 - Inj. Wells

Analysis:	Total Metals	Analytical Method:	E 200.7	QC Batch:	QC17264	Date Analyzed:	1/11/01
Analyst:	RR	Preparation Method:	N/A	Prep Batch:	PB16946	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.842	mg/L	1	0.10
Total Arsenic		0.181	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.207	mg/L	1	0.01
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		0.0129	mg/L	1	0.01
Total Iron		1.77	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.080	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.292	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		0.0759	mg/L	1	0.05
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.182	mg/L	1	0.02

Sample: 188362 - Inj. Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC17324	Date Analyzed:	1/8/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB17046	Date Prepared:	1/8/02

Param	Flag	Result	Units	Dilution	RDL
pH	[4]	8.5	s.u.	1	1

[4] received out of holding time

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Method Blank

QCBatch: QC17251

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank

QCBatch: QC17280

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		10.3	µMHOS/cm	

Method Blank

QCBatch: QC17283

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank

QCBatch: QC17284

Param	Flag	Results	Units	Reporting Limit
Chloride		<2.0	mg/L	0.50

Method Blank

QCBatch: QC17367

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank

QCBatch: QC17387

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		48.6	µg/L	1	50	97	84 - 122
Toluene-d8		48.6	µg/L	1	50	97	95 - 105
4-Bromofluorobenzene		48.1	µg/L	1	50	96	91 - 108

Method Blank

QCBatch: QC17449

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Results	Units	Reporting Limit
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		34.33	mg/L	1	80	42	21 - 100
Phenol-d5		15.74	mg/L	1	80	19	11 - 94
Nitrobenzene-d5		88.13	mg/L	1	80	110	35 - 114
2-Fluorobiphenyl		90.46	mg/L	1	80	113	43 - 116
2,4,6-Tribromophenol		50.64	mg/L	1	80	63	10 - 123
Terphenyl-d14		101.21	mg/L	1	80	126	33 - 141

Method Blank

QCBatch: QC17473

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Quality Control Report
Duplicate Samples

Duplicate

QCBatch: QC17251

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		2035	1990	mg/L	1	2	8.9

Duplicate

QCBatch: QC17280

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4494	4490	μMHOS/cm	1	0	5.9

Received by OCD: 5/16/2022 2:12:41 PM

Duplicate QCBatch: QC17283

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	7
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	7
Bicarbonate Alkalinity		528	532	mg/L as CaCo3	1	0	7
Total Alkalinity		528	532	mg/L as CaCo3	1	0	7

Duplicate QCBatch: QC17324

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	0.99

Duplicate QCBatch: QC17689

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		non-corrosive	non-corrosive	mm/yr	1	0	20
pH		8.5	8.5	s.u.	1	0	20

Duplicate QCBatch: QC17690

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		non-reactive	Non-reactive		1	0	20

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC17284

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.40	11.43	mg/L	1	12.50	<2.0	91	0	90 - 110	20
Nitrate-N	2.39	2.40	mg/L	1	2.50	<0.2	95	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes QCBatch: QC17387

Released to Imaging: 7/12/2024 10:49:45 AM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	105	107	µg/L	1	100	<1.00	105	1	92 - 129	20
Benzene	100	102	µg/L	1	100	<1.00	100	1	94 - 112	20
Trichloroethene (TCE)	105	107	µg/L	1	100	<1.00	105	1	90 - 113	20
Toluene	98	99	µg/L	1	100	<1.00	98	1	89 - 109	20
Chlorobenzene	101	104	µg/L	1	100	<1.00	101	2	93 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	48.8	48.5	µg/L	1	50	97	97	84 - 122
Toluene-d8	48.2	48.4	µg/L	1	50	96	96	95 - 105
4-Bromofluorobenzene	49.6	48.9	µg/L	1	50	99	97	91 - 108

Laboratory Control Spikes

QCBatch: QC17449

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	18.67	15.7	mg/L	1	80	<0.005	23	17	5 - 112	20
2-Chlorophenol	54.98	48.68	mg/L	1	80	<0.005	68	12	23 - 134	20
1,4-Dichlorobenzene	77.53	73.98	mg/L	1	80	<0.005	96	4	20 - 124	20
n-Nitrosodi-n-propylamine	69.29	53.43	mg/L	1	80	<0.005	86	25	0 - 230	20
1,2,4-Trichlorobenzene	88.58	87.4	mg/L	1	80	<0.005	110	1	44 - 142	20
4-Chloro-3-methylphenol	50.17	41.2	mg/L	1	80	<0.005	62	19	22 - 147	20
Acenaphthene	89.13	92.62	mg/L	1	80	<0.005	111	3	47 - 145	20
4-Nitrophenol	7.99	7.97	mg/L	1	80	<0.005	9	0	0 - 132	20
2,4-Dinitrotoluene	84.12	78.26	mg/L	1	80	<0.005	105	7	39 - 139	20
Pentachlorophenol	44.65	27.62	mg/L	1	80	<0.005	55	47	14 - 176	20
Pyrene	79.77	70.62	mg/L	1	80	<0.005	99	12	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	27.55	24.99	mg/L	1	80	34	31	21 - 100
Phenol-d5	14.57	11.59	mg/L	1	80	18	14	11 - 94
Nitrobenzene-d5	84.82	79.23	mg/L	1	80	106	99	35 - 114
2-Fluorobiphenyl	84.29	78.19	mg/L	1	80	105	97	43 - 116
2,4,6-Tribromophenol	70.76	62.61	mg/L	1	80	88	78	10 - 123
Terphenyl-d14	82.84	67.84	mg/L	1	80	103	84	33 - 141

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC17284

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	187.73	188.76	mg/L	1	125	72.0	90	0	52 - 131	20

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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1) QCBatch: QC17251

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1014	101	90 - 110	1/10/02

ICV (1) QCBatch: QC17251

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	998	99	90 - 110	1/10/02

CCV (1) QCBatch: QC17264

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.97	98	90 - 110	1/11/01
Total Arsenic		mg/L	1	1.01	101	90 - 110	1/11/01
Total Barium		mg/L	2	2.00	100	90 - 110	1/11/01
Total Beryllium		mg/L	0.05	0.0495	99	90 - 110	1/11/01
Total Boron		mg/L	0.10	0.102	102	90 - 110	1/11/01
Total Cadmium		mg/L	0.50	0.502	100	90 - 110	1/11/01
Total Chromium		mg/L	0.20	0.200	100	90 - 110	1/11/01
Total Cobalt		mg/L	0.50	0.501	100	90 - 110	1/11/01
Total Copper		mg/L	0.25	0.249	100	90 - 110	1/11/01
Total Iron		mg/L	1	1.01	101	90 - 110	1/11/01
Total Lead		mg/L	1	0.995	100	90 - 110	1/11/01
Total Manganese		mg/L	0.50	0.498	100	90 - 110	1/11/01
Total Molybdenum		mg/L	1	0.995	100	90 - 110	1/11/01
Total Nickel		mg/L	0.50	0.500	100	90 - 110	1/11/01
Total Selenium		mg/L	1	0.991	99	90 - 110	1/11/01
Total Silver		mg/L	0.25	0.247	99	90 - 110	1/11/01
Total Uranium		mg/L	1	1.03	103	90 - 110	1/11/01
Total Vanadium		mg/L	0.50	0.493	99	90 - 110	1/11/01
Total Zinc		mg/L	0.50	0.508	102	90 - 110	1/11/01

ICV (1) QCBatch: QC17264

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.97	98	90 - 110	1/11/01
Total Arsenic		mg/L	1	1.02	102	90 - 110	1/11/01
Total Barium		mg/L	2	2.01	100	90 - 110	1/11/01
Total Beryllium		mg/L	0.05	0.050	100	90 - 110	1/11/01
Total Boron		mg/L	0.10	0.104	104	90 - 110	1/11/01
Total Cadmium		mg/L	0.50	0.504	101	90 - 110	1/11/01
Total Chromium		mg/L	0.20	0.202	101	90 - 110	1/11/01
Total Cobalt		mg/L	0.50	0.507	101	90 - 110	1/11/01
Total Copper		mg/L	0.25	0.250	100	90 - 110	1/11/01
Total Iron		mg/L	1	1.01	101	90 - 110	1/11/01
Total Lead		mg/L	1	1.01	101	90 - 110	1/11/01
Total Manganese		mg/L	0.50	0.503	101	90 - 110	1/11/01
Total Molybdenum		mg/L	1	1.01	101	90 - 110	1/11/01
Total Nickel		mg/L	0.50	0.504	101	90 - 110	1/11/01
Total Selenium		mg/L	1	1.01	101	90 - 110	1/11/01
Total Silver		mg/L	0.25	0.250	100	90 - 110	1/11/01
Total Uranium		mg/L	1	1.01	101	90 - 110	1/11/01
Total Vanadium		mg/L	0.50	0.500	100	90 - 110	1/11/01
Total Zinc		mg/L	0.50	0.502	100	90 - 110	1/11/01

CCV (1) QCBatch: QC17280

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1447	102	90 - 110	1/9/02

ICV (1) QCBatch: QC17280

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1400	1449	103	90 - 110	1/9/02

CCV (1) QCBatch: QC17283

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	1/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	90 - 110	1/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	12	0	90 - 110	1/10/02
Total Alkalinity		mg/L as CaCo3	250	236	94	90 - 110	1/10/02

ICV (1) QCBatch: QC17283

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	1/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	236	0	90 - 110	1/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	1/10/02
Total Alkalinity		mg/L as CaCo3	250	242	96	90 - 110	1/10/02

CCV (1) QCBatch: QC17284

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.44	91	90 - 110	1/8/02
Nitrate-N		mg/L	2.50	2.39	95	90 - 110	1/8/02

ICV (1) QCBatch: QC17284

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.31	90	90 - 110	1/8/02
Nitrate-N		mg/L	2.50	2.37	94	90 - 110	1/8/02

CCV (1) QCBatch: QC17324

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	1/8/02

ICV (1) QCBatch: QC17324

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	1/8/02

CCV (1) QCBatch: QC17367

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	27.2	108	90 - 110	1/14/02
Dissolved Magnesium		mg/L	25	27.5	110	90 - 110	1/14/02
Dissolved Potassium		mg/L	25	23.5	94	90 - 110	1/14/02

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Sodium		mg/L	25	26.1	104	90 - 110	1/14/02

ICV (1)

QCBatch: QC17367

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.6	102	95 - 105	1/14/02
Dissolved Magnesium		mg/L	25	25.4	101	95 - 105	1/14/02
Dissolved Potassium		mg/L	25	25.7	102	95 - 105	1/14/02
Dissolved Sodium		mg/L	25	25.8	103	95 - 105	1/14/02

CCV (1)

QCBatch: QC17387

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	86	86	80 - 120	1/7/02
1,1-Dichloroethene		µg/L	100	100	100	80 - 120	1/7/02
Chloroform		µg/L	100	96	96	80 - 120	1/7/02
1,2-Dichloropropane		µg/L	100	96	96	80 - 120	1/7/02
Toluene		µg/L	100	98	98	80 - 120	1/7/02
Chlorobenzene		µg/L	100	100	100	80 - 120	1/7/02
Ethylbenzene		µg/L	100	99	99	80 - 120	1/7/02
Dibromofluoromethane		µg/L	50	48.8	97	80 - 120	1/7/02
Toluene-d8		µg/L	50	47.9	95	80 - 120	1/7/02
4-Bromofluorobenzene		µg/L	50	51.7	103	80 - 120	1/7/02

CCV (1)

QCBatch: QC17449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	58.4	97	80 - 120	1/10/02
1,4-Dichlorobenzene		mg/L	60	61.28	102	80 - 120	1/10/02
2-Nitrophenol		mg/L	60	50.66	84	80 - 120	1/10/02
2,4-Dichlorophenol		mg/L	60	59.77	99	80 - 120	1/10/02
Hexachlorobutadiene		mg/L	60	67.23	112	80 - 120	1/10/02
4-Chloro-3-methylphenol		mg/L	60	57.54	95	80 - 120	1/10/02
2,4,6-Trichlorophenol		mg/L	60	63.18	105	80 - 120	1/10/02
Acenaphthene		mg/L	60	63.72	106	80 - 120	1/10/02
Diphenylamine		mg/L	60	60.31	100	80 - 120	1/10/02
Pentachlorophenol		mg/L	60	64.31	107	80 - 120	1/10/02
Fluoranthene		mg/L	60	63.95	106	80 - 120	1/10/02
Di-n-octylphthalate		mg/L	60	57.07	95	80 - 120	1/10/02
Benzo(a)pyrene		mg/L	60	53.49	89	80 - 120	1/10/02

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
2-Fluorophenol		mg/L	60	62.05	103	80 - 120	1/10/02
Phenol-d5		mg/L	60	59.75	99	80 - 120	1/10/02
Nitrobenzene-d5		mg/L	60	65.33	108	80 - 120	1/10/02
2-Fluorobiphenyl		mg/L	60	71.3	118	80 - 120	1/10/02
2,4,6-Tribromophenol		mg/L	60	66.34	110	80 - 120	1/10/02
Terphenyl-d14		mg/L	60	71.42	119	80 - 120	1/10/02

CCV (1)

QCBatch: QC17473

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00091	91	80 - 120	1/17/02

ICV (1)

QCBatch: QC17473

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00099	99	80 - 120	1/17/02

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Page_____of_____

501 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
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1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon,Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 102010402

Company Name: NAVASO Phone #:

Address: (Street, City, Zip) Fax #:

Contact Person: Darrell Moore

Invoice to: (If different from above)

Project #: Project Name: Inj. wells

Project Location: Artesia Sampler Signature:

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
188362	Inj. Wells	2	1L	X								X	X	1/3/02	900
	" "	1	500ml	X					X			X		1/3/02	900
	" "	2	40ml	X				X				X		1/3/02	900

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See L-57

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	1/3/02	615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Beasley	1-4-01	10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact Y N

Headspace Y / N

Temp 1 °

Log-in Review MS

REMARKS:

1/31P

☐ Check If Special Reporting Limits Are Needed

Carrier # Fed Ex 3462642211

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Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max. Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max. Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Oct-01	236	350	0	262	393	0	8982	13474	0	197	269	140	278,442
Nov-01	223	363	0	214	649	0	7337	22251	0	192	414	110	220,110
Dec-01	500	500	111	219	647	0	7508	22182	0	239	499	108	232,748

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max. Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max. Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Oct-01	71	299	0	45	647	0	1542	22182	0	161	466	22	47,802
Nov-01	93	336	0	52	647	0	1782	22182	0	146	448	15	53,460
Dec-01	462	500	44	155	647	0	5314	22182	0	225	339	160	164,734

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REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

September 3, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 2nd quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from April 1, 2002 to June 30, 2002. We have disposed a total of 10,376,491 bbls. of fluid into the two wells as of December 31, 2001. This is broken down as follows: 7,902,016 bbls. into WDW-1 and 2,474,475 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: August 29, 2002

Order ID Number: A02071026

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
201170	Inj Wells	Water	7/9/02	9:00	7/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 20 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

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Analytical Report

Sample: 201170 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC21973	Date Analyzed:	7/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20783	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		90	mg/L as CaCo3	1	1
Total Alkalinity		90	mg/L as CaCo3	1	1

Sample: 201170 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC21780	Date Analyzed:	7/11/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB20631	Date Prepared:	7/11/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5830	μMHOS/cm	1	

Sample: 201170 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC21915	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:		Prep Batch:	PB20741	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		0.4970 non-corrosive	mm/yr	1	
pH		7.57	s.u.	1	

Sample: 201170 - Inj Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC21917	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB20743	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Flashpoint		>140	F	1	

Sample: 201170 - Inj Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC22023	Date Analyzed:	7/19/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB20842	Date Prepared:	7/19/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 201170 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC21914	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:		Prep Batch:	PB20740	Date Prepared:	7/16/02

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Report Date: August 29, 2002 Order Number: A02071026 Page Number: 3 of 20
N/A Injection Wells N/A

Param	Flag	Result	Units	Dilution	RDL

Sample: 201170 - Inj Wells

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC21805 Date Analyzed: 7/10/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB20648 Date Prepared: 7/10/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		1090	mg/L	100	1
Nitrate-N		<0.2	mg/L	5	0.20
Sulfate		934	mg/L	100	1

Sample: 201170 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC21916 Date Analyzed: 7/16/02
Analyst: BC Preparation Method: Prep Batch: PB20742 Date Prepared: 7/16/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 201170 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC22163 Date Analyzed: 7/22/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB20704 Date Prepared: 7/15/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		170	mg/L	1	0.50
Dissolved Magnesium		31.7	mg/L	1	0.50
Dissolved Potassium		19.3	mg/L	1	0.50
Dissolved Sodium		691	mg/L	1	0.50

Sample: 201170 - Inj Wells

Analysis: Semivolatiles Analytical Method: S 8270C QC Batch: QC22072 Date Analyzed: 7/16/02
Analyst: RC Preparation Method: E 3510C Prep Batch: PB20791 Date Prepared: 7/15/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.017	mg/L	3.33	0.005
n-Nitrosodimethylamine		<0.017	mg/L	3.33	0.005
2-Picoline		<0.017	mg/L	3.33	0.005
Methyl methanesulfonate		<0.017	mg/L	3.33	0.005
Ethyl methanesulfonate		<0.017	mg/L	3.33	0.005
Phenol		<0.017	mg/L	3.33	0.005
Aniline		<0.017	mg/L	3.33	0.005
bis (2-chloroethyl) ether		<0.017	mg/L	3.33	0.005
2-Chlorophenol		<0.017	mg/L	3.33	0.005
1,3-Dichlorobenzene (meta)		<0.017	mg/L	3.33	0.005
1,4-Dichlorobenzene		<0.017	mg/L	3.33	0.005
Benzyl alcohol		<0.017	mg/L	3.33	0.005

Continued . . .

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 201170 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
1,2-Dichlorobenzene		<0.017	mg/L	3.33	0.005
2-Methylphenol		<0.017	mg/L	3.33	0.005
bis (2-chloroisopropyl) ether		<0.017	mg/L	3.33	0.005
4-Methylphenol/3-Methylphenol		<0.017	mg/L	3.33	0.005
Acetophenone		<0.017	mg/L	3.33	0.005
n-Nitrosodi-n-propylamine		<0.017	mg/L	3.33	0.005
Hexachloroethane		<0.017	mg/L	3.33	0.005
Nitrobenzene		<0.017	mg/L	3.33	0.005
n-Nitrosopiperidine		<0.017	mg/L	3.33	0.005
Isophorone		<0.017	mg/L	3.33	0.005
2-Nitrophenol		<0.017	mg/L	3.33	0.005
2,4-Dimethylphenol		<0.017	mg/L	3.33	0.005
bis (2-chloroethoxy) methane		<0.017	mg/L	3.33	0.005
Benzoic acid		<0.017	mg/L	3.33	0.005
2,4-Dichlorophenol		<0.017	mg/L	3.33	0.005
1,2,4-Trichlorobenzene		<0.017	mg/L	3.33	0.005
a,a-Dimethylphenethylamine		<0.017	mg/L	3.33	0.005
Naphthalene		<0.017	mg/L	3.33	0.005
4-Chloroaniline		<0.017	mg/L	3.33	0.005
2,6-Dichlorophenol		<0.017	mg/L	3.33	0.005
Hexachlorobutadiene		<0.017	mg/L	3.33	0.005
n-Nitroso-di-n-butylamine		<0.017	mg/L	3.33	0.005
4-Chloro-3-methylphenol		<0.017	mg/L	3.33	0.005
1-Methylnaphthalene		<0.017	mg/L	3.33	0.005
2-Methylnaphthalene		<0.017	mg/L	3.33	0.005
1,2,4,5-Tetrachlorobenzene		<0.017	mg/L	3.33	0.005
Hexachlorocyclopentadiene		<0.017	mg/L	3.33	0.005
2,4,6-Trichlorophenol		<0.017	mg/L	3.33	0.005
2,4,5-Trichlorophenol		<0.017	mg/L	3.33	0.005
2-Chloronaphthalene		<0.017	mg/L	3.33	0.005
1-Chloronaphthalene		<0.017	mg/L	3.33	0.005
2-Nitroaniline		<0.017	mg/L	3.33	0.005
Dimethylphthalate		<0.017	mg/L	3.33	0.005
Acenaphthylene		<0.017	mg/L	3.33	0.005
2,6-Dinitrotoluene		<0.017	mg/L	3.33	0.005
3-Nitroaniline		<0.017	mg/L	3.33	0.005
Acenaphthene		<0.017	mg/L	3.33	0.005
2,4-Dinitrophenol		<0.017	mg/L	3.33	0.005
Dibenzofuran		<0.017	mg/L	3.33	0.005
Pentachlorobenzene		<0.017	mg/L	3.33	0.005
4-Nitrophenol		<0.017	mg/L	3.33	0.005
1-Naphthylamine		<0.017	mg/L	3.33	0.005
2,4-Dinitrotoluene		<0.017	mg/L	3.33	0.005
2-Naphthylamine		<0.017	mg/L	3.33	0.005
2,3,4,6-Tetrachlorophenol		<0.017	mg/L	3.33	0.005
Fluorene		<0.017	mg/L	3.33	0.005
Diethylphthalate		<0.017	mg/L	3.33	0.005
4-Chlorophenyl-phenylether		<0.017	mg/L	3.33	0.005
4-Nitroaniline		<0.017	mg/L	3.33	0.005
4,6-Dinitro-2-methylphenol		<0.017	mg/L	3.33	0.005
Diphenylamine		<0.017	mg/L	3.33	0.005
Diphenylhydrazine		<0.017	mg/L	3.33	0.005
4-Bromophenyl-phenylether		<0.017	mg/L	3.33	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 201170 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
Phenacetin		<0.017	mg/L	3.33	0.005
Hexachlorobenzene		<0.017	mg/L	3.33	0.005
4-Aminobiphenyl		<0.017	mg/L	3.33	0.005
Pentachlorophenol		<0.017	mg/L	3.33	0.005
Pentachloronitrobenzene		<0.017	mg/L	3.33	0.005
Pronamide		<0.017	mg/L	3.33	0.005
Phenanthrene		<0.017	mg/L	3.33	0.005
Anthracene		<0.017	mg/L	3.33	0.005
Di-n-butylphthalate		<0.017	mg/L	3.33	0.005
Fluoranthene		<0.017	mg/L	3.33	0.005
Benzidine		<0.017	mg/L	3.33	0.005
Pyrene		<0.017	mg/L	3.33	0.005
p-Dimethylaminoazobenzene		<0.017	mg/L	3.33	0.005
Butylbenzylphthalate		<0.017	mg/L	3.33	0.005
Benzo(a)anthracene		<0.017	mg/L	3.33	0.005
3,3-Dichlorobenzidine		<0.017	mg/L	3.33	0.005
Chrysene		<0.017	mg/L	3.33	0.005
Bis (2-ethylhexyl) phthalate		<0.017	mg/L	3.33	0.005
Di-n-octylphthalate		<0.017	mg/L	3.33	0.005
Benzo(b)fluoranthene		<0.017	mg/L	3.33	0.005
7,12-Dimethylbenz(a)anthracene		<0.017	mg/L	3.33	0.005
Benzo(k)fluoranthene		<0.017	mg/L	3.33	0.005
Benzo(a)pyrene		<0.017	mg/L	3.33	0.005
3-Methylcholanthrene		<0.017	mg/L	3.33	0.005
Dibenzo(a,j)acridine		<0.017	mg/L	3.33	0.005
Indeno(1,2,3-cd)pyrene		<0.017	mg/L	3.33	0.005
Dibenzo(a,h)anthracene		<0.017	mg/L	3.33	0.005
Benzo(g,h,i)perylene		<0.017	mg/L	3.33	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		26.51	mg/L	3.33	80	33	0 - 66
Phenol-d5		25.68	mg/L	3.33	80	32	0 - 70
Nitrobenzene-d5		63.42	mg/L	3.33	80	79	23 - 99
2-Fluorobiphenyl		52.98	mg/L	3.33	80	66	27 - 95
2,4,6-Tribromophenol		47.99	mg/L	3.33	80	59	0 - 199
Terphenyl-d14		57.69	mg/L	3.33	80	72	20 - 96

Sample: 201170 - Inj Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC21968	Date Analyzed:	7/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20788	Date Prepared:	7/15/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2920	mg/L	5	10

Sample: 201170 - Inj Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC21824	Date Analyzed:	7/12/02
Analyst:	RR	Preparation Method:	S 3010A	Prep Batch:	PB20632	Date Prepared:	7/11/02

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.347	mg/L	1	0.10
Total Arsenic		0.142	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.285	mg/L	10	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		4.08	mg/L	10	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.124	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.422	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.316	mg/L	1	0.02

Sample: 201170 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC22002	Date Analyzed:	7/17/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB20818	Date Prepared:	7/17/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 201170 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		51.6	µg/L	5	50	103	77 - 122
Toluene-d8		54.9	µg/L	5	50	109	96 - 111
4-Bromofluorobenzene		45.9	µg/L	5	50	91	87 - 113

[1] elevated reporting limits due to matrix problems.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 201170 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC21883	Date Analyzed:	7/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20720	Date Prepared:	7/10/02

Param	Flag	Result	Units	Dilution	RDL
pH		7.2	s.u.	1	1

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Method Blank

QCBatch: QC21780

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		3.32	µMHOS/cm	

Method Blank

QCBatch: QC21805

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank

QCBatch: QC21824

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.10
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		<0.0125	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank

QCBatch: QC21968

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Method Blank

QCBatch: QC21973

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank

QCBatch: QC22002

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1

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Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Results	Units	Reporting Limit
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.7	µg/L	1	50	101	77 - 122
Toluene-d8		54.7	µg/L	1	50	109	96 - 111
4-Bromofluorobenzene		43.4	µg/L	1	50	86	87 - 113

Method Blank

QCBatch: QC22023

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank

QCBatch: QC22072

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		26.07	mg/L	1	80	32	0 - 66
Phenol-d5		25.47	mg/L	1	80	31	0 - 70
Nitrobenzene-d5		67.96	mg/L	1	80	84	23 - 99
2-Fluorobiphenyl		65.91	mg/L	1	80	82	27 - 95
2,4,6-Tribromophenol		38.44	mg/L	1	80	48	0 - 199
Terphenyl-d14		74.16	mg/L	1	80	92	20 - 96

Released to Imaging: 7/12/2024 10:49:45 AM

Method Blank QCBatch: QC22163

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC21780

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		5830	5830	µMHOS/cm	1	0	20

Duplicate QCBatch: QC21883

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		9.2	9.2	s.u.	1	0	0

Duplicate QCBatch: QC21915

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		0.7441 non-corrosive	0.4970 non-corrosive	mm/yr	1	39	20
pH		7.57	7.57	s.u.	1	0	0

Duplicate QCBatch: QC21916

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Reactivity		non-reactive	Non-reactive		1	0	20

Duplicate QCBatch: QC21917

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Flashpoint		>140	>140	F	1	0	20

Received by OCD: 5/16/2022 2:12:41 PM

Duplicate

QCBatch: QC21968

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		3230	2920	mg/L	1	10	9.7

Duplicate

QCBatch: QC21973

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		212	208	mg/L as CaCo3	1	1	9.2
Total Alkalinity		212	208	mg/L as CaCo3	1	1	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC21805

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.78	11.16	mg/L	1	12.50	<1.0	94	5	90 - 110	20
Nitrate-N	2.33	2.34	mg/L	1	2.50	<0.2	93	0	90 - 110	20
Sulfate	11.6	11.57	mg/L	1	12.50	<1.0	92	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC22002

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	110	111	µg/L	1	100	<1.00	110	0	84 - 124	20
Benzene	100	101	µg/L	1	100	<1.00	100	0	87 - 112	20
Trichloroethene (TCE)	91	92	µg/L	1	100	<1.00	91	1	81 - 105	20
Toluene	98	98	µg/L	1	100	<1.00	98	0	90 - 108	20
Chlorobenzene	98	97	µg/L	1	100	<1.00	98	1	84 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	50.4	50.0	µg/L	1	50	100	100	77 - 122
Toluene-d8	53.3	52.4	µg/L	1	50	106	104	96 - 111
4-Bromofluorobenzene	46.3	44.6	µg/L	1	50	92	89	87 - 113

Laboratory Control Spikes

QCBatch: QC22023

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00116	0.00115	mg/L	1	0.001	<0.0002	116	0	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC22072

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	33.00	30.27	mg/L	1	80	<0.005	41	8	0 - 81	20
2-Chlorophenol	62.6	59.26	mg/L	1	80	<0.005	78	5	12 - 83	20
1,4-Dichlorobenzene	72.36	66.83	mg/L	1	80	<0.005	90	7	13 - 88	20
n-Nitrosodi-n-propylamine	76.72	72.71	mg/L	1	80	<0.005	95	5	9 - 101	20
1,2,4-Trichlorobenzene	69.72	67.82	mg/L	1	80	<0.005	87	2	21 - 87	20
4-Chloro-3-methylphenol	62.44	63.16	mg/L	1	80	<0.005	78	1	14 - 92	20
Acenaphthene	66.04	63.46	mg/L	1	80	<0.005	82	3	26 - 86	20
4-Nitrophenol	23.40	27.78	mg/L	1	80	<0.005	29	17	0 - 104	20
2,4-Dinitrotoluene	73.07	79.28	mg/L	1	80	<0.005	91	8	29 - 94	20
Pentachlorophenol	[2] 43.16	54.00	mg/L	1	80	<0.005	53	22	1 - 97	20
Pyrene	73.53	66.03	mg/L	1	80	<0.005	91	10	25 - 90	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	41.00	39.53	mg/L	1	80	51	49	0 - 66
Phenol-d5	27.97	26.74	mg/L	1	80	34	33	0 - 70
Nitrobenzene-d5	59.2	58.00	mg/L	1	80	74	72	23 - 99
2-Fluorobiphenyl	57.39	54.89	mg/L	1	80	71	68	27 - 95
2,4,6-Tribromophenol	53.32	58.67	mg/L	1	80	66	73	0 - 199
Terphenyl-d14	64.51	59.09	mg/L	1	80	80	73	20 - 96

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC21805

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	2210	2200	mg/L	1	1250		89	0	48 - 127	20
Chloride	2210	2200	mg/L	1	1250	1090	89	0	48 - 127	20
Nitrate-N	243	235	mg/L	1	250		97	3	87 - 100	20
Nitrate-N	243	235	mg/L	1	250	<0.2	97	3	87 - 100	20
Sulfate	2090	2090	mg/L	1	1250		92	0	59 - 121	20
Sulfate	2090	2090	mg/L	1	1250	934	92	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[2]Irradic recovery of penta chlorophenol other analytes show process is in control.

Released to Imaging: 7/12/2024 10:49:45 AM

Matrix Spikes

QCBatch: QC22023

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00104	0.00105	mg/L	1	0.001	<0.0002	104	0	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC21780

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1385	98	90 - 110	7/11/02

ICV (1)

QCBatch: QC21780

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1400	99	90 - 110	7/11/02

CCV (1)

QCBatch: QC21805

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.74	93	90 - 110	7/10/02
Nitrate-N		mg/L	2.50	2.33	93	90 - 110	7/10/02
Sulfate		mg/L	12.50	11.49	91	90 - 110	7/10/02

ICV (1)

QCBatch: QC21805

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.89	95	90 - 110	7/10/02
Nitrate-N		mg/L	2.50	2.34	93	90 - 110	7/10/02
Sulfate		mg/L	12.50	11.69	93	90 - 110	7/10/02

Received by OCD: 5/16/2022 2:12:41 PM

CCV (1) QCBatch: QC21824

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	0.25	0.246	98	90 - 110	7/12/02
Total Zinc		mg/L	0.50	0.498	99	90 - 110	7/12/02

ICV (1) QCBatch: QC21824

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	0.25	0.248	99	95 - 105	7/12/02
Total Zinc		mg/L	0.50	0.500	100	95 - 105	7/12/02

CCV (1) QCBatch: QC21883

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	7/10/02

ICV (1) QCBatch: QC21883

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	7/10/02

CCV (1) QCBatch: QC21968

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	965	96	90 - 110	7/16/02

ICV (1) QCBatch: QC21968

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1029	102	90 - 110	7/16/02

Released to Imaging: 7/12/2024 10:49:45 AM

CCV (1) QCBatch: QC21973

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	7/16/02
Carbonate Alkalinity		mg/L as CaCo3	0	228	0	90 - 110	7/16/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	8	0	90 - 110	7/16/02
Total Alkalinity		mg/L as CaCo3	250	236	94	90 - 110	7/16/02

ICV (1) QCBatch: QC21973

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	7/16/02
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	90 - 110	7/16/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	7/16/02
Total Alkalinity		mg/L as CaCo3	250	238	95	90 - 110	7/16/02

CCV (1) QCBatch: QC22002

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	51	102	80 - 120	7/17/02
1,1-Dichloroethene		µg/L	50	50	100	80 - 120	7/17/02
Chloroform		µg/L	50	50	100	80 - 120	7/17/02
1,2-Dichloropropane		µg/L	50	52	104	80 - 120	7/17/02
Toluene		µg/L	50	50	100	80 - 120	7/17/02
Chlorobenzene		µg/L	50	50	100	80 - 120	7/17/02
Ethylbenzene		µg/L	50	51	102	80 - 120	7/17/02
Dibromofluoromethane		µg/L	50	49.9	99	80 - 120	7/17/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	7/17/02
4-Bromofluorobenzene		µg/L	50	50.9	101	80 - 120	7/17/02

CCV (1) QCBatch: QC22023

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00105	105	80 - 120	7/19/02

ICV (1) QCBatch: QC22023

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00095	95	80 - 120	7/19/02

CCV (1) QCBatch: QC22072

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	58.5	97	80 - 120	7/16/02
1,4-Dichlorobenzene		mg/L	60	59.73	99	80 - 120	7/16/02
2-Nitrophenol		mg/L	60	62.14	103	80 - 120	7/16/02
2,4-Dichlorophenol		mg/L	60	61.05	101	80 - 120	7/16/02
Hexachlorobutadiene		mg/L	60	60.03	100	80 - 120	7/16/02
4-Chloro-3-methylphenol		mg/L	60	60.24	100	80 - 120	7/16/02
2,4,6-Trichlorophenol		mg/L	60	57.57	95	80 - 120	7/16/02
Acenaphthene		mg/L	60	59.24	98	80 - 120	7/16/02
Diphenylamine		mg/L	60	60.37	100	80 - 120	7/16/02
Pentachlorophenol		mg/L	60	51.44	85	80 - 120	7/16/02
Fluoranthene		mg/L	60	60.02	100	80 - 120	7/16/02
Di-n-octylphthalate		mg/L	60	60.12	100	80 - 120	7/16/02
Benzo(a)pyrene		mg/L	60	59.34	98	80 - 120	7/16/02
2-Fluorophenol		mg/L	60	58.33	97	80 - 120	7/16/02
Phenol-d5		mg/L	60	57.94	96	80 - 120	7/16/02
Nitrobenzene-d5		mg/L	60	60.01	100	80 - 120	7/16/02
2-Fluorobiphenyl		mg/L	60	59.77	99	80 - 120	7/16/02
2,4,6-Tribromophenol		mg/L	60	58.63	97	80 - 120	7/16/02
Terphenyl-d14		mg/L	60	58.81	98	80 - 120	7/16/02

CCV (1) QCBatch: QC22163

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	26.0	104	90 - 110	7/22/02
Dissolved Magnesium		mg/L	25	25.6	102	90 - 110	7/22/02
Dissolved Potassium		mg/L	25	24.0	96	90 - 110	7/22/02
Dissolved Sodium		mg/L	25	25.5	102	90 - 110	7/22/02

ICV (1) QCBatch: QC22163

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	26.0	104	95 - 105	7/22/02
Dissolved Magnesium		mg/L	25	25.7	102	95 - 105	7/22/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	7/22/02
Dissolved Sodium		mg/L	25	26.2	104	95 - 105	7/22/02

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(505) 746-5480 P / L

OIL CONSERVATION DIV.
01 JUL 27 PM 1:26

July 3, 2001

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2000 to March 30, 2001. Due to an oversight on our part, quarterly samples for the 4th quarter of 2000 were not collected. Samples for the 2nd quarter of 2001 have been collected and those results will be forwarded as soon as we receive them.

We have disposed a total of 6,619,428 bbls. of fluid down the two wells as of March 31, 2001. This is broken down as follows: 5,145,012 bbls. down WDW-1 and 1,474,416 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 1 of 5
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: June 29, 2001

Order ID Number: A01040410

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
168299	Injection Wells	Water	4/3/01	10:10	4/4/01

This report consists of a total of 5 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 168299 - Injection Wells

Param	Flag	Result	Units
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<5.00	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone	1	74.3	µg/L
Iodomethane (methyl iodide)		<5.00	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L

Continued on next page . . .

[1]estimated concentration, RSD value above 15% on initial calibration

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 2 of 5
N/A Injection Wells N/A

Sample 168299 continued . . .

Param	Flag	Result	Units
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroethene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortho)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L

Continued on next page . . .

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 3 of 5
N/A Injection Wells N/A

Sample 168299 continued ...

Param	Flag	Result	Units
bis (2-chloroisopropyl) ether		<0.005	mg/L
4 Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L

Continued on next page

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: AG10410
N/A Injection Wells N/A

Sample 168299 continued ...

Param	Flag	Result	Units
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		514	mg/L as CaCo3
Total Alkalinity		514	mg/L as CaCo3
Specific Conductance		7300	µMHOS/cm
Corrosivity		0.4327	mm/yr
pH		8.63	s.u.
Total Mercury		<0.0002	mg/L
Ignitability		non-ignitable	
CL		1700	mg/L
Fluoride		76	mg/L
Nitrate-N	2	<1.0	mg/L
Sulfate		460	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	
Hydrogen Cyanide		<2.5	
Dissolved Calcium		110	mg/L
Dissolved Magnesium		32	mg/L
Dissolved Potassium		28	mg/L
Dissolved Sodium		1100	mg/L
Total Dissolved Solids		3800	mg/L
Total Aluminum		0.23	mg/L
Total Arsenic		0.309	mg/L
Total Barium		<0.1	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.512	mg/L

Continued on next page ...

[2]Sample re-ran out of hold time for NO3.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 5 of 5
N/A Injection Wells N/A

Sample 168299 continued . . .

Param	Flag	Result	Units
Total Cadmium		<0.025	mg/L
Total Chromium		0.0106	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		0.0144	mg/L
Total Iron		3.14	mg/L
Total Lead		<0.01	mg/L
Total Manganese		0.108	mg/L
Total Molybdenum		<0.05	mg/L
Total Nickel		<0.25	mg/L
Total Selenium		0.552	mg/L
Total Silver		<0.125	mg/L
Total Uranium		0.0502	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.118	mg/L
pH	3	8.3	s.u.

[3]Sample run out of holding time

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	NAVAJO Refining
Phone #:	505 748 3311
Address: (Street, City, Zip)	501 E. Main
Fax #:	505 746 5421
Contact Person:	Darrell Moore
Invoice to: (if different from above)	
Project #:	
Project Name:	Injection wells
Project Location:	Artesia
Sampler Signature:	

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
16129	Injection wells	2	40ml	X				X				X		4/5/01	1040
	" "	2	1L	X								X	X	4/5/01	1050
	" "	1	500ml	X					X			X		4/5/01	1010

Relinquished by:	Date: 4/5/01	Time: 16:15	Received by:
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by: Date: 4/6/01 Time: 12:30

LAB USE ONLY
Received on Ice: Y / N
Temperature: 5 °C
Custody Seals: Y / N / N/A
Total Containers: 3

REMARKS:

☐ Check if Special Reporting Limits Are Needed

Carrier # Fed Ex 917-7348-474

Submittal of sample constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Page 4674 of 5828

Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Jan 2001	197	305	86	230	317	84	7885.71	10868.57	2880.00	226	299	146	236,571
Feb 2001	227	297	142	261	293	208	8948.57	10045.71	7131.43	208	297	161	268,457
March 2001	210	292	104	243	290	192	8331.43	9942.86	6582.86	212	309	153	249,943

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Jan 2001	251	251	0	92	144	0	3154.286	4937.143	0	131	164	121	94,629
Feb 2001	118	175	0	47	176	0	1611.429	6034.286	0	152	177	129	48,343
March 2001	116	160	0	23	171	0	788.5714	5862.857	0	163	220	141	23,657

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Page 4675 of 5828

Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
April 2001	258	318	63	237	272	145	8125.71	9325.71	4971.43	258	324	169	243,771
May 2001	245	304	114	199	251	100	6822.86	8605.71	3428.57	245	308	164	204,686
June 2001	243	308	104	162	223	119	5554.29	7645.71	4080.00	245	302	182	166,629

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
April 2001	83	127	0	17	138	0	582.8571	4731.429	0	145	167	126	17,486
May 2001	115	249	0	115	184	0	3942.857	6308.571	0	185	325	72	118,286
June 2001	142	258	37	142	168	35	4868.571	5760	1200	163	262	91	146,057

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TELEPHONE
(505) 748-3311

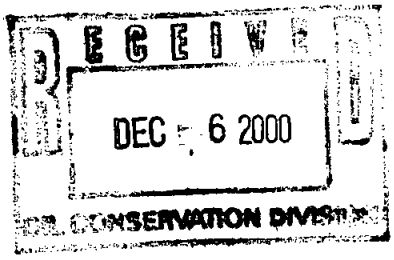
EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

December 4, 2000



Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2000 to September 30, 2000. We have disposed a total of 4,464,244 bbls. of fluid down the two wells. This is broken down as follows: 3,620,341 bbls. down WDW-1 and 843,903 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Page 4677 of 5828

Qrtly Injection Press

Navajo R

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthl Min. Flo Rate (gp
July 2000	210	289	-12.1	201	480	10.1
August 2000	276	397	-12.4	210	261	12.1
September 2000	314	380	-12.3	221	265	11.6

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthl Min. Flo Rate (gp
July 2000	215	281	-14.6	156	203	0
August 2000	272	367	-15.4	188	209	100
September 2000	192	358	-15.4	159	202	110

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TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 24, 2000

Order ID Number: A00100302

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
154738	Injection Wells	Water	10/2/00	9:30	10/3/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 25 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Received by OCD: 5/16/2022 2:12:41 PM

Analytical and Quality Control Report

Sample: 154738 - Injection Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC05404	Date Analyzed:	10/6/00
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB04714	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<10.0	µg/L	5	1
Dichlorodifluoromethane		<10.0	µg/L	5	1
Chloromethane (methyl chloride)		<10.0	µg/L	5	1
Vinyl Chloride		<10.0	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	1
Chloroethane		<10.0	µg/L	5	1
Trichlorofluoromethane		<10.0	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<10.0	µg/L	5	1
Carbon Disulfide		<10.0	µg/L	5	1
Acrylonitrile		<25.0	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<10.0	µg/L	5	5
1,1-Dichloroethene		<10.0	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<10.0	µg/L	5	1
trans-1,2-Dichloroethene		<10.0	µg/L	5	1
1,1-Dichloroethane		<10.0	µg/L	5	1
cis-1,2-dichloroethene		<10.0	µg/L	5	1
2,2-Dichloropropane		<10.0	µg/L	5	1
1,2-Dichloroethane (EDC)		<10.0	µg/L	5	1
Chloroform		<10.0	µg/L	5	1
1,1,1-Trichloroethane		<10.0	µg/L	5	1
1,1-Dichloropropene		<10.0	µg/L	5	1
Benzene		<10.0	µg/L	5	1
Carbon Tetrachloride		<10.0	µg/L	5	1
1,2-Dichloropropane		<10.0	µg/L	5	1
Trichloroethene (TCE)		<10.0	µg/L	5	1
Dibromomethane (methylene bromide)		<10.0	µg/L	5	1
Bromodichloromethane		<10.0	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<10.0	µg/L	5	1
trans-1,3-Dichloropropene		<10.0	µg/L	5	1
Toluene		<10.0	µg/L	5	1
1,1,2-Trichloroethane		<10.0	µg/L	5	1
1,3-Dichloropropane		<10.0	µg/L	5	1
Dibromochloromethane		<10.0	µg/L	5	1
1,2-Dibromoethane (EDB)		<10.0	µg/L	5	1
Tetrachloroethene (PCE)		<10.0	µg/L	5	1
Chlorobenzene		<10.0	µg/L	5	1
1,1,1,2-Tetrachloroethane		<10.0	µg/L	5	1
Ethylbenzene		<10.0	µg/L	5	1
m,p-Xylene		<10.0	µg/L	5	1
Bromoform		<10.0	µg/L	5	1

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

... *Continued* Sample: 154738 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
Styrene		<10.0	µg/L	5	1
o-Xylene		<10.0	µg/L	5	1
1,1,2,2-Tetrachloroethane		<10.0	µg/L	5	1
2-Chlorotoluene		<10.0	µg/L	5	1
1,2,3-Trichloropropane		<10.0	µg/L	5	1
Isopropylbenzene		<10.0	µg/L	5	1
Bromobenzene		<10.0	µg/L	5	1
n-Propylbenzene		<10.0	µg/L	5	1
1,3,5-Trimethylbenzene		<10.0	µg/L	5	1
tert-Butylbenzene		<10.0	µg/L	5	1
1,2,4-Trimethylbenzene		<10.0	µg/L	5	1
1,4-Dichlorobenzene (para)		<10.0	µg/L	5	1
sec-Butylbenzene		<10.0	µg/L	5	1
1,3-Dichlorobenzene		<10.0	µg/L	5	1
p-Isopropyltoluene		<10.0	µg/L	5	1
4-Chlorotoluene		<10.0	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<10.0	µg/L	5	1
n-Butylbenzene		<10.0	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		15.8	µg/L	5	1
Hexachlorobutadiene		<25.0	µg/L	5	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.88	µg/L	1	50	101	85 - 117
Toluene-d8		51.11	µg/L	1	50	102	93 - 109
4-Bromofluorobenzene		46.96	µg/L	1	50	93	76 - 109

Sample: 154738 - Injection Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC05390	Date Analyzed:	10/5/00
Analyst:	MA	Preparation Method:	E 3510C	Prep Batch:	PB04703	Date Prepared:	10/3/00

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 154738 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		0.015	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 154738 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		23.99	mg/L	1	80	29	8 - 73
Phenol-d5		17.95	mg/L	1	80	22	8 - 62
Nitrobenzene-d5		49.72	mg/L	1	80	62	44 - 109
2-Fluorobiphenyl		51.99	mg/L	1	80	64	45 - 109
2,4,6-Tribromophenol		53.92	mg/L	1	80	67	39 - 132
Terphenyl-d14		38.24	mg/L	1	80	47	46 - 121

Sample: 154738 - Injection Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC05424	Date Analyzed:	10/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04729	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		156	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		516	mg/L as CaCo3	1	1
Total Alkalinity		672	mg/L as CaCo3	1	1

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 154738 - Injection Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC05428	Date Analyzed:	10/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04725	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		6500	uMHOS/cm	1	

Sample: 154738 - Injection Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC05800	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:		Prep Batch:	PB05078	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		0.053	mm/yr	1	
pH		8.60	s.u.	1	

Sample: 154738 - Injection Wells

Analysis:	Dissolved Metals	Analytical Method:	E 200.7	QC Batch:	QC05813	Date Analyzed:	10/4/00
Analyst:	RR	Preparation Method:		Prep Batch:	PB05088	Date Prepared:	10/4/00

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		70	mg/L	1	0.50
Dissolved Magnesium		40	mg/L	1	0.50
Dissolved Potassium		6.7	mg/L	1	0.50
Dissolved Sodium		920	mg/L	1	0.50

Sample: 154738 - Injection Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC05801	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:	N/A	Prep Batch:	PB05081	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Flashpoint		>150	F	1	

Sample: 154738 - Injection Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC05733	Date Analyzed:	10/13/00
Analyst:	MHS	Preparation Method:	N/A	Prep Batch:	PB05017	Date Prepared:	10/10/00

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 154738 - Injection Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC05435	Date Analyzed:	10/5/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB04738	Date Prepared:	10/5/00

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Result	Units	Dilution	RDL
CL		940	mg/L	1	0.50
Sulfate		890	mg/L	1	0.50

Sample: 154738 - Injection Wells

Analysis:	Reactivity	Analytical Method:	S 7.3	QC Batch:	QC05799	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:		Prep Batch:	PB05087	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10		1	
Hydrogen Cyanide		<2.5		1	

Sample: 154738 - Injection Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC05422	Date Analyzed:	10/5/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04731	Date Prepared:	10/4/00

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2700	mg/L	1	10

Sample: 154738 - Injection Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC05814	Date Analyzed:	10/7/00
Analyst:	RR	Preparation Method:	E 3010A	Prep Batch:	PB05089	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.44	mg/L	1	0.20
Total Arsenic		0.27	mg/L	1	0.01
Total Barium		<0.01	mg/L	1	0.01
Total Beryllium		<0.01	mg/L	1	0.01
Total Boron		0.56	mg/L	1	0.20
Total Cadmium		<0.01	mg/L	1	0.01
Total Chromium		<0.01	mg/L	1	0.01
Total Cobalt		<0.01	mg/L	1	0.01
Total Copper		0.08	mg/L	1	0.01
Total Iron		1.3	mg/L	1	0.01
Total Lead		<0.01	mg/L	1	0.01
Total Manganese		0.15	mg/L	1	0.01
Total Molybdenum		<0.01	mg/L	1	0.01
Total Nickel		<0.01	mg/L	1	0.01
Total Selenium		0.44	mg/L	1	0.01
Total Silver		<0.01	mg/L	1	0.01
Total Uranium		<0.50	mg/L	1	0.50
Total Vanadium		<0.01	mg/L	1	0.01
Total Zinc		0.02	mg/L	1	0.01

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 154738 - Injection Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC05449	Date Analyzed:	10/3/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04752	Date Prepared:	10/3/00

Param	Flag	Result	Units	Dilution	RDL
pH	[1]	8.7	s.u.	1	1

Quality Control Report
Method Blank

Sample: Method Blank QCBatch: QC05390

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005

Continued ...

[1] Sample was run out of holding time, but was tested the day it was received.

Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Results	Units	Reporting Limit
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005

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Param	Flag	Results	Units	Reporting Limit
Bis (2-ethylhexyl) phthalate		0.029	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorophenol		31.70	mg/L	80	39	8 - 73
Phenol-d5		21.81	mg/L	80	27	8 - 62
Nitrobenzene-d5		64.33	mg/L	80	80	44 - 109
2-Fluorobiphenyl		60.92	mg/L	80	76	45 - 109
2,4,6-Tribromophenol		68.44	mg/L	80	85	39 - 132
Terphenyl-d14		82.55	mg/L	80	103	46 - 121

Sample: Method Blank

QCBatch: QC05404

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<2.00	µg/L	1
Dichlorodifluoromethane		<2.00	µg/L	1
Chloromethane (methyl chloride)		<2.00	µg/L	1
Vinyl Chloride		<2.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	1
Chloroethane		<2.00	µg/L	1
Trichlorofluoromethane		<2.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<2.00	µg/L	1
Carbon Disulfide		<2.00	µg/L	1
Acrylonitrile		<5.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<2.00	µg/L	5
1,1-Dichloroethene		<2.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<2.00	µg/L	1
trans-1,2-Dichloroethene		<2.00	µg/L	1
1,1-Dichloroethane		<2.00	µg/L	1
cis-1,2-dichloroethene		<2.00	µg/L	1
2,2-Dichloropropane		<2.00	µg/L	1
1,2-Dichloroethane (EDC)		<2.00	µg/L	1

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Param	Flag	Results	Units	Reporting Limit
Chloroform		<2.00	µg/L	1
1,1,1-Trichloroethane		<2.00	µg/L	1
1,1-Dichloropropene		<2.00	µg/L	1
Benzene		<2.00	µg/L	1
Carbon Tetrachloride		<2.00	µg/L	1
1,2-Dichloropropane		<2.00	µg/L	1
Trichloroethene (TCE)		<2.00	µg/L	1
Dibromomethane (methylene bromide)		<2.00	µg/L	1
Bromodichloromethane		<2.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<2.00	µg/L	1
trans-1,3-Dichloropropene		<2.00	µg/L	1
Toluene		<2.00	µg/L	1
1,1,2-Trichloroethane		<2.00	µg/L	1
1,3-Dichloropropane		<2.00	µg/L	1
Dibromochloromethane		<2.00	µg/L	1
1,2-Dibromoethane (EDB)		<2.00	µg/L	1
Tetrachloroethene (PCE)		<2.00	µg/L	1
Chlorobenzene		<2.00	µg/L	1
1,1,1,2-Tetrachloroethane		<2.00	µg/L	1
Ethylbenzene		<2.00	µg/L	1
m,p-Xylene		<2.00	µg/L	1
Bromoform		<2.00	µg/L	1
Styrene		<2.00	µg/L	1
o-Xylene		<2.00	µg/L	1
1,1,2,2-Tetrachloroethane		<2.00	µg/L	1
2-Chlorotoluene		<2.00	µg/L	1
1,2,3-Trichloropropane		<2.00	µg/L	1
Isopropylbenzene		<2.00	µg/L	1
Bromobenzene		<2.00	µg/L	1
n-Propylbenzene		<2.00	µg/L	1
1,3,5-Trimethylbenzene		<2.00	µg/L	1
tert-Butylbenzene		<2.00	µg/L	1
1,2,4-Trimethylbenzene		<2.00	µg/L	1
1,4-Dichlorobenzene (para)		<2.00	µg/L	1
sec-Butylbenzene		<2.00	µg/L	1
1,3-Dichlorobenzene		<2.00	µg/L	1
p-Isopropyltoluene		<2.00	µg/L	1
4-Chlorotoluene		<2.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<2.00	µg/L	1
n-Butylbenzene		<2.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<2.00	µg/L	1
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Dibromofluoromethane		50.44	µg/L	50	100	85 - 117

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Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Toluene-d8		50.69	µg/L	50	101	93 - 109
4-Bromofluorobenzene		47.32	µg/L	50	94	76 - 109

Sample: Method Blank QCBatch: QC05422

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Sample: Method Blank QCBatch: QC05424

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Sample: Method Blank QCBatch: QC05428

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		6.2	uMHOS/cm	

Sample: Method Blank QCBatch: QC05435

Param	Flag	Results	Units	Reporting Limit
CL		<0.5	mg/L	0.50
Sulfate		<0.5	mg/L	0.50

Sample: Method Blank QCBatch: QC05733

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Sample: Method Blank QCBatch: QC05813

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.50	mg/L	0.50
Dissolved Magnesium		<0.50	mg/L	0.50
Dissolved Potassium		<0.50	mg/L	0.50
Dissolved Sodium		<0.50	mg/L	0.50

Sample: Method Blank QCBatch: QC05814

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.20	mg/L	0.20
Total Arsenic		<0.01	mg/L	0.01
Total Barium		<0.01	mg/L	0.01
Total Beryllium		<0.01	mg/L	0.01
Total Boron		<0.20	mg/L	0.20
Total Cadmium		<0.01	mg/L	0.01
Total Chromium		<0.01	mg/L	0.01
Total Cobalt		<0.01	mg/L	0.01
Total Copper		<0.01	mg/L	0.01
Total Iron		<0.01	mg/L	0.01
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.01	mg/L	0.01
Total Molybdenum		<0.01	mg/L	0.01
Total Nickel		<0.01	mg/L	0.01
Total Selenium		<0.01	mg/L	0.01
Total Silver		<0.01	mg/L	0.01
Total Uranium		<0.50	mg/L	0.50
Total Vanadium		<0.01	mg/L	0.01
Total Zinc		<0.01	mg/L	0.01

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Sample: LCS QC Batch: QC05390

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		20.905	mg/L	1	80	<0.005	26		5 - 57	20
2-Chlorophenol		48.293	mg/L	1	80	<0.005	60		29 - 110	20
1,4-Dichlorobenzene		55.729	mg/L	1	80	<0.005	69		25 - 94	20
n-Nitrosodi-n-propylamine		72.637	mg/L	1	80	<0.005	90		36 - 119	20
1,2,4-Trichlorobenzene		61.425	mg/L	1	80	<0.005	76		28 - 110	20
4-Chloro-3-methylphenol		55.224	mg/L	1	80	<0.005	69		40 - 126	20
Acenaphthene		64.238	mg/L	1	80	<0.005	80		47 - 118	20
4-Nitrophenol		20.895	mg/L	1	80	<0.005	26		0 - 69	20

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
2,4-Dinitrotoluene		84.211	mg/L	1	80	<0.005	105		46 - 133	20
Pentachlorophenol		52.617	mg/L	1	80	<0.005	65		21 - 131	20
Pyrene		73.392	mg/L	1	80	<0.005	91		44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		33.96	mg/L	1	80	42	8 - 73
Phenol-d5		22.60	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		68.20	mg/L	1	80	85	44 - 109
2-Fluorobiphenyl		69.55	mg/L	1	80	86	45 - 109
2,4,6-Tribromophenol		75.50	mg/L	1	80	94	39 - 132
Terphenyl-d14		78.63	mg/L	1	80	98	46 - 121

Sample: LCSD

QC Batch: QC05390

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		20.796	mg/L	1	80	<0.005	25	0	5 - 57	20
2-Chlorophenol		48.069	mg/L	1	80	<0.005	60	0	29 - 110	20
1,4-Dichlorobenzene		56.142	mg/L	1	80	<0.005	70	1	25 - 94	20
n-Nitrosodi-n-propylamine		74.847	mg/L	1	80	<0.005	93	3	36 - 119	20
1,2,4-Trichlorobenzene		61.727	mg/L	1	80	<0.005	77	0	28 - 110	20
4-Chloro-3-methylphenol		55.437	mg/L	1	80	<0.005	69	0	40 - 126	20
Acenaphthene		64.974	mg/L	1	80	<0.005	81	1	47 - 118	20
4-Nitrophenol		19.242	mg/L	1	80	<0.005	24	8	0 - 69	20
2,4-Dinitrotoluene		85.367	mg/L	1	80	<0.005	106	1	46 - 133	20
Pentachlorophenol		52.533	mg/L	1	80	<0.005	65	0	21 - 131	20
Pyrene		74.244	mg/L	1	80	<0.005	92	1	44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		33.33	mg/L	1	80	41	8 - 73
Phenol-d5		22.45	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		68.50	mg/L	1	80	85	44 - 109
2-Fluorobiphenyl		69.49	mg/L	1	80	86	45 - 109
2,4,6-Tribromophenol		77.03	mg/L	1	80	96	39 - 132
Terphenyl-d14		79.52	mg/L	1	80	99	46 - 121

Sample: LCS

QC Batch: QC05404

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		126	µg/L	1	100	<2.00	126		65 - 147	20
Benzene		114	µg/L	1	100	<2.00	114		79 - 124	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103		80 - 119	20
Toluene		111	µg/L	1	100	<2.00	111		78 - 118	20
Chlorobenzene		110	µg/L	1	100	<2.00	110		85 - 118	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		50.59	µg/L	1	50	101	85 - 117
Toluene-d8		49.17	µg/L	1	50	98	93 - 109
4-Bromofluorobenzene		47.76	µg/L	1	50	95	76 - 109

Sample: LCSD

QC Batch: QC05404

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		125	µg/L	1	100	<2.00	125	1	65 - 147	20
Benzene		114	µg/L	1	100	<2.00	114	0	79 - 124	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103	0	80 - 119	20
Toluene		111	µg/L	1	100	<2.00	111	0	78 - 118	20
Chlorobenzene		110	µg/L	1	100	<2.00	110	0	85 - 118	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		51.04	µg/L	1	50	102	85 - 117
Toluene-d8		50.26	µg/L	1	50	100	93 - 109
4-Bromofluorobenzene		46.44	µg/L	1	50	92	76 - 109

Sample: LCS

QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00101	mg/L	1	0.001	<0.0002	101		80 - 120	20

Sample: LCSD

QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00114	mg/L	1	0.001	<0.0002	114	12	80 - 120	20

Received by OCD: 5/16/2022 2:12:41 PM

Sample: LCS QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		979	mg/L	1	1000	<0.50	97		75 - 125	20
Dissolved Magnesium		944	mg/L	1	1000	<0.50	94		75 - 125	20
Dissolved Potassium		1067	mg/L	1	1000	<0.50	106		75 - 125	20
Dissolved Sodium		1061	mg/L	1	1000	<0.50	106		75 - 125	20

Sample: LCSD QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1011	mg/L	1	1000	<0.50	101	3	75 - 125	20
Dissolved Magnesium		982	mg/L	1	1000	<0.50	98	4	75 - 125	20
Dissolved Potassium		1104	mg/L	1	1000	<0.50	110	3	75 - 125	20
Dissolved Sodium		1085	mg/L	1	1000	<0.50	108	2	75 - 125	20

Sample: LCS QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.16	mg/L	1	2	<0.20	108		75 - 125	20
Total Arsenic		1.00	mg/L	1	1	<0.01	100		75 - 125	20
Total Barium		2.12	mg/L	1	2	<0.01	106		75 - 125	20
Total Beryllium		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Boron		1.09	mg/L	1	1	<0.20	109		75 - 125	20
Total Cadmium		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Chromium		0.43	mg/L	1	0.40	<0.01	107		75 - 125	20
Total Cobalt		1.05	mg/L	1	1	<0.01	105		75 - 125	20
Total Copper		0.41	mg/L	1	0.40	<0.01	102		75 - 125	20
Total Iron		2.12	mg/L	1	2	<0.01	106		75 - 125	20
Total Lead		1.03	mg/L	1	1	<0.01	103		75 - 125	20
Total Manganese		0.21	mg/L	1	0.20	<0.01	105		75 - 125	20
Total Molybdenum		1.07	mg/L	1	1	<0.01	107		75 - 125	20
Total Nickel		1.01	mg/L	1	1	<0.01	101		75 - 125	20
Total Selenium		0.90	mg/L	1	1	<0.01	90		75 - 125	20
Total Silver		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Uranium		2.18	mg/L	1	2	<0.50	109		75 - 125	20
Total Vanadium		1.05	mg/L	1	1	<0.01	105		75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	<0.01	110		75 - 125	20

Sample: LCSD QC Batch: QC05814

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.14	mg/L	1	2	<0.20	107	1	75 - 125	20
Total Arsenic		0.98	mg/L	1	1	<0.01	98	2	75 - 125	20
Total Barium		2.10	mg/L	1	2	<0.01	105	1	75 - 125	20
Total Beryllium		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Boron		1.09	mg/L	1	1	<0.20	109	0	75 - 125	20
Total Cadmium		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Chromium		0.42	mg/L	1	0.40	<0.01	105	2	75 - 125	20
Total Cobalt		1.04	mg/L	1	1	<0.01	104	1	75 - 125	20
Total Copper		0.40	mg/L	1	0.40	<0.01	100	2	75 - 125	20
Total Iron		2.11	mg/L	1	2	<0.01	105	0	75 - 125	20
Total Lead		1.02	mg/L	1	1	<0.01	102	1	75 - 125	20
Total Manganese		0.21	mg/L	1	0.20	<0.01	105	0	75 - 125	20
Total Molybdenum		1.06	mg/L	1	1	<0.01	106	1	75 - 125	20
Total Nickel		1.00	mg/L	1	1	<0.01	100	1	75 - 125	20
Total Selenium		0.90	mg/L	1	1	<0.01	90	0	75 - 125	20
Total Silver		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Uranium		2.15	mg/L	1	2	<0.50	107	1	75 - 125	20
Total Vanadium		1.04	mg/L	1	1	<0.01	104	1	75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	<0.01	110	0	75 - 125	20

Quality Control Report
Matrix Spikes and Duplicate Spikes

Sample: MS QC Batch: QC05435

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		1289.87	mg/L	1	625	660	100		80 - 120	20
Sulfate		814.53	mg/L	1	625	150	106		80 - 120	20

Sample: MSD QC Batch: QC05435

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		1285.88	mg/L	1	625	660	100	1	80 - 120	20
Sulfate		799.39	mg/L	1	625	150	103	2	80 - 120	20

Sample: MS QC Batch: QC05733

Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00098	mg/L	1	0.001	<0.0002	98		80 - 120	20

Sample: MSD QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00104	mg/L	1	0.001	<0.0002	104	6	80 - 120	20

Sample: MS QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1038	mg/L	1	1000	70	96		75 - 125	20
Dissolved Magnesium		986	mg/L	1	1000	40	94		75 - 125	20
Dissolved Potassium		1090	mg/L	1	1000	6.7	108		75 - 125	20
Dissolved Sodium		1965	mg/L	1	1000	920	104		75 - 125	20

Sample: MSD QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1014	mg/L	1	1000	70	94	2	75 - 125	20
Dissolved Magnesium		963	mg/L	1	1000	40	92	2	75 - 125	20
Dissolved Potassium		1063	mg/L	1	1000	6.7	105	2	75 - 125	20
Dissolved Sodium		1898	mg/L	1	1000	920	97	7	75 - 125	20

Sample: MS QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.52	mg/L	1	2	0.44	104		75 - 125	20
Total Arsenic		1.21	mg/L	1	1	0.27	94		75 - 125	20
Total Barium		1.89	mg/L	1	2	<0.01	94		75 - 125	20
Total Beryllium		0.18	mg/L	1	0.20	<0.01	90		75 - 125	20
Total Boron		1.54	mg/L	1	1	0.56	98		75 - 125	20
Total Cadmium		0.18	mg/L	1	0.20	<0.01	90		75 - 125	20
Total Chromium		0.37	mg/L	1	0.40	<0.01	92		75 - 125	20
Total Cobalt		0.92	mg/L	1	1	<0.01	92		75 - 125	20

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Copper		0.47	mg/L	1	0.40	0.08	97		75 - 125	20
Total Iron		3.2	mg/L	1	2	1.3	95		75 - 125	20
Total Lead		0.88	mg/L	1	1	<0.01	88		75 - 125	20
Total Manganese		0.34	mg/L	1	0.20	0.15	95		75 - 125	20
Total Molybdenum		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Nickel		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Selenium		1.29	mg/L	1	1	0.44	85		75 - 125	20
Total Silver		0.19	mg/L	1	0.20	<0.01	95		75 - 125	20
Total Uranium		1.76	mg/L	1	2	<0.50	88		75 - 125	20
Total Vanadium		0.95	mg/L	1	1	<0.01	95		75 - 125	20
Total Zinc		0.26	mg/L	1	0.20	0.02	120		75 - 125	20

Sample: MSD QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.46	mg/L	1	2	0.44	101	3	75 - 125	20
Total Arsenic		1.21	mg/L	1	1	0.27	94	0	75 - 125	20
Total Barium		1.87	mg/L	1	2	<0.01	93	1	75 - 125	20
Total Beryllium		0.18	mg/L	1	0.20	<0.01	90	0	75 - 125	20
Total Boron		1.43	mg/L	1	1	0.56	87	12	75 - 125	20
Total Cadmium		0.18	mg/L	1	0.20	<0.01	90	0	75 - 125	20
Total Chromium		0.37	mg/L	1	0.40	<0.01	92	0	75 - 125	20
Total Cobalt		0.92	mg/L	1	1	<0.01	92	0	75 - 125	20
Total Copper		0.46	mg/L	1	0.40	0.08	95	2	75 - 125	20
Total Iron		3.2	mg/L	1	2	1.3	95	0	75 - 125	20
Total Lead		0.87	mg/L	1	1	<0.01	87	1	75 - 125	20
Total Manganese		0.34	mg/L	1	0.20	0.15	95	0	75 - 125	20
Total Molybdenum		0.95	mg/L	1	1	<0.01	95	1	75 - 125	20
Total Nickel		0.94	mg/L	1	1	<0.01	94	0	75 - 125	20
Total Selenium		1.28	mg/L	1	1	0.44	84	1	75 - 125	20
Total Silver		0.18	mg/L	1	0.20	<0.01	90	5	75 - 125	20
Total Uranium		1.75	mg/L	1	2	<0.50	87	0	75 - 125	20
Total Vanadium		0.94	mg/L	1	1	<0.01	94	1	75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	0.02	100	18	75 - 125	20

Quality Control Report
Duplicate Samples

Sample: Duplicate QC Batch: QC05422

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Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1326	1400	mg/L	1	5	20

Sample: Duplicate QC Batch: QC05424

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity		212	214	mg/L as CaCo3	1	1	20
Total Alkalinity		212	214	mg/L as CaCo3	1	1	20

Sample: Duplicate QC Batch: QC05428

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		2623	2600	uMHOS/cm	1	1	20

Sample: Duplicate QC Batch: QC05449

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	20

Sample: Duplicate QC Batch: QC05799

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		Non-reactive	Non-reactive		1	0	20

Sample: Duplicate QC Batch: QC05800

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		0.053	0.053	mm/yr	1	0	20
pH		8.62	8.60	s.u.	1	0	20

Sample: Duplicate QC Batch: QC05801

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Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Flashpoint		>150	>150	F	1	0	20

Quality Control Report
Continuing Calibration Verification Standards

Sample: CCV (1)

QC Batch: QC05390

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	61.43	102	5 - 57	10/5/00
1,4-Dichlorobenzene		mg/L	60	62.16	103	25 - 94	10/5/00
2-Nitrophenol		mg/L	60	64.78	107	80 - 120	10/5/00
2,4-Dichlorophenol		mg/L	60	62.37	103	80 - 120	10/5/00
Hexachlorobutadiene		mg/L	60	61.30	102	80 - 120	10/5/00
4-Chloro-3-methylphenol		mg/L	60	62.56	104	40 - 126	10/5/00
2,4,6-Trichlorophenol		mg/L	60	63.41	105	80 - 120	10/5/00
Acenaphthene		mg/L	60	60.76	101	47 - 118	10/5/00
Diphenylamine		mg/L	60	60.83	101	80 - 120	10/5/00
Pentachlorophenol		mg/L	60	67.19	111	21 - 131	10/5/00
Fluoranthene		mg/L	60	60.33	100	80 - 120	10/5/00
Di-n-octylphthalate		mg/L	60	59.88	99	80 - 120	10/5/00
Benzo(a)pyrene		mg/L	60	64.30	107	80 - 120	10/5/00
2-Fluorophenol		mg/L	60	63.36	105	8 - 73	10/5/00
Phenol-d5		mg/L	60	62.44	104	8 - 62	10/5/00
Nitrobenzene-d5		mg/L	60	63.47	105	44 - 109	10/5/00
2-Fluorobiphenyl		mg/L	60	61.53	102	45 - 109	10/5/00
2,4,6-Tribromophenol		mg/L	60	63.19	105	39 - 132	10/5/00
Terphenyl-d14		mg/L	60	63.08	105	46 - 121	10/5/00

Sample: CCV (1)

QC Batch: QC05404

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	95	95	80 - 120	10/6/00
1,1-Dichloroethene		µg/L	100	103	103	73 - 154	10/6/00
Chloroform		µg/L	100	106	106	80 - 120	10/6/00
1,2-Dichloropropane		µg/L	100	102	102	80 - 120	10/6/00
Toluene		µg/L	100	100	100	81 - 122	10/6/00
Chlorobenzene		µg/L	100	96	96	86 - 121	10/6/00
Ethylbenzene		µg/L	100	99	99	80 - 120	10/6/00
Dibromofluoromethane		µg/L	50	55.86	111	80 - 120	10/6/00
Toluene-d8		µg/L	50	49.08	98	80 - 120	10/6/00
4-Bromofluorobenzene		µg/L	50	51.43	102	80 - 120	10/6/00

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Sample: CCV (1) QC Batch: QC05422

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	972	97	80 - 120	10/5/00

Sample: ICV (1) QC Batch: QC05422

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	953	95	80 - 120	10/5/00

Sample: CCV (1) QC Batch: QC05424

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	8.0	0	80 - 120	10/6/00
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	80 - 120	10/6/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Total Alkalinity		mg/L as CaCo3	250	228	91	80 - 120	10/6/00

Sample: ICV (1) QC Batch: QC05424

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Carbonate Alkalinity		mg/L as CaCo3	0	240	0	80 - 120	10/6/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Total Alkalinity		mg/L as CaCo3	250	240	96	80 - 120	10/6/00

Sample: CCV (1) QC Batch: QC05428

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1408	99	80 - 120	10/6/00

Sample: ICV (1) QC Batch: QC05428

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1408	99	80 - 120	10/6/00

Sample: CCV (1) QC Batch: QC05435

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	12.43	99	80 - 120	10/5/00
Sulfate		mg/L	12.50	12.77	102	80 - 120	10/5/00

Sample: ICV (1) QC Batch: QC05435

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	12.28	98	80 - 120	10/5/00
Sulfate		mg/L	12.50	12.79	102	80 - 120	10/5/00

Sample: CCV (1) QC Batch: QC05449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	10/3/00

Sample: ICV (1) QC Batch: QC05449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	10/3/00

Sample: CCV (1) QC Batch: QC05733

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00100	100	80 - 120	10/13/00

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Sample: ICV (1)

QC Batch: QC05733

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00092	92	80 - 120	10/13/00

Sample: CCV (1)

QC Batch: QC05813

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	100	119	119	75 - 125	10/4/00
Dissolved Magnesium		mg/L	100	117	117	75 - 125	10/4/00
Dissolved Potassium		mg/L	100	129	129	75 - 125	10/4/00
Dissolved Sodium		mg/L	100	128	128	75 - 125	10/4/00

Sample: ICV (1)

QC Batch: QC05813

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	100	120	120	75 - 125	10/4/00
Dissolved Magnesium		mg/L	100	121	121	75 - 125	10/4/00
Dissolved Potassium		mg/L	100	128	128	75 - 125	10/4/00
Dissolved Sodium		mg/L	100	128	128	75 - 125	10/4/00

Sample: CCV (1)

QC Batch: QC05814

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.85	97	75 - 125	10/7/00
Total Arsenic		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Barium		mg/L	5	4.98	99	75 - 125	10/7/00
Total Beryllium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Boron		mg/L	2.50	2.44	97	75 - 125	10/7/00
Total Cadmium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Chromium		mg/L	1	0.99	99	75 - 125	10/7/00
Total Cobalt		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Copper		mg/L	1	0.99	99	75 - 125	10/7/00
Total Iron		mg/L	5	4.98	99	75 - 125	10/7/00
Total Lead		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Manganese		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Molybdenum		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Nickel		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Selenium		mg/L	2.50	2.47	98	75 - 125	10/7/00

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Uranium		mg/L	5	4.93	98	75 - 125	10/7/00
Total Vanadium		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Zinc		mg/L	0.50	0.49	98	75 - 125	10/7/00

Sample: ICV (1)

QC Batch: QC05814

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.90	98	75 - 125	10/7/00
Total Arsenic		mg/L	2.50	2.49	99	75 - 125	10/7/00
Total Barium		mg/L	5	5.02	100	75 - 125	10/7/00
Total Beryllium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Boron		mg/L	2.50	2.45	98	75 - 125	10/7/00
Total Cadmium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Chromium		mg/L	1	0.99	99	75 - 125	10/7/00
Total Cobalt		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Copper		mg/L	1	1.00	100	75 - 125	10/7/00
Total Iron		mg/L	5	5.00	100	75 - 125	10/7/00
Total Lead		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Manganese		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Molybdenum		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Nickel		mg/L	2.50	2.49	99	75 - 125	10/7/00
Total Selenium		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	10/7/00
Total Uranium		mg/L	5	5.00	100	75 - 125	10/7/00
Total Vanadium		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Zinc		mg/L	0.50	0.49	98	75 - 125	10/7/00

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Page ____ of ____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A000160302

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 746 5421
Contact Person:
Invoice to: (if different from above)
Project #:
Project Name: Injection Wells
Project Location:
Sampler Signature: Charles Lloyd

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	NaHSO4	H2SO4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
154738	Injection Wells	2	1L	X									X	X	10/2/00	930
	" "	2	40ml	X						X			X		10/2/00	930
	" "	1	500ml	X					X				X		10/2/00	930

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See List

Relinquished by: Charles Lloyd Date: 10/2/00 Time: 1615 — Received by: Date: Time:
Relinquished by: Date: Time: — Received by: Date: Time:
Relinquished by: Date: Time: — Received at Laboratory by: Nicki Crosby Date: 10-2-00 Time: 9:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 4 °
Log-in Review MS

REMARKS: 10/25

Carrier # FED EX 304 4184 017

Page 4703 of 5828

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TELEPHONE
(505) 748-3311

EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

August 3, 2000

AUG – 4 2000

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from April 1, 2000 to June 30, 2000. We have disposed a total of 3,296,815 bbls. of fluid down the two wells. This is broken down as follows: 2,970,284 bbls. down WDW-1 and 326,531 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Page 4705 of 5828

WDW-1

Month	Wellhead Pressure			Injection Flow Rate			Flow Rate		Annulus Pressure			Annulus Level		
	Avg	Min	Max	Avg	Min	Max	Average	Total	Avg	Min	Max	Avg	Min	Max
	psig	psig	psig	gpm	gpm	gpm	BPD	Bbl	psig	psig	psig	%	%	%
Oct-99	87	-12.7	328	330	11	499	11,314	350,743						
Nov-99	161	-12.4	410	249	0	344	8,534	256,011						
Dec-99	156	-12.3	322	272	14	377	9,309	288,566						
Jan-00	297	-12	400	369	0	350	12,651	392,195	NA	NA	NA	NA	NA	NA
Feb-00	319	-12	400	319	0	350	10,937	317,173	243	145	318	91	90	92
Mar-00	309	-12	400	309	0	350	10,584	328,114	252	155	325	91	90	92
Apr-00	76	-12	455	297	0	455	10,183	305,486	393	372	500	88	86	89
May-00	230	-12	361	342	0	418	11,726	363,497	476	314	500	86	84	89
Jun-00	241	-12	350	310	0	353	10,629	318,857	496	370	500	85	83	86

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Page 4706 of 5828

WDW-2

Month	Wellhead Pressure			Injection Flow Rate			Avg Flow	Total Flow	Annulus Pressure			Annulus Level		
	Avg	Min	Max	Avg	Min	Max	BPD	Bbl	Avg	Min	Max	Avg	Min	Max
	psig	psig	psig	gpm	gpm	gpm			psig	psig	psig	%	%	%
Oct-99	NA	NA	NA	NA	NA	NA	NA	NA						
Nov-99	140	-13	337	159	0	437	5,434	163,029						
Dec-99	140	-13	338	70	0	341	2,390	74,081						
Jan-00	-13	-13	-13	0	0	0	0	0	NA	NA	NA	NA	NA	NA
Feb-00	-13	-13	-13	0	0	0	0	0	252	232	295	88	86	89
Mar-00	-13	-13	-13	0	0	0	0	0	201	181	243	89	87	90
Apr-00	10	-13	245	33	221	0	1,131	33,943	128	81	196	83	83	86
May-00	59	-13	234	36	122	0	1,234	38,263	161	71	311	83	79	88
Jun-00	105	-13	294	65	158	0	2,229	66,857	302	127	500	78	76	80

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Charlie Plymale or Darrell Moore
501 E. Main
Artesia, NM 88210

July 13,2000
Receiving Date: 07/06/2000
Sample Type: Water
Project No: NA
Project Location: Artesia

Sampling Date: 07/05/2000
Sample Condition: Intact & Cool
Sample Received by: VH
Project Name: Injection Wells

TA#	FIELD CODE	TOTAL Hg (mg/L)	TOTAL U (mg/L)
T149250	Inj. Wells	<0.0002	<0.10
ICV		0.00098	1.00
CCV		0.00110	0.98
REPORTING LIMIT		0.0002	0.10
PREP DATE		07/07/2000	07/06/2000
ANALYSIS DATE		07/10/2000	07/10/2000
RPD		3*	1
% Extraction Accuracy		70*	85
% Instrument Accuracy		98	98

*NOTE: Low spike recovery due to nature of sample: extremely high dissolved solids with precipitate. Used LCS/LCSD for RPD and % Extraction Accuracy.

METHODS: EPA SW 846-3010B, 6010B, 7471A.
CHEMIST: TOTAL Hg: JM TOTAL U: RR
TOTAL Hg SPIKE: 0.001 mg/L TOTAL Hg.
TOTAL Hg CV: 0.001 mg/L TOTAL Hg.
TOTAL U SPIKE: 2.0 mg/L TOTAL U.
TOTAL U CV: 1.0 mg/L TOTAL U.

Director, Dr. Blair Leftwich

7-13-00
DATE

TRACEANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: July 14, 2000

Order ID Number: A00070613

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
149250	Inj Wells	Water	7/5/00	10:30	7/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

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Dr. Blair Leftwich, Director

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Analytical and Quality Control Report

Sample: 149250 - Inj Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC03650	Date Analyzed:	7/7/00
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB03149	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<10.00	µg/L	5	2
Dichlorodifluoromethane		<10.00	µg/L	5	2
Chloromethane (methyl chloride)		<10.00	µg/L	5	2
Vinyl Chloride		<10.00	µg/L	5	2
Bromomethane (methyl bromide)		<25.00	µg/L	5	5
Chloroethane		<10.00	µg/L	5	2
Trichlorofluoromethane		<10.00	µg/L	5	2
Acetone		<50.00	µg/L	5	10
Iodomethane (methyl iodide)		<10.00	µg/L	5	2
Carbon Disulfide		<10.00	µg/L	5	2
Acrylonitrile		<10.00	µg/L	5	2
2-Butanone (MEK)		<10.00	µg/L	5	2
4-methyl-2-pentanone (MIBK)		<50.00	µg/L	5	10
2-hexanone		<10.00	µg/L	5	2
trans 1,4-Dichloro-2-butene		<50.00	µg/L	5	10
1,1-Dichloroethene		<10.00	µg/L	5	2
Methylene chloride		<25.00	µg/L	5	5
MTBE		<10.00	µg/L	5	2
trans-1,2-Dichloroethene		<10.00	µg/L	5	2
1,1-Dichloroethane		<10.00	µg/L	5	2
cis-1,2-dichloroethene		<10.00	µg/L	5	2
2,2-Dichloropropane		<10.00	µg/L	5	2
1,2-Dichloroethane (EDC)		<10.00	µg/L	5	2
Chloroform		<10.00	µg/L	5	2
1,1,1-Trichloroethane		<10.00	µg/L	5	2
1,1-Dichloropropene		<10.00	µg/L	5	2
Benzene		<10.00	µg/L	5	2
Carbon Tetrachloride		<10.00	µg/L	5	2
1,2-Dichloropropane		<10.00	µg/L	5	2
Trichloroethene (TCE)		<10.00	µg/L	5	2
Dibromomethane (methylene bromide)		<10.00	µg/L	5	2
Bromodichloromethane		<10.00	µg/L	5	2
2-Chloroethyl vinyl ether		<50.00	µg/L	5	10
cis-1,3-Dichloropropene		<10.00	µg/L	5	2
trans-1,3-Dichloropropene		<10.00	µg/L	5	2
Toluene		<10.00	µg/L	5	2
1,1,2-Trichloroethane		<10.00	µg/L	5	2
1,3-Dichloropropane		<10.00	µg/L	5	2
Dibromochloromethane		<10.00	µg/L	5	2
1,2-Dibromoethane (EDB)		<10.00	µg/L	5	2
Tetrachloroethene (PCE)		<10.00	µg/L	5	2
Chlorobenzene		<10.00	µg/L	5	2
1,1,1,2-Tetrachloroethane		<10.00	µg/L	5	2
Ethylbenzene		<10.00	µg/L	5	2
m,p-Xylene		12.80	µg/L	5	2

Continued ...

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... *Continued* Sample: 149250 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
Bromoform		<10.00	µg/L	5	2
Styrene		<10.00	µg/L	5	2
o-Xylene		<10.00	µg/L	5	2
1,1,2,2-Tetrachloroethane		<10.00	µg/L	5	2
2-Chlorotoluene		<10.00	µg/L	5	2
1,2,3-Trichloropropane		<10.00	µg/L	5	2
Isopropylbenzene		<10.00	µg/L	5	2
Bromobenzene		<10.00	µg/L	5	2
n-Propylbenzene		<10.00	µg/L	5	2
1,3,5-Trimethylbenzene		19.63	µg/L	5	2
tert-Butylbenzene		<10.00	µg/L	5	2
1,2,4-Trimethylbenzene		47.55	µg/L	5	2
1,4-Dichlorobenzene (para)		<10.00	µg/L	5	2
sec-Butylbenzene		<10.00	µg/L	5	2
1,3-Dichlorobenzene		<10.00	µg/L	5	2
p-Isopropyltoluene		<10.00	µg/L	5	2
4-Chlorotoluene		<10.00	µg/L	5	2
1,2-Dichlorobenzene (ortho)		<10.00	µg/L	5	2
n-Butylbenzene		<10.00	µg/L	5	2
1,2-Dibromo-3-chloropropane		<25.00	µg/L	5	5
1,2,3-Trichlorobenzene		<25.00	µg/L	5	5
1,2,4-Trichlorobenzene		<25.00	µg/L	5	5
Naphthalene		109.02	µg/L	5	2
Hexachlorobutadiene		<25.00	µg/L	5	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.88	µg/L	1	50	105	84 - 116
Toluene-d8		49.86	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		49.84	µg/L	1	50	99	80 - 110

Sample: 149250 - Inj Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC03678	Date Analyzed:	7/11/00
Analyst:	MA	Preparation Method:	E 3510C	Prep Batch:	PB03137	Date Prepared:	7/10/00

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 149250 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		0.050	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		0.020	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		0.052	mg/L	1	0.005
2-Methylnaphthalene		0.017	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Napthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Napthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 149250 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		27.61	mg/L	1	80	34	8 - 73
Phenol-d5		22.85	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		43.84	mg/L	1	80	54	44 - 109
2-Fluorobiphenyl		45.99	mg/L	1	80	57	45 - 109
2,4,6-Tribromophenol		40.31	mg/L	1	80	50	39 - 132
Terphenyl-d14		30.72	mg/L	1	80	38	46 - 121

Sample: 149250 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC03622	Date Analyzed:	7/7/00
Analyst:	LD	Preparation Method:	N/A	Prep Batch:	PB03116	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		360	mg/L as CaCo3	1	1
Total Alkalinity		360	mg/L as CaCo3	1	1

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Sample: 149250 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC03621	Date Analyzed:	7/6/00
Analyst:	LD	Preparation Method:	N/A	Prep Batch:	PB03115	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		4700	uMHOS/cm	1	

Sample: 149250 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC03709	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03199	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non 0.91	mm/yr	1	
pH		8.24	s.u.	1	

Sample: 149250 - Inj Wells

Analysis:	Dissolved Metals	Analytical Method:	E 200.7	QC Batch:	QC03653	Date Analyzed:	7/10/00
Analyst:	RR	Preparation Method:	E 3005A	Prep Batch:	PB03097	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		123	mg/L	1	0.50
Dissolved Magnesium		48	mg/L	1	0.50
Dissolved Potassium		35	mg/L	1	0.50
Dissolved Sodium		475	mg/L	1	0.50

Sample: 149250 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC03710	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03200	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 149250 - Inj Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC03642	Date Analyzed:	7/7/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB03142	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
CL		650	mg/L	1	0.50
Sulfate		820	mg/L	1	0.50

Sample: 149250 - Inj Wells

Analysis:	Reactivity	Analytical Method:	S 7.3	QC Batch:	QC03708	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03198	Date Prepared:	7/7/00

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Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10		1	
Hydrogen Cyanide		<2.5		1	

Sample: 149250 - Inj Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC03649	Date Analyzed:	7/10/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB03148	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2100	mg/L	1	10

Sample: 149250 - Inj Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC03651	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	E 3010A	Prep Batch:	PB03078	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		2.7	mg/L	1	0.05
Total Arsenic		0.21	mg/L	1	0.01
Total Barium		<0.01	mg/L	1	0.01
Total Beryllium		<0.01	mg/L	1	0.01
Total Boron		0.54	mg/L	1	0.10
Total Cadmium		<0.002	mg/L	1	0.002
Total Chromium		<0.005	mg/L	1	0.005
Total Cobalt		<0.02	mg/L	1	0.02
Total Copper		<0.02	mg/L	1	0.02
Total Iron		1.5	mg/L	1	0.05
Total Lead		<0.01	mg/L	1	0.01
Total Manganese		0.11	mg/L	1	0.01
Total Molybdenum		<0.05	mg/L	1	0.05
Total Nickel		<0.02	mg/L	1	0.02
Total Selenium		0.39	mg/L	1	0.01
Total Silver		<0.005	mg/L	1	0.005
Total Vanadium		<0.01	mg/L	1	0.01
Total Zinc		0.05	mg/L	1	0.05

Sample: 149250 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC03616	Date Analyzed:	7/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB03110	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
pH		7.8	s.u.	1	1

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Quality Control Report
Method Blank

Sample: Method Blank QCBatch: QC03621

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		4.8	uMHOS/cm	

Sample: Method Blank QCBatch: QC03642

Param	Flag	Results	Units	Reporting Limit
CL		<0.5	mg/L	0.50
Sulfate		<0.5	mg/L	0.50

Sample: Method Blank QCBatch: QC03649

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Sample: Method Blank QCBatch: QC03650

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<2.00	µg/L	2
Dichlorodifluoromethane		<2.00	µg/L	2
Chloromethane (methyl chloride)		<2.00	µg/L	2
Vinyl Chloride		<2.00	µg/L	2
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<2.00	µg/L	2
Trichlorofluoromethane		<2.00	µg/L	2
Acetone		<10.00	µg/L	10
Iodomethane (methyl iodide)		<2.00	µg/L	2
Carbon Disulfide		<2.00	µg/L	2
Acrylonitrile		<2.00	µg/L	2
2-Butanone (MEK)		<2.00	µg/L	2
4-methyl-2-pentanone (MIBK)		<10.00	µg/L	10
2-hexanone		<2.00	µg/L	2
trans 1,4-Dichloro-2-butene		<10.00	µg/L	10
1,1-Dichloroethene		<2.00	µg/L	2
Methylene chloride		<5.00	µg/L	5
MTBE		<2.00	µg/L	2
trans-1,2-Dichloroethene		<2.00	µg/L	2

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
1,1-Dichloroethane		<2.00	µg/L	2
cis-1,2-dichloroethene		<2.00	µg/L	2
2,2-Dichloropropane		<2.00	µg/L	2
1,2-Dichloroethane (EDC)		<2.00	µg/L	2
Chloroform		<2.00	µg/L	2
1,1,1-Trichloroethane		<2.00	µg/L	2
1,1-Dichloropropene		<2.00	µg/L	2
Benzene		<2.00	µg/L	2
Carbon Tetrachloride		<2.00	µg/L	2
1,2-Dichloropropane		<2.00	µg/L	2
Trichloroethene (TCE)		<2.00	µg/L	2
Dibromomethane (methylene bromide)		<2.00	µg/L	2
Bromodichloromethane		<2.00	µg/L	2
2-Chloroethyl vinyl ether		<10.00	µg/L	10
cis-1,3-Dichloropropene		<2.00	µg/L	2
trans-1,3-Dichloropropene		<2.00	µg/L	2
Toluene		<2.00	µg/L	2
1,1,2-Trichloroethane		<2.00	µg/L	2
1,3-Dichloropropane		<2.00	µg/L	2
Dibromochloromethane		<2.00	µg/L	2
1,2-Dibromoethane (EDB)		<2.00	µg/L	2
Tetrachloroethene (PCE)		<2.00	µg/L	2
Chlorobenzene		<2.00	µg/L	2
1,1,1,2-Tetrachloroethane		<2.00	µg/L	2
Ethylbenzene		<2.00	µg/L	2
m,p-Xylene		<2.00	µg/L	2
Bromoform		<2.00	µg/L	2
Styrene		<2.00	µg/L	2
o-Xylene		<2.00	µg/L	2
1,1,2,2-Tetrachloroethane		<2.00	µg/L	2
2-Chlorotoluene		<2.00	µg/L	2
1,2,3-Trichloropropane		<2.00	µg/L	2
Isopropylbenzene		<2.00	µg/L	2
Bromobenzene		<2.00	µg/L	2
n-Propylbenzene		<2.00	µg/L	2
1,3,5-Trimethylbenzene		<2.00	µg/L	2
tert-Butylbenzene		<2.00	µg/L	2
1,2,4-Trimethylbenzene		<2.00	µg/L	2
1,4-Dichlorobenzene (para)		<2.00	µg/L	2
sec-Butylbenzene		<2.00	µg/L	2
1,3-Dichlorobenzene		<2.00	µg/L	2
p-Isopropyltoluene		<2.00	µg/L	2
4-Chlorotoluene		<2.00	µg/L	2
1,2-Dichlorobenzene (ortho)		<2.00	µg/L	2
n-Butylbenzene		<2.00	µg/L	2
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<2.00	µg/L	2
Hexachlorobutadiene		<5.00	µg/L	5

Released to Imaging: 7/12/2024 10:49:45 AM

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Dibromofluoromethane		53.42	µg/L	50	106	84 - 116
Toluene-d8		51.43	µg/L	50	102	92 - 108
4-Bromofluorobenzene		45.60	µg/L	50	91	80 - 110

Sample: Method Blank QCBatch: QC03651

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.05	mg/L	0.05
Total Arsenic		<0.01	mg/L	0.01
Total Barium		<0.01	mg/L	0.01
Total Beryllium		<0.01	mg/L	0.01
Total Boron		<0.10	mg/L	0.10
Total Cadmium		<0.002	mg/L	0.002
Total Chromium		<0.005	mg/L	0.005
Total Cobalt		<0.02	mg/L	0.02
Total Copper		<0.02	mg/L	0.02
Total Iron		<0.05	mg/L	0.05
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.01	mg/L	0.01
Total Molybdenum		<0.05	mg/L	0.05
Total Nickel		<0.02	mg/L	0.02
Total Selenium		<0.01	mg/L	0.01
Total Silver		<0.005	mg/L	0.005
Total Vanadium		<0.01	mg/L	0.01
Total Zinc		<0.05	mg/L	0.05

Sample: Method Blank QCBatch: QC03653

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.50	mg/L	0.50
Dissolved Magnesium		<0.50	mg/L	0.50
Dissolved Potassium		<0.50	mg/L	0.50
Dissolved Sodium		<0.50	mg/L	0.50

Sample: Method Blank QCBatch: QC03678

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005

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Param	Flag	Results	Units	Reporting Limit
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Napthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
2-Napthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorophenol		31.91	mg/L	80	39	8 - 73
Phenol-d5		23.93	mg/L	80	29	8 - 62
Nitrobenzene-d5		38.82	mg/L	80	48	44 - 109
2-Fluorobiphenyl		40.47	mg/L	80	50	45 - 109
2,4,6-Tribromophenol		37.81	mg/L	80	47	39 - 132
Terphenyl-d14		42.21	mg/L	80	52	46 - 121

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Sample: LCS

QC Batch: QC03650

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		111	µg/L	1	100	<2.00	111		73 - 154	20
Benzene		107	µg/L	1	100	<2.00	107		84 - 126	20
Trichloroethene (TCE)		104	µg/L	1	100	<2.00	104		82 - 123	20
Toluene		105	µg/L	1	100	<2.00	105		81 - 122	20
Chlorobenzene		102	µg/L	1	100	<2.00	102		86 - 121	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		52.19	µg/L	1	50	104	84 - 116
Toluene-d8		49.92	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		46.05	µg/L	1	50	92	80 - 110

Sample: LCSD

QC Batch: QC03650

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		112	µg/L	1	100	<2.00	112	1	73 - 154	20
Benzene		107	µg/L	1	100	<2.00	107	0	84 - 126	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103	1	82 - 123	20
Toluene		105	µg/L	1	100	<2.00	105	0	81 - 122	20
Chlorobenzene		101	µg/L	1	100	<2.00	101	1	86 - 121	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		52.87	µg/L	1	50	105	84 - 116
Toluene-d8		49.59	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		46.22	µg/L	1	50	92	80 - 110

Sample: LCS

QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.0	mg/L	2	2	<0.05	100		75 - 125	20
Total Arsenic		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Barium		2.0	mg/L	2	2	<0.01	100		75 - 125	20

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Beryllium		0.18	mg/L	0.20	0.20	<0.01	90		75 - 125	20
Total Boron		0.99	mg/L	1	1	<0.10	99		75 - 125	20
Total Cadmium		0.19	mg/L	0.20	0.20	<0.002	95		75 - 125	20
Total Chromium		0.40	mg/L	0.40	0.40	<0.005	100		75 - 125	20
Total Cobalt		1.0	mg/L	1	1	<0.02	100		75 - 125	20
Total Copper		0.39	mg/L	0.40	0.40	<0.02	97		75 - 125	20
Total Iron		2.1	mg/L	2	2	<0.05	105		75 - 125	20
Total Lead		0.98	mg/L	1	1	<0.01	98		75 - 125	20
Total Manganese		0.21	mg/L	0.20	0.20	<0.01	105		75 - 125	20
Total Molybdenum		1.0	mg/L	1	1	<0.05	100		75 - 125	20
Total Nickel		0.96	mg/L	1	1	<0.02	96		75 - 125	20
Total Selenium		0.82	mg/L	1	1	<0.01	82		75 - 125	20
Total Silver		0.20	mg/L	0.20	0.20	<0.005	100		75 - 125	20
Total Vanadium		1.0	mg/L	1	1	<0.01	100		75 - 125	20
Total Zinc		0.23	mg/L	0.20	0.20	<0.05	115		75 - 125	20

Sample: LCSD

QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		1.9	mg/L	1	2	<0.05	95	5	75 - 125	20
Total Arsenic		0.94	mg/L	1	1	<0.01	94	0	75 - 125	20
Total Barium		2.0	mg/L	2	2	<0.01	100	0	75 - 125	20
Total Beryllium		0.18	mg/L	0.20	2	<0.01	90	0	75 - 125	20
Total Boron		0.98	mg/L	1	2	<0.10	98	1	75 - 125	20
Total Cadmium		0.19	mg/L	0.20	2	<0.002	95	0	75 - 125	20
Total Chromium		0.40	mg/L	0.40	2	<0.005	100	0	75 - 125	20
Total Cobalt		1.0	mg/L	1	2	<0.02	100	0	75 - 125	20
Total Copper		0.39	mg/L	0.40	2	<0.02	97	0	75 - 125	20
Total Iron		2.0	mg/L	2	2	<0.05	100	5	75 - 125	20
Total Lead		0.98	mg/L	1	2	<0.01	98	0	75 - 125	20
Total Manganese		0.20	mg/L	0.20	2	<0.01	100	5	75 - 125	20
Total Molybdenum		1.0	mg/L	1	2	<0.05	100	0	75 - 125	20
Total Nickel		0.95	mg/L	1	100	<0.02	95	1	75 - 125	20
Total Selenium		0.81	mg/L	1	2	<0.01	81	1	75 - 125	20

Sample: LCS

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1050	mg/L	1	1000	<0.50	105		75 - 125	20
Dissolved Magnesium		1020	mg/L	1	1000	<0.50	102		75 - 125	20
Dissolved Potassium		1020	mg/L	1	1000	<0.50	102		75 - 125	20
Dissolved Sodium		1020	mg/L	1	1000	<0.50	102		75 - 125	20

Released to Imaging: 7/12/2024 10:49:45 AM

Sample: LCSD QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1030	mg/L	1	1000	<0.50	103	2	75 - 125	20
Dissolved Magnesium		1010	mg/L	1	1000	<0.50	101	1	75 - 125	20
Dissolved Potassium		999	mg/L	1	1000	<0.50	99	2	75 - 125	20
Dissolved Sodium		1010	mg/L	1	1000	<0.50	101	1	75 - 125	20

Sample: LCS QC Batch: QC03678

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		16.013	mg/L	1	80	<0.005	20		5 - 57	20
2-Chlorophenol		28.475	mg/L	1	80	<0.005	35		29 - 110	20
1,4-Dichlorobenzene		22.986	mg/L	1	80	<0.005	28		25 - 94	20
n-Nitrosodi-n-propylamine		20.749	mg/L	1	80	<0.005	25		36 - 119	20
1,2,4-Trichlorobenzene		24.908	mg/L	1	80	<0.005	31		28 - 110	20
4-Chloro-3-methylphenol		29.224	mg/L	1	80	<0.005	36		40 - 126	20
Acenaphthene		37.435	mg/L	1	80	<0.005	46		47 - 118	20
4-Nitrophenol		10.298	mg/L	1	80	<0.005	12		0 - 69	20
2,4-Dinitrotoluene		27.080	mg/L	1	80	<0.005	33		46 - 133	20
Pentachlorophenol		27.106	mg/L	1	80	<0.005	33		21 - 131	20
Pyrene		37.798	mg/L	1	80	<0.005	47		44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		84.40	mg/L	1	80	105	8 - 73
Phenol-d5		75.05	mg/L	1	80	93	8 - 62
Nitrobenzene-d5		80.85	mg/L	1	80	101	44 - 109
2-Fluorobiphenyl		80.05	mg/L	1	80	100	45 - 109
2,4,6-Tribromophenol		72.25	mg/L	1	80	90	39 - 132
Terphenyl-d14		72.08	mg/L	1	80	90	46 - 121

Sample: LCSD QC Batch: QC03678

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		14.027	mg/L	1	80	<0.005	17	13	5 - 57	20
2-Chlorophenol		25.110	mg/L	1	80	<0.005	31	12	29 - 110	20
1,4-Dichlorobenzene		19.835	mg/L	1	80	<0.005	24	15	25 - 94	20
n-Nitrosodi-n-propylamine		21.234	mg/L	1	80	<0.005	26	2	36 - 119	20
1,2,4-Trichlorobenzene		21.578	mg/L	1	80	<0.005	26	14	28 - 110	20
4-Chloro-3-methylphenol		26.048	mg/L	1	80	<0.005	32	11	40 - 126	20
Acenaphthene		37.566	mg/L	1	80	<0.005	46	0	47 - 118	20

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
4-Nitrophenol		8.783	mg/L	1	80	<0.005	10	16	0 - 69	20
2,4-Dinitrotoluene		22.423	mg/L	1	80	<0.005	28	19	46 - 133	20
Pentachlorophenol		24.661	mg/L	1	80	<0.005	30	9	21 - 131	20
Pyrene		41.124	mg/L	1	80	<0.005	51	8	44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		59.15	mg/L	1	80	73	8 - 73
Phenol-d5		50.50	mg/L	1	80	63	8 - 62
Nitrobenzene-d5		72.39	mg/L	1	80	90	44 - 109
2-Fluorobiphenyl		72.77	mg/L	1	80	90	45 - 109
2,4,6-Tribromophenol		68.99	mg/L	1	80	86	39 - 132
Terphenyl-d14		78.25	mg/L	1	80	97	46 - 121

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Quality Control Report
Matrix Spikes and Duplicate Spikes

Sample: MS QC Batch: QC03642

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		94.54	mg/L	1	62.50	38	90		80 - 120	20
Sulfate		86.33	mg/L	1	62.50	25	98		80 - 120	20

Sample: MSD QC Batch: QC03642

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		94.60	mg/L	1	62.50	38	90	0	80 - 120	20
Sulfate		85.71	mg/L	1	62.50	25	97	1	80 - 120	20

Sample: MS QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		4.5	mg/L	4	2	2.7	90		75 - 125	20
Total Arsenic		1.1	mg/L	1	1	0.21	89		75 - 125	20
Total Barium		1.8	mg/L	1	2	<0.01	90		75 - 125	20
Total Beryllium		0.17	mg/L	0.20	0.20	<0.01	85		75 - 125	20
Total Boron		1.4	mg/L	1	1	0.54	86		75 - 125	20
Total Cadmium		0.17	mg/L	0.20	0.20	<0.002	85		75 - 125	20
Total Chromium		0.37	mg/L	0.40	0.40	<0.005	92		75 - 125	20
Total Cobalt		0.89	mg/L	1	1	<0.02	89		75 - 125	20
Total Copper		0.38	mg/L	0.40	0.40	<0.02	95		75 - 125	20
Total Iron		3.4	mg/L	2	2	1.5	95		75 - 125	20
Total Lead		0.88	mg/L	1	1	<0.01	88		75 - 125	20
Total Manganese		0.29	mg/L	0.20	0.20	0.11	90		75 - 125	20
Total Molybdenum		0.92	mg/L	1	1	<0.05	92		75 - 125	20
Total Nickel		0.90	mg/L	1	1	<0.02	90		75 - 125	20
Total Selenium		1.2	mg/L	1	1	0.39	81		75 - 125	20
Total Silver		0.18	mg/L	0.20	0.20	<0.005	90		75 - 125	20
Total Vanadium		0.92	mg/L	1	1	<0.01	92		75 - 125	20
Total Zinc		0.19	mg/L	0.20	0.20	0.05	70		75 - 125	20

Sample: MSD QC Batch: QC03651

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		4.6	mg/L	4	2	2.7	95	5	75 - 125	20
Total Arsenic		1.1	mg/L	1	0.20	0.21	89	0	75 - 125	20
Total Barium		1.8	mg/L	1	2	<0.01	90	0	75 - 125	20
Total Beryllium		0.17	mg/L	0.20	0.20	<0.01	85	0	75 - 125	20
Total Boron		1.4	mg/L	1	1	0.54	86	0	75 - 125	20
Total Cadmium		0.17	mg/L	0.20	20.20	<0.002	85	0	75 - 125	20
Total Chromium		0.36	mg/L	0.40	0.40	<0.005	90	3	75 - 125	20
Total Cobalt		0.88	mg/L	1	1	<0.02	88	1	75 - 125	20
Total Copper		0.38	mg/L	0.40	0.40	<0.02	95	0	75 - 125	20
Total Iron		3.3	mg/L	2	2	1.5	90	5	75 - 125	20
Total Lead		0.87	mg/L	1	1	<0.01	87	1	75 - 125	20
Total Manganese		0.29	mg/L	0.20	0.20	0.11	90	0	75 - 125	20
Total Molybdenum		0.91	mg/L	1	1	<0.05	91	1	75 - 125	20
Total Nickel		0.88	mg/L	1	1	<0.02	88	2	75 - 125	20
Total Selenium		1.1	mg/L	1	1	0.39	71	13	75 - 125	20
Total Silver		0.18	mg/L	0.20	0.20	<0.005	90	0	75 - 125	20
Total Vanadium		0.92	mg/L	1	1	<0.01	92	0	75 - 125	20
Total Zinc		0.21	mg/L	0.20	1	0.05	80	13	75 - 125	20

Sample: MS

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1170	mg/L	1	1000	160	101		75 - 125	20
Dissolved Magnesium		1180	mg/L	1	1000	195	98		75 - 125	20
Dissolved Potassium		1040	mg/L	1	1000	26	101		75 - 125	20
Dissolved Sodium		1200	mg/L	1	1000	170	103		75 - 125	20

Sample: MSD

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1200	mg/L	1	1000	160	104	3	75 - 125	20
Dissolved Magnesium		1230	mg/L	1	1000	195	103	5	75 - 125	20
Dissolved Potassium		1080	mg/L	1	1000	26	105	4	75 - 125	20
Dissolved Sodium		1250	mg/L	1	1000	170	108	5	75 - 125	20

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Quality Control Report
Duplicate Samples

Sample: Duplicate

QC Batch: QC03616

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	20

Sample: Duplicate

QC Batch: QC03621

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		2746	2700	uMHOS/cm	1	2	20

Sample: Duplicate

QC Batch: QC03622

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity		220	213	mg/L as CaCo3	1	3	20
Total Alkalinity		220	213	mg/L as CaCo3	1	3	20

Sample: Duplicate

QC Batch: QC03649

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1852	1800	mg/L	1	3	20

Sample: Duplicate

QC Batch: QC03708

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		Non-reactive	Non-reactive		1	0	20

Sample: Duplicate

QC Batch: QC03709

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Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		Non 0.91	Non 0.91	mm/yr	1	0	20
pH		8.24	8.24	s.u.	1	0	20

Sample: Duplicate

QC Batch: QC03710

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Ignitability		non-ignitable	non-ignitable		1	0	20

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Quality Control Report
Continuing Calibration Verification Standards

Sample: CCV (1) QC Batch: QC03616

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	7/6/00

Sample: ICV (1) QC Batch: QC03616

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	7/6/00

Sample: CCV (1) QC Batch: QC03621

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1417	100	80 - 120	7/6/00

Sample: ICV (1) QC Batch: QC03621

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1417	100	80 - 120	7/6/00

Sample: CCV (1) QC Batch: QC03622

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	7/7/00
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	80 - 120	7/7/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	7	0	80 - 120	7/7/00
Total Alkalinity		mg/L as CaCo3	250	239	95	80 - 120	7/7/00

Sample: ICV (1) QC Batch: QC03622

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	7/7/00
Carbonate Alkalinity		mg/L as CaCo3	0	242	0	80 - 120	7/7/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	0	0	80 - 120	7/7/00
Total Alkalinity		mg/L as CaCo3	250	243	97	80 - 120	7/7/00

Sample: CCV (1) QC Batch: QC03642

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	11.36	90	80 - 120	7/7/00
Sulfate		mg/L	12.50	12.36	98	80 - 120	7/7/00

Sample: ICV (1) QC Batch: QC03642

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	11.35	90	80 - 120	7/7/00
Sulfate		mg/L	12.50	11.79	94	80 - 120	7/7/00

Sample: CCV (1) QC Batch: QC03649

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	977	97	80 - 120	7/10/00

Sample: ICV (1) QC Batch: QC03649

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	966	96	80 - 120	7/10/00

Sample: CCV (1) QC Batch: QC03650

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	113	113	80 - 120	7/7/00
1,1-Dichloroethene		µg/L	100	109	109	73 - 154	7/7/00
Chloroform		µg/L	100	111	111	80 - 120	7/7/00
1,2-Dichloropropane		µg/L	100	102	102	80 - 120	7/7/00
Toluene		µg/L	100	99	99	81 - 122	7/7/00
Chlorobenzene		µg/L	100	94	94	86 - 121	7/7/00
Ethylbenzene		µg/L	100	98	98	80 - 120	7/7/00
Dibromofluoromethane		µg/L	50	57.48	114	80 - 120	7/7/00
Toluene-d8		µg/L	50	48.77	97	80 - 120	7/7/00
4-Bromofluorobenzene		µg/L	50	51.72	103	80 - 120	7/7/00

Sample: CCV (1)

QC Batch: QC03651

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	5.1	102	75 - 125	7/7/00
Total Arsenic		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Barium		mg/L	5	5.1	102	75 - 125	7/7/00
Total Beryllium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Boron		mg/L	2.50	2.6	104	75 - 125	7/7/00
Total Cadmium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Chromium		mg/L	1	1.0	100	75 - 125	7/7/00
Total Cobalt		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Copper		mg/L	1	1.0	100	75 - 125	7/7/00
Total Iron		mg/L	5	5.1	102	75 - 125	7/7/00
Total Lead		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Manganese		mg/L	0.50	0.51	102	75 - 125	7/7/00
Total Molybdenum		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Nickel		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Selenium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Vanadium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Zinc		mg/L	0.50	0.53	106	75 - 125	7/7/00

Sample: ICV (1)

QC Batch: QC03651

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.9	98	75 - 125	7/7/00

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Arsenic		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Barium		mg/L	5	5.1	102	75 - 125	7/7/00
Total Beryllium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Boron		mg/L	2.50	2.6	104	75 - 125	7/7/00
Total Cadmium		mg/L	0.50	0.51	102	75 - 125	7/7/00
Total Chromium		mg/L	1	1.0	100	75 - 125	7/7/00
Total Cobalt		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Copper		mg/L	1	1.0	100	75 - 125	7/7/00
Total Iron		mg/L	5	5.0	100	75 - 125	7/7/00
Total Lead		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Manganese		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Molybdenum		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Nickel		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Selenium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Vanadium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Zinc		mg/L	0.50	0.54	108	75 - 125	7/7/00

Sample: CCV (1) QC Batch: QC03653

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	20	20.6	103	75 - 125	7/10/00
Dissolved Magnesium		mg/L	20	20.0	100	75 - 125	7/10/00
Dissolved Potassium		mg/L	20	18.7	93	75 - 125	7/10/00
Dissolved Sodium		mg/L	20	20.2	101	75 - 125	7/10/00

Sample: ICV (1) QC Batch: QC03653

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	20	20.6	103	75 - 125	7/10/00
Dissolved Magnesium		mg/L	20	20.2	101	75 - 125	7/10/00
Dissolved Potassium		mg/L	20	18.6	93	75 - 125	7/10/00
Dissolved Sodium		mg/L	20	20.0	100	75 - 125	7/10/00

Sample: CCV (1) QC Batch: QC03678

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	55.36	92	5 - 57	7/11/00
1,4-Dichlorobenzene		mg/L	60	58.97	98	25 - 94	7/11/00
2-Nitrophenol		mg/L	60	59.23	98	80 - 120	7/11/00
2,4-Dichlorophenol		mg/L	60	60.33	100	80 - 120	7/11/00
Hexachlorobutadiene		mg/L	60	58.79	97	80 - 120	7/11/00
4-Chloro-3-methylphenol		mg/L	60	57.70	96	40 - 126	7/11/00
2,4,6-Trichlorophenol		mg/L	60	58.60	97	80 - 120	7/11/00
Acenaphthene		mg/L	60	58.33	97	47 - 118	7/11/00
Diphenylamine		mg/L	60	58.11	96	80 - 120	7/11/00
Pentachlorophenol		mg/L	60	57.33	95	21 - 131	7/11/00
Fluoranthene		mg/L	60	56.95	94	80 - 120	7/11/00
Di-n-octylphthalate		mg/L	60	56.99	94	80 - 120	7/11/00
Benzo(a)pyrene		mg/L	60	59.82	99	80 - 120	7/11/00
2-Fluorophenol		mg/L	60	57.35	95	8 - 73	7/11/00
Phenol-d5		mg/L	60	55.81	93	8 - 62	7/11/00
Nitrobenzene-d5		mg/L	60	58.76	97	44 - 109	7/11/00
2-Fluorobiphenyl		mg/L	60	57.63	96	45 - 109	7/11/00
2,4,6-Tribromophenol		mg/L	60	55.41	92	39 - 132	7/11/00
Terphenyl-d14		mg/L	60	54.30	90	46 - 121	7/11/00

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149250

Page_____of_____

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6701 Aberdeen Avenue, Ste. 9
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Tel (806) 794-1296
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TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A0007061 3

Company Name: NAVAJO — Phone #:

Address: (Street, City, Zip) — Fax #:

Contact Person: Charlie Plymale or Darrell Moore

Invoice to: (if different from above)

Project #: — Project Name: Injection Wells

Project Location: Artesia — Sampler Signature: Charlie Plymale

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	NaHSO4	H2SO4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
149250	Inj. wells	2	1L	X						X			X	X	7/5/00	10:30
	" "	2	40ml	X						X			X		7/5/00	10:30
	" "	1	500ml	X					X					X	7/5/00	10:30

Select

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Plymale	7/5/00	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			Vicki Crosley	7-6-00	10:00am

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact (Y) / N

Headspace Y / (N)

Temp 13° C

Log-in Review SB

REMARKS: 7/14/00

Carrier # Fed Ex 799 [illegible]

Page 4733 of 5828

TELEPHONE
(505) 748-3311

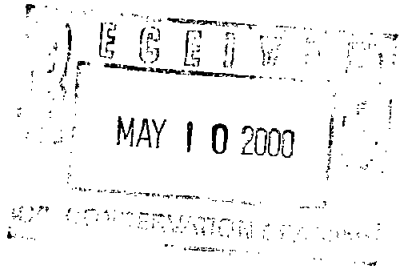
EASYLINK
62905278

NAVAJO REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

May 8, 2000



Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: First Quarter 2000 Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2000 to March 31, 2000. We have disposed a total of 2,169,912 bbls. of fluid down the two wells. This is broken down as follows: 1,932,802 bbls. down WDW-1 and 237,110 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Page 4735 of 5828

WDW-1

Month	Wellhead Pressure			Injection Flow Rate			Flow Rate		Annulus Pressure			Annulus Level		
	Avg	**Min**	**Max**	**Avg**	**Min**	**Max**	**Average**	**Total**	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**
	psig	psig	psig	gpm	gpm	gpm	**BPD**	**Bbl**	psig	psig	psig	%	%	%
Oct-99	87	-12.7	328	330	499	10.8	11,314	350,743						
Nov-99	161	-12.4	410	249	344	0	8,534	256,011						
Dec-99	156	-12.3	322	272	377	13.5	9,309	288,566						
Jan-00	297	-12	400	369	350	0	12,651	392,195	NA	NA	NA	NA	NA	NA
Feb-00	319	-12	400	319	350	0	10,937	317,173	243	145	318	91	90	92
Mar-00	309	-12	400	309	350	0	10,584	328,114	252	155	325	91	90	92

WDW-2

Month	Wellhead Pressure			Injection Flow Rate			Avg Flow	Total Flow	Annulus Pressure			Annulus Level		
	Avg	**Min**	**Max**	**Avg**	**Min**	**Max**	BPD	Bbl	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**
	psig	psig	psig	gpm	gpm	gpm			psig	psig	psig	%	%	%
Oct-99	NA	NA	NA	NA	NA	NA	NA	NA						
Nov-99	140.3	-15.4	337	159	437	0	5,434	163,029						
Dec-99	140.3	-15.4	338	70	341	0	2,390	74,081						
Jan-00	-13	-13	-13	0	0	0	0	0	NA	NA	NA	NA	NA	NA
Feb-00	-13	-13	-13	0	0	0	0	0	252	232	295	88	86	89
Mar-00	-13	-13	-13	0	0	0	0	0	201	181	243	89	87	90

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Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 4/14/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00033024

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
143547	Injection Wells	Water	3/29/00	8:30	3/30/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 20 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Results Report

Sample Number: 143547
Description: Injection Wells

Param	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
624 (µg/L)									
Bromochloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dichlorodifluoromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chloromethane (methyl chloride)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Vinyl Chloride	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromomethane (methyl bromide)	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
Chloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Trichlorofluoromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Acetone	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
Iodomethane (methyl iodide)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Carbon Disulfide	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Acrylonitrile	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Butanone (MEK)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
4-methyl-2-pentanone (MIBK)	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
2-hexanone	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans 1,4-Dichloro-2-butene	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
1,1-Dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Methylene chloride	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
MTBE	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans-1,2-Dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1-Dichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
cis-1,2-dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2,2-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichloroethane (EDC)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chloroform	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,1-Trichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Benzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Carbon Tetrachloride	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Trichloroethene (TCE)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dibromomethane (methylene bromide)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromodichloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Chloroethyl vinyl ether	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
cis-1,3-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans-1,3-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Toluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,2-Trichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dibromochloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dibromoethane (EDB)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Tetrachloroethene (PCE)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chlorobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,1,2-Tetrachloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Ethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
m,p-Xylene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromoform	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Styrene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
o-Xylene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 3 of 20

N/A Injection Wells N/A

1,1,2,2-Tetrachloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Chlorotoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2,3-Trichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Isopropylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
n-Propylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3,5-Trimethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
tert-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2,4-Trimethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,4-Dichlorobenzene (para)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
sec-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3-Dichlorobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
p-Isopropyltoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
4-Chlorotoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichlorobenzene (ortho)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
n-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dibromo-3-chloropropane	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
1,2,3-Trichlorobenzene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
1,2,4-Trichlorobenzene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
Naphthalene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Hexachlorobutadiene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #
Dibromofluoromethane	51.31	1	50	103	72 - 128	JG	PB01722	QC02061
Toluene-d8	49.28	1	50	99	91 - 107	JG	PB01722	QC02061
4-Bromofluorobenzene	48.81	1	50	98	74 - 106	JG	PB01722	QC02061

625 (mg/L)

Pyridine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosodimethylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Picoline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Methyl methanesulfonate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Ethyl methanesulfonate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Aniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroethyl) ether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Chlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,3-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,4-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzyl alcohol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroisopropyl) ether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Methylphenol/3-Methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acetophenone	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosodi-n-propylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachloroethane	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Nitrobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosopiperidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Isophorone	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Nitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dimethylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroethoxy) methane	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzoic acid	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2,4-Trichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 4 of 20

N/A Injection Wells N/A

a,a-Dimethylphenethylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Naphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chloroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,6-Dichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorobutadiene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitroso-di-n-butylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chloro-3-methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Methylnaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Methylnaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2,4,5-Tetrachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorocyclopentadiene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4,6-Trichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4,5-Trichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Chloronaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Chloronaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dimethylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acenaphthylene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,6-Dinitrotoluene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acenaphthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dinitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzofuran	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Nitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Napthylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dinitrotoluene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Napthylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,3,4,6-Tetrachlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Fluorene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diethylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chlorophenyl-phenylether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4,6-Dinitro-2-methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diphenylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diphenylhydrazine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Bromophenyl-phenylether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenacetin	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Aminobiphenyl	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachloronitrobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pronamide	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenanthrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Di-n-butylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
p-Dimethylaminoazobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Butylbenzylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(a)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3,3-Dichlorobenzidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Chrysene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Bis (2-ethylhexyl) phthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Di-n-octylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Benzo(b)fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
7,12-Dimethylbenz(a)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(k)fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(a)pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3-Methylcholanthrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzo(a,j)acridine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Indeno(1,2,3-cd)pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzo(a,h)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(g,h,i)perylene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Surrogate (mg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
2-Fluorophenol	13.42	1	80	17	8 - 73	MA	PB01723	QC02062	
Phenol-d5	10.12	1	80	13	8 - 62	MA	PB01723	QC02062	
Nitrobenzene-d5	39.11	1	80	49	44 - 109	MA	PB01723	QC02062	
2-Fluorobiphenyl	46.86	1	80	59	45 - 109	MA	PB01723	QC02062	
2,4,6-Tribromophenol	27.61	1	80	35	39 - 132	MA	PB01723	QC02062	
Terphenyl-d14	32.93	1	80	41	46 - 121	MA	PB01723	QC02062	
Alkalinity (mg/L as CaCo3)									
Hydroxide Alkalinity	<1.0	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Carbonate Alkalinity	<1.0	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Bicarbonate Alkalinity	325	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Total Alkalinity	325	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Conductivity (uMHOS/cm)									
Specific Conductance	7000	1	SM 2510B	4/5/00	4/5/00	JS	PB01580	QC01888	
Corrosivity (mm/yr)									
Corrosivity	Non 0.18	1	S 1110	4/3/00	4/3/00	JM	PB01743	QC02088	
pH	8.67	1	S 1110	4/3/00	4/3/00	JM	PB01743	QC02088	
Dissolved Metals (mg/L)									
Dissolved Calcium	131	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Magnesium	24	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Potassium	26	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Sodium	832	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Hg, Total (mg/L)									
Total Mercury	<0.0002	1	S 7470A	4/4/00	4/6/00	JM	PB01644	QC01968	0.0002
Ignitability									
Ignitability	>150	1	W-846 Ch. 7	4/3/00	4/3/00	JM	PB01744	QC02089	
Ion Chromatography (IC) (mg/L)									
CL	1600	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.5
Fluoride	29	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.2
Nitrate-N	2.6	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.2
Sulfate	870	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.5
pH (s.u.)									
pH	* 8.4	1	E 150.1	3/30/00	3/30/00	RS	PB01527	QC01825	1
* pH - Out of holding time.									
Reactivity									
Reactivity	Non-reactive	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	
Hydrogen Sulfide	<10	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	
Hydrogen Cyanide	<2.5	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 6 of 20

N/A Injection Wells N/A

TDS (mg/L)									
Total Dissolved Solids	* 3200	1	E 160.1	4/7/00	4/8/00	JS	PB01628	QC01956	10
* Total Dissolved Solids - Sample re-ran out of holding time									
Total Metals (mg/L)									
Total Aluminum	0.24	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Arsenic	0.21	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Barium	0.03	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Beryllium	<0.004	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.004
Total Boron	0.24	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Cadmium	<0.002	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.002
Total Chromium	<0.005	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.005
Total Cobalt	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Copper	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Iron	0.27	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Lead	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Manganese	0.05	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Molybdenum	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Nickel	0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Selenium	0.44	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Silver	<0.005	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.005
Total Uranium	<0.50	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.5
Total Vanadium	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Zinc	0.02	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Bromochloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dichlorodifluoromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chloromethane (methyl chloride) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Vinyl Chloride (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Bromomethane (methyl bromide) (µg/L)		<5.00	5	4/3/00	PB01722	QC02061
Chloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Trichlorofluoromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Acetone (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
Iodomethane (methyl iodide) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Carbon Disulfide (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Acrylonitrile (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2-Butanone (MEK) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
4-methyl-2-pentanone (MIBK) (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
2-hexanone (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans 1,4-Dichloro-2-butene (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
1,1-Dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Methylene chloride (µg/L)		<5.00	5	4/3/00	PB01722	QC02061
MTBE (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans-1,2-Dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1-Dichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
cis-1,2-dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2,2-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chloroform (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,1-Trichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Benzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Carbon Tetrachloride (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Trichloroethene (TCE) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dibromomethane (methylene bromide) (µg		<2.00	2	4/3/00	PB01722	QC02061
Bromodichloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2-Chloroethyl vinyl ether (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
cis-1,3-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans-1,3-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Toluene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,2-Trichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,3-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dibromochloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Tetrachloroethene (PCE) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chlorobenzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Ethylbenzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
m,p-Xylene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061

Bromoform (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Styrene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
o-Xylene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,1,2,2-Tetrachloroethane (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
2-Chlorotoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2,3-Trichloropropane (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Isopropylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Bromobenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
n-Propylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,3,5-Trimethylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
tert-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2,4-Trimethylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,4-Dichlorobenzene (para) (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
sec-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,3-Dichlorobenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
p-Isopropyltoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
4-Chlorotoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichlorobenzene (ortho) (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
n-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
1,2,3-Trichlorobenzene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
1,2,4-Trichlorobenzene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
Naphthalene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Hexachlorobutadiene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	51.31	50	103	72 - 128	QC02061
Toluene-d8 (µg/L)	49.28	50	99	91 - 107	QC02061
4-Bromofluorobenzene (µg/L)	48.81	50	98	74 - 106	QC02061

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Pyridine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosodimethylamine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Picoline (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Methyl methanesulfonate (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Ethyl methanesulfonate (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Phenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Aniline (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroethyl) ether (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Chlorophenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,3-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,4-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Benzyl alcohol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,2-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Methylphenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroisopropyl) ether (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
4-Methylphenol/3-Methylphenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Acetophenone (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosodi-n-propylamine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Hexachloroethane (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062

Report Date: 4/14/00	Order ID Number: A00033024				Page Number: 9 of 20
N/A	Injection Wells				N/A
Nitrobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosopiperidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Isophorone (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Nitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dimethylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroethoxy) methane (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzoic acid (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1,2,4-Trichlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
a,a-Dimethylphenethylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Naphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chloroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,6-Dichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorobutadiene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitroso-di-n-butylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chloro-3-methylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Methylnaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Methylnaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1,2,4,5-Tetrachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorocyclopentadiene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4,6-Trichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4,5-Trichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Chloronaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Chloronaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dimethylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Acenaphthylene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,6-Dinitrotoluene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Acenaphthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dinitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzofuran (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Nitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Napthylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dinitrotoluene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Napthylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,3,4,6-Tetrachlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Fluorene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diethylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chlorophenyl-phenylether (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4,6-Dinitro-2-methylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diphenylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diphenylhydrazine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Bromophenyl-phenylether (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Phenacetin (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Aminobiphenyl (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachloronitrobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 10 of 20

N/A Injection Wells N/A

Pronamide (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Phenanthrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Di-n-butylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
p-Dimethylaminoazobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Butylbenzylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(a)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3,3-Dichlorobenzidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Chrysene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Bis (2-ethylhexyl) phthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Di-n-octylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(b)fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
7,12-Dimethylbenz(a)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(k)fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(a)pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3-Methylcholanthrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzo(a,j)acridine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Indeno(1,2,3-cd)pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzo(a,h)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(g,h,i)perylene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
2-Fluorophenol (mg/L)	21.51	80	27	8 - 73	QC02062
Phenol-d5 (mg/L)	14.16	80	18	8 - 62	QC02062
Nitrobenzene-d5 (mg/L)	52.84	80	66	44 - 109	QC02062
2-Fluorobiphenyl (mg/L)	55.45	80	69	45 - 109	QC02062
2,4,6-Tribromophenol (mg/L)	47.37	80	59	39 - 132	QC02062
Terphenyl-d14 (mg/L)	53.65	80	67	46 - 121	QC02062

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Hydroxide Alkalinity (mg/L as CaCo3)		<1.0	1	4/5/00	PB01579	QC01887
Carbonate Alkalinity (mg/L as CaCo3)		<1.0	1	4/5/00	PB01579	QC01887
Bicarbonate Alkalinity (mg/L as CaCo3)		<4.0	1	4/5/00	PB01579	QC01887
Total Alkalinity (mg/L as CaCo3)		<4.0	1	4/5/00	PB01579	QC01887

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Specific Conductance (uMHOS/cm)		3.1		4/5/00	PB01580	QC01888

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dissolved Calcium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Magnesium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Potassium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Sodium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 11 of 20

N/A Injection Wells N/A

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Mercury (mg/L)		<0.0002	0.0002	4/6/00	PB01644	QC01968

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL (mg/L)		<0.5	0.5	3/30/00	PB01514	QC01806
Fluoride (mg/L)		<0.2	0.2	3/30/00	PB01514	QC01806
Nitrate-N (mg/L)		<0.2	0.2	3/30/00	PB01514	QC01806
Sulfate (mg/L)		<0.5	0.5	3/30/00	PB01514	QC01806

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Dissolved Solids (mg/L)		<10	10	4/8/00	PB01628	QC01956

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Aluminum (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Arsenic (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Barium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Beryllium (mg/L)		<0.004	0.004	4/6/00	PB01721	QC02060
Total Boron (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Cadmium (mg/L)		<0.002	0.002	4/6/00	PB01721	QC02060
Total Chromium (mg/L)		<0.005	0.005	4/6/00	PB01721	QC02060
Total Cobalt (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Copper (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Iron (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Lead (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Manganese (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Molybdenum (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Nickel (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Selenium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Silver (mg/L)		<0.005	0.005	4/6/00	PB01721	QC02060
Total Uranium (mg/L)		<0.50	0.5	4/6/00	PB01721	QC02060
Total Vanadium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Zinc (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 12 of 20
N/A Injection Wells N/A

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	86	1	125	200.21	91		80 - 120	-	QC01806
MS	Fluoride (mg/L)	4.5	1	25	28.98	98		80 - 120	-	QC01806
MS	Nitrate-N (mg/L)	5.7	1	50	50.58	90		80 - 120	-	QC01806
MS	Sulfate (mg/L)	160	1	125	280.50	96		80 - 120	-	QC01806
MSD	CL (mg/L)	86	1	125	199.06	90	1	-	0 - 20	QC01806
MSD	Fluoride (mg/L)	4.5	1	25	27.82	93	5	-	0 - 20	QC01806
MSD	Nitrate-N (mg/L)	5.7	1	50	49.86	88	2	-	0 - 20	QC01806
MSD	Sulfate (mg/L)	160	1	125	279.52	96	1	-	0 - 20	QC01806

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Dissolved Calcium (mg/L)	108	1	1000	1094	99		75 - 125	-	QC01950
MS	Dissolved Magnesium (mg/L)	24	1	1000	1014	99		75 - 125	-	QC01950
MS	Dissolved Potassium (mg/L)	14	1	1000	970	96		75 - 125	-	QC01950
MS	Dissolved Sodium (mg/L)	62	1	1000	947	89		75 - 125	-	QC01950
MSD	Dissolved Calcium (mg/L)	108	1	1000	1094	99	0	-	0 - 20	QC01950
MSD	Dissolved Magnesium (mg/L)	24	1	1000	1014	99	0	-	0 - 20	QC01950
MSD	Dissolved Potassium (mg/L)	14	1	1000	1023	101	5	-	0 - 20	QC01950
MSD	Dissolved Sodium (mg/L)	62	1	1000	1075	101	13	-	0 - 20	QC01950

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Total Mercury (mg/L)	<0.0002	1	0.001	0.00103	103		80 - 120	-	QC01968
MSD	Total Mercury (mg/L)	<0.0002	1	0.001	0.00112	112	8	-	0 - 20	QC01968

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Total Aluminum (mg/L)	0.24	1	2	2.11	94		75 - 125	-	QC02060
MS	Total Arsenic (mg/L)	0.21	1	2	1.95	87		75 - 125	-	QC02060
MS	Total Barium (mg/L)	0.03	1	2	1.85	91		75 - 125	-	QC02060
MS	Total Beryllium (mg/L)	<0.004	1	2	1.68	84		75 - 125	-	QC02060
MS	Total Boron (mg/L)	0.24	1	2	1.97	87		75 - 125	-	QC02060
MS	Total Cadmium (mg/L)	<0.002	1	2	1.61	81		75 - 125	-	QC02060
MS	Total Chromium (mg/L)	<0.005	1	2	1.69	85		75 - 125	-	QC02060
MS	Total Cobalt (mg/L)	<0.01	1	2	1.72	86		75 - 125	-	QC02060
MS	Total Copper (mg/L)	<0.01	1	2	1.96	98		75 - 125	-	QC02060

MS	Total Iron (mg/L)	0.27	1	2	1.97	85	75 - 125	-	QC02060
MS	Total Lead (mg/L)	<0.01	1	2	1.67	84	75 - 125	-	QC02060
MS	Total Manganese (mg/L)	0.05	1	2	1.75	85	75 - 125	-	QC02060
MS	Total Molybdenum (mg/L)	<0.01	1	2	1.67	84	75 - 125	-	QC02060
MS	Total Nickel (mg/L)	0.01	1	2	1.81	90	75 - 125	-	QC02060
MS	Total Selenium (mg/L)	0.44	1	2	2.16	86	75 - 125	-	QC02060
MS	Total Silver (mg/L)	<0.005	1	0.25	0.26	104	75 - 125	-	QC02060
MS	Total Uranium (mg/L)	<0.50	1	2	2.12	106	75 - 125	-	QC02060
MS	Total Vanadium (mg/L)	<0.01	1	2	1.69	85	75 - 125	-	QC02060
MS	Total Zinc (mg/L)	0.02	1	2	1.73	86	75 - 125	-	QC02060
MSD	Total Aluminum (mg/L)	0.24	1	2	2.11	94	0	- 0 - 20	QC02060
MSD	Total Arsenic (mg/L)	0.21	1	2	1.95	87	0	- 0 - 20	QC02060
MSD	Total Barium (mg/L)	0.03	1	2	1.85	91	0	- 0 - 20	QC02060
MSD	Total Beryllium (mg/L)	<0.004	1	2	1.68	84	0	- 0 - 20	QC02060
MSD	Total Boron (mg/L)	0.24	1	2	1.98	87	1	- 0 - 20	QC02060
MSD	Total Cadmium (mg/L)	<0.002	1	2	1.61	81	0	- 0 - 20	QC02060
MSD	Total Chromium (mg/L)	<0.005	1	2	1.70	85	1	- 0 - 20	QC02060
MSD	Total Cobalt (mg/L)	<0.01	1	2	1.72	86	0	- 0 - 20	QC02060
MSD	Total Copper (mg/L)	<0.01	1	2	1.97	99	1	- 0 - 20	QC02060
MSD	Total Iron (mg/L)	0.27	1	2	1.98	86	1	- 0 - 20	QC02060
MSD	Total Lead (mg/L)	<0.01	1	2	1.67	84	0	- 0 - 20	QC02060
MSD	Total Manganese (mg/L)	0.05	1	2	1.76	86	1	- 0 - 20	QC02060
MSD	Total Molybdenum (mg/L)	<0.01	1	2	1.67	84	0	- 0 - 20	QC02060
MSD	Total Nickel (mg/L)	0.01	1	2	1.81	90	0	- 0 - 20	QC02060
MSD	Total Selenium (mg/L)	0.44	1	2	2.17	87	1	- 0 - 20	QC02060
MSD	Total Silver (mg/L)	<0.005	1	0.25	0.22	88	17	- 0 - 20	QC02060
MSD	Total Uranium (mg/L)	<0.50	1	2	2.14	107	1	- 0 - 20	QC02060
MSD	Total Vanadium (mg/L)	<0.01	1	2	1.69	85	0	- 0 - 20	QC02060
MSD	Total Zinc (mg/L)	0.02	1	2	1.75	87	1	- 0 - 20	QC02060

Quality Control Report
Duplicates

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydroxide Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC01887
Duplicate	Carbonate Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC01887
Duplicate	Bicarbonate Alkalinity (mg/L as CaC		247	248	1	0	0 - 20	QC01887
Duplicate	Total Alkalinity (mg/L as CaCo3)		247	248	1	0	0 - 20	QC01887

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Specific Conductance (uMHOS/cm)		6973	7000	1	0	0 - 20	QC01888

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 14 of 20
N/A Injection Wells N/A

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Corrosivity (mm/yr)		Non 0.11	Non 0.18	1	0	0 - 20	QC02088
Duplicate	pH (s.u.)		8.52	8.67	1	2	0 - 20	QC02088

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Ignitability		>150	>150	1	0	0 - 20	QC02089

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	pH (s.u.)		8.6	8.6	1	0	0 - 20	QC01825

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydrogen Cyanide		<2.5	<2.5	1	0	0 - 20	QC02090
Duplicate	Hydrogen Sulfide		<10	<10	1	0	0 - 20	QC02090
Duplicate	Reactivity		Non	Non-reactive	1	0	0 - 20	QC02090

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Total Dissolved Solids (mg/L)		3275	3200	1	2	0 - 20	QC01956

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Phenol (mg/L)	<0.005	1	80	19.456	24		5 - 57	-	QC02062
LCS	2-Chlorophenol (mg/L)	<0.005	1	80	45.702	57		29 - 110	-	QC02062
LCS	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	44.401	56		25 - 94	-	QC02062
LCS	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	59.842	74		36 - 119	-	QC02062
LCS	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	54.118	68		28 - 110	-	QC02062
LCS	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	47.100	59		40 - 126	-	QC02062
LCS	Acenaphthene (mg/L)	<0.005	1	80	60.703	76		47 - 118	-	QC02062
LCS	4-Nitrophenol (mg/L)	<0.005	1	80	12.383	15		0 - 69	-	QC02062
LCS	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	47.651	60		46 - 133	-	QC02062
LCS	Pentachlorophenol (mg/L)	<0.005	1	80	44.187	55		21 - 131	-	QC02062
LCS	Pyrene (mg/L)	<0.005	1	80	55.480	69		44 - 125	-	QC02062

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	2-Fluorophenol (mg/L)	1	80	20.66	26	8 - 73	QC02062
LCS	Phenol-d5 (mg/L)	1	80	13.92	17	8 - 62	QC02062
LCS	Nitrobenzene-d5 (mg/L)	1	80	53.11	66	44 - 109	QC02062
LCS	2-Fluorobiphenyl (mg/L)	1	80	57.58	72	45 - 109	QC02062
LCS	2,4,6-Tribromophenol (mg/L)	1	80	45.44	57	39 - 132	QC02062
LCS	Terphenyl-d14 (mg/L)	1	80	52.87	66	46 - 121	QC02062

LCSD	Phenol (mg/L)	<0.005	1	80	18.927	24	3	-	0 - 20	QC02062
LCSD	2-Chlorophenol (mg/L)	<0.005	1	80	50.853	64	11	-	0 - 20	QC02062
LCSD	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	49.094	61	10	-	0 - 20	QC02062
LCSD	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	64.251	80	9	-	0 - 20	QC02062
LCSD	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	61.803	77	13	-	0 - 20	QC02062
LCSD	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	50.593	63	7	-	0 - 20	QC02062
LCSD	Acenaphthene (mg/L)	<0.005	1	80	65.886	82	8	-	0 - 20	QC02062
LCSD	4-Nitrophenol (mg/L)	<0.005	1	80	13.429	17	8	-	0 - 20	QC02062
LCSD	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	49.290	62	3	-	0 - 20	QC02062
LCSD	Pentachlorophenol (mg/L)	<0.005	1	80	50.568	63	13	-	0 - 20	QC02062
LCSD	Pyrene (mg/L)	<0.005	1	80	58.976	74	6	-	0 - 20	QC02062

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	2-Fluorophenol (mg/L)	1	80	27.06	34	8 - 73	QC02062
LCSD	Phenol-d5 (mg/L)	1	80	18.60	23	8 - 62	QC02062
LCSD	Nitrobenzene-d5 (mg/L)	1	80	59.76	75	44 - 109	QC02062
LCSD	2-Fluorobiphenyl (mg/L)	1	80	64.04	80	45 - 109	QC02062
LCSD	2,4,6-Tribromophenol (mg/L)	1	80	48.41	61	39 - 132	QC02062
LCSD	Terphenyl-d14 (mg/L)	1	80	55.12	69	46 - 121	QC02062

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Dissolved Calcium (mg/L)	<0.50	1	1000	968	97		75 - 125	-	QC01950

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 16 of 20

N/A Injection Wells N/A

LCS	Dissolved Magnesium (mg/L)	<0.50	1	1000	966	97	75 - 125	-	QC01950
LCS	Dissolved Potassium (mg/L)	<0.50	1	1000	1022	102	75 - 125	-	QC01950
LCS	Dissolved Sodium (mg/L)	<0.50	1	1000	983	98	75 - 125	-	QC01950
LCSD	Dissolved Calcium (mg/L)	<0.50	1	1000	978	98	1	-	0 - 20	QC01950
LCSD	Dissolved Magnesium (mg/L)	<0.50	1	1000	972	97	1	-	0 - 20	QC01950
LCSD	Dissolved Potassium (mg/L)	<0.50	1	1000	999	100	2	-	0 - 20	QC01950
LCSD	Dissolved Sodium (mg/L)	<0.50	1	1000	987	99	0	-	0 - 20	QC01950

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Total Mercury (mg/L)	<0.0002	1	0.001	0.00090	90		80 - 120	-	QC01968
LCSD	Total Mercury (mg/L)	<0.0002	1	0.001	0.00106	106	16	-	0 - 20	QC01968

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Total Aluminum (mg/L)	<0.01	1	2	1.98	99		75 - 125	-	QC02060
LCS	Total Arsenic (mg/L)	<0.01	1	2	1.87	94		75 - 125	-	QC02060
LCS	Total Barium (mg/L)	<0.01	1	2	2.18	109		75 - 125	-	QC02060
LCS	Total Beryllium (mg/L)	<0.004	1	2	1.95	98		75 - 125	-	QC02060
LCS	Total Boron (mg/L)	<0.01	1	2	1.92	96		75 - 125	-	QC02060
LCS	Total Cadmium (mg/L)	<0.002	1	2	1.97	99		75 - 125	-	QC02060
LCS	Total Chromium (mg/L)	<0.005	1	2	2.01	100		75 - 125	-	QC02060
LCS	Total Cobalt (mg/L)	<0.01	1	2	2.05	102		75 - 125	-	QC02060
LCS	Total Copper (mg/L)	<0.01	1	2	2.08	104		75 - 125	-	QC02060
LCS	Total Iron (mg/L)	<0.01	1	2	2.06	103		75 - 125	-	QC02060
LCS	Total Lead (mg/L)	<0.01	1	2	2.04	102		75 - 125	-	QC02060
LCS	Total Manganese (mg/L)	<0.01	1	2	2.02	101		75 - 125	-	QC02060
LCS	Total Molybdenum (mg/L)	<0.01	1	2	2.03	101		75 - 125	-	QC02060
LCS	Total Nickel (mg/L)	<0.01	1	2	1.99	100		75 - 125	-	QC02060
LCS	Total Selenium (mg/L)	<0.01	1	2	1.87	94		75 - 125	-	QC02060
LCS	Total Silver (mg/L)	<0.005	1	0.4	0.415	104		75 - 125	-	QC02060
LCS	Total Uranium (mg/L)	<0.50	1	2	1.99	100		75 - 125	-	QC02060
LCS	Total Vanadium (mg/L)	<0.01	1	2	1.98	99		75 - 125	-	QC02060
LCS	Total Zinc (mg/L)	<0.01	1	2	2.02	101		75 - 125	-	QC02060
LCSD	Total Aluminum (mg/L)	<0.01	1	2	2.00	100	1	-	0 - 20	QC02060
LCSD	Total Arsenic (mg/L)	<0.01	1	2	1.89	95	1	-	0 - 20	QC02060
LCSD	Total Barium (mg/L)	<0.01	1	2	2.19	110	0	-	0 - 20	QC02060
LCSD	Total Beryllium (mg/L)	<0.004	1	2	1.96	98	1	-	0 - 20	QC02060
LCSD	Total Boron (mg/L)	<0.01	1	2	1.94	97	1	-	0 - 20	QC02060
LCSD	Total Cadmium (mg/L)	<0.002	1	2	1.98	99	1	-	0 - 20	QC02060
LCSD	Total Chromium (mg/L)	<0.005	1	2	2.02	101	0	-	0 - 20	QC02060
LCSD	Total Cobalt (mg/L)	<0.01	1	2	2.06	103	0	-	0 - 20	QC02060
LCSD	Total Copper (mg/L)	<0.01	1	2	2.09	105	0	-	0 - 20	QC02060

Report Date: 4/14/00	Order ID Number: A00033024							Page Number: 17 of 20	
N/A	Injection Wells								N/A
LCSD Total Iron (mg/L)	<0.01	1	2	2.07	103	0	-	0 - 20	QC02060
LCSD Total Lead (mg/L)	<0.01	1	2	2.05	102	0	-	0 - 20	QC02060
LCSD Total Manganese (mg/L)	<0.01	1	2	2.03	101	0	-	0 - 20	QC02060
LCSD Total Molybdenum (mg/L)	<0.01	1	2	2.05	102	1	-	0 - 20	QC02060
LCSD Total Nickel (mg/L)	<0.01	1	2	2.00	100	1	-	0 - 20	QC02060
LCSD Total Selenium (mg/L)	<0.01	1	2	1.89	95	1	-	0 - 20	QC02060
LCSD Total Silver (mg/L)	<0.005	1	0.4	0.418	105	1	-	0 - 20	QC02060
LCSD Total Uranium (mg/L)	<0.50	1	2	1.97	99	1	-	0 - 20	QC02060
LCSD Total Vanadium (mg/L)	<0.01	1	2	1.99	100	1	-	0 - 20	QC02060
LCSD Total Zinc (mg/L)	<0.01	1	2	2.04	102	1	-	0 - 20	QC02060

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	Phenol (mg/L)		60	58.22	97	5 - 57	4/3/00	QC02062
CCV 1	1,4-Dichlorobenzene (mg/L)		60	58.66	98	25 - 94	4/3/00	QC02062
CCV 1	2-Nitrophenol (mg/L)		60	58.06	97	80 - 120	4/3/00	QC02062
CCV 1	Hexachlorobutadiene (mg/L)		60	61.40	102	80 - 120	4/3/00	QC02062
CCV 1	4-Chloro-3-methylphenol (mg/L)		60	55.07	92	40 - 126	4/3/00	QC02062
CCV 1	2,4,6-Trichlorophenol (mg/L)		60	58.83	98	80 - 120	4/3/00	QC02062
CCV 1	Acenaphthylene (mg/L)		60	58.23	97	80 - 120	4/3/00	QC02062
CCV 1	Diphenylamine (mg/L)		60	51.43	86	80 - 120	4/3/00	QC02062
CCV 1	Pentachlorophenol (mg/L)		60	52.25	87	21 - 131	4/3/00	QC02062
CCV 1	Fluoranthene (mg/L)		60	52.07	87	80 - 120	4/3/00	QC02062
CCV 1	Di-n-octylphthalate (mg/L)		60	56.37	94	80 - 120	4/3/00	QC02062
CCV 1	Benzo(a)pyrene (mg/L)		60	61.74	103	80 - 120	4/3/00	QC02062

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Hydroxide Alkalinity (mg/L as CaCo3)		0	5.0	0	80 - 120	4/5/00	QC01887
ICV	Carbonate Alkalinity (mg/L as CaCo3)		0	212	0	80 - 120	4/5/00	QC01887
ICV	Bicarbonate Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	4/5/00	QC01887
ICV	Total Alkalinity (mg/L as CaCo3)		236	217	92	80 - 120	4/5/00	QC01887
CCV 1	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	4/5/00	QC01887
CCV 1	Carbonate Alkalinity (mg/L as CaCo3)		0	212	0	80 - 120	4/5/00	QC01887
CCV 1	Bicarbonate Alkalinity (mg/L as CaCo3)		0	11	0	80 - 120	4/5/00	QC01887
CCV 1	Total Alkalinity (mg/L as CaCo3)		236	223	94	80 - 120	4/5/00	QC01887

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Specific Conductance (uMHOS/cm)		1413	1279	91	80 - 120	4/5/00	QC01888
CCV 1	Specific Conductance (uMHOS/cm)		1413	1288	91	80 - 120	4/5/00	QC01888

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Dissolved Calcium (mg/L)		20	20.9	105	75 - 125	4/6/00	QC01950
ICV	Dissolved Magnesium (mg/L)		20	21.9	110	75 - 125	4/6/00	QC01950
ICV	Dissolved Potassium (mg/L)		20	20.7	103	75 - 125	4/6/00	QC01950
ICV	Dissolved Sodium (mg/L)		20	21.5	108	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Calcium (mg/L)		20	20.9	105	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Magnesium (mg/L)		20	21.9	110	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Potassium (mg/L)		20	20.7	103	75 - 125	4/6/00	QC01950

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	Dissolved Sodium (mg/L)		20	21.5	108	75 - 125	4/6/00	QC01950

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Mercury (mg/L)		0.005	0.00091	18	80 - 120	4/6/00	QC01968
CCV 1	Total Mercury (mg/L)		0.005	0.00101	20	80 - 120	4/6/00	QC01968

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.39	91	80 - 120	3/30/00	QC01806
ICV	Fluoride (mg/L)		2.5	2.48	99	80 - 120	3/30/00	QC01806
ICV	Nitrate-N (mg/L)		5	4.65	93	80 - 120	3/30/00	QC01806
ICV	Sulfate (mg/L)		12.5	11.52	92	80 - 120	3/30/00	QC01806
CCV 1	CL (mg/L)		12.5	11.32	91	80 - 120	3/30/00	QC01806
CCV 1	Fluoride (mg/L)		2.5	2.47	99	80 - 120	3/30/00	QC01806
CCV 1	Nitrate-N (mg/L)		5	4.64	93	80 - 120	3/30/00	QC01806
CCV 1	Sulfate (mg/L)		12.5	11.46	92	80 - 120	3/30/00	QC01806

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	pH (s.u.)		7	7.0	100	80 - 120	3/30/00	QC01825
CCV 1	pH (s.u.)		7	7.0	100	80 - 120	3/30/00	QC01825

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Dissolved Solids (mg/L)		1000	1006	101	80 - 120	4/8/00	QC01956
CCV 1	Total Dissolved Solids (mg/L)		1000	984	98	80 - 120	4/8/00	QC01956

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Aluminum (mg/L)		20	19.6	98	75 - 125	4/6/00	QC02060
ICV	Total Arsenic (mg/L)		1	1.00	100	75 - 125	4/6/00	QC02060
ICV	Total Barium (mg/L)		20	21.0	105	75 - 125	4/6/00	QC02060
ICV	Total Beryllium (mg/L)		0.5	0.502	100	75 - 125	4/6/00	QC02060
ICV	Total Boron (mg/L)		2.5	2.53	101	75 - 125	4/6/00	QC02060
ICV	Total Cadmium (mg/L)		0.5	0.509	102	75 - 125	4/6/00	QC02060
ICV	Total Chromium (mg/L)		1	1.01	101	75 - 125	4/6/00	QC02060

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Cobalt (mg/L)		5	5.09	102	75 - 125	4/6/00	QC02060
ICV	Total Copper (mg/L)		2.5	2.49	100	75 - 125	4/6/00	QC02060
ICV	Total Iron (mg/L)		10	10.1	101	75 - 125	4/6/00	QC02060
ICV	Total Lead (mg/L)		0.5	0.510	102	75 - 125	4/6/00	QC02060
ICV	Total Manganese (mg/L)		1.5	1.52	101	75 - 125	4/6/00	QC02060
ICV	Total Molybdenum (mg/L)		2.5	2.53	101	75 - 125	4/6/00	QC02060
ICV	Total Nickel (mg/L)		4	4.01	100	75 - 125	4/6/00	QC02060
ICV	Total Selenium (mg/L)		0.5	0.503	101	75 - 125	4/6/00	QC02060
ICV	Total Silver (mg/L)		1	0.99	99	75 - 125	4/6/00	QC02060
ICV	Total Uranium (mg/L)		1	1.05	105	75 - 125	4/6/00	QC02060
ICV	Total Vanadium (mg/L)		5	5.03	101	75 - 125	4/6/00	QC02060
ICV	Total Zinc (mg/L)		2	2.04	102	75 - 125	4/6/00	QC02060
CCV 1	Total Aluminum (mg/L)		20	19.4	97	75 - 125	4/6/00	QC02060
CCV 1	Total Arsenic (mg/L)		1	0.98	98	75 - 125	4/6/00	QC02060
CCV 1	Total Barium (mg/L)		20	20.5	102	75 - 125	4/6/00	QC02060
CCV 1	Total Beryllium (mg/L)		0.5	0.493	99	75 - 125	4/6/00	QC02060
CCV 1	Total Boron (mg/L)		2.5	2.47	99	75 - 125	4/6/00	QC02060
CCV 1	Total Cadmium (mg/L)		0.5	0.494	99	75 - 125	4/6/00	QC02060
CCV 1	Total Chromium (mg/L)		1	0.99	99	75 - 125	4/6/00	QC02060
CCV 1	Total Cobalt (mg/L)		5	4.99	100	75 - 125	4/6/00	QC02060
CCV 1	Total Copper (mg/L)		2.5	2.48	99	75 - 125	4/6/00	QC02060
CCV 1	Total Iron (mg/L)		10	9.9	99	75 - 125	4/6/00	QC02060
CCV 1	Total Lead (mg/L)		0.5	0.502	100	75 - 125	4/6/00	QC02060
CCV 1	Total Manganese (mg/L)		1.5	1.49	99	75 - 125	4/6/00	QC02060
CCV 1	Total Molybdenum (mg/L)		2.5	2.48	99	75 - 125	4/6/00	QC02060
CCV 1	Total Nickel (mg/L)		4	3.98	100	75 - 125	4/6/00	QC02060
CCV 1	Total Selenium (mg/L)		0.5	0.499	100	75 - 125	4/6/00	QC02060
CCV 1	Total Silver (mg/L)		1	0.98	98	75 - 125	4/6/00	QC02060
CCV 1	Total Uranium (mg/L)		1	1.06	106	75 - 125	4/6/00	QC02060
CCV 1	Total Vanadium (mg/L)		5	4.95	99	75 - 125	4/6/00	QC02060
CCV 1	Total Zinc (mg/L)		2	1.97	99	75 - 125	4/6/00	QC02060

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143547

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A0003302 4

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E. Main
Fax #: 505 748 9077
Contact Person: Darrell Moore or Charlie Phymale
Invoice to: (if different from above)
Project #:
Project Name: Injection Wells
Project Location: Artesia
Sampler Signature: Charlie Phymale

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	NaHSO4	SAMPLING: DATE	TIME
143547	Injection Wells	2	1L	X						X	X		3/29/00	8:30
	" "	2	40ml	X							X	X	3/29/00	8:30
	" "	1	500ml	X					X	X			3/29/00	8:30

MTBE 8021B/602
BTEX 8021B/602
TPH 418.1/TX1005
PAH 8270C
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7
TCLP Metals Ag As Ba Cd Cr Pb Se Hg
TCLP Volatiles
TCLP Semi Volatiles
TCLP Pesticides
RCI
GC-MS Vol. 8260B/624
GC/MS Semi. Vol. 8270C/625
PCB's 8082/608
Pesticides 8081A/608
BOD, TSS, pH
Turn Around Time if different from standard
Hold

See list

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Phymale	3/29/00	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Henely	Date: 3:30 00	Time: 10:00

LAB USE ONLY

Intact (Y) / N
Headspace Y / (N)
Temp 12° C
Log-in Review MS

REMARKS:

4117

Carrier # Fed Ex 279-3832-431

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

Page 4756 of 5828

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TraceAnalysis, Inc.

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El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID #_____

Company Name: NAVA 50 Phone #: 5057483311

Address: (Street, City, Zip) 501 E. Main Fax #: 505 7489077

Contact Person: Darrell Moore or Charlie Plymale

Invoice to: (If different from above)

Project #: Project Name: Inj. wells

Project Location: Artesia Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME
	Inj wells	1	1L	X						X	X	3/30/00	13:50

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7: See 1-5A | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

Relinquished by: Charlie Plymale	Date: 3/30/00	Time: 16:15	Received by:
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Hensley 3-31-00 9:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp -2° °
Log-in Review

REMARKS: RL Sample

Carrier # FedEx 279-4050 942

TELEPHONE
(505) 748-3311

EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

February 1, 2000

RECEIVED
FEB 0 3 2000
Environmental Bureau
Oil Conservation Division

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 1999 to December 31, 1999. We have disposed a total of 1,136,090 bbls. of fluid down the two wells. This is broken down as follows: 893,539 bbls. down WDW-1 and 242,551 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Page 4759 of 5828

Qrtly Injection Pressures, Rates

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	M Ma V
October 1999	87	328	-12.7	330	499	10.8	11314.29	17
November 1999	161	410.4	-12.4	248.9	343.8	0	8533.71	11
December 1999	155.5	322.4	-12.3	271.5	376.7	13.5	9308.57	12

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	M Ma V
October 1999	NA	NA	NA	NA	NA	NA	NA	
November 1999	140.3	337	-15.4	158.5	436.6	0	5434.286	14
December 1999	140.3	337.8	-15.4	69.7	341	0	2389.714	1'

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E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING CO.
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

January 17, 2000
Receiving Date: 01/06/00
Sample Type: Water
Project #: N/A
Project Location: N/A

Prep Date: 01/10/00
Analysis Date: 01/10/00
Sampling Date: 01/05/00
Sample Condition: I & C
Sample Received by: VW
Project Name: Injection Wells

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T138278	Injection Wells	20	34	164	628
ICV		20.2	20.3	20.5	20.2
CCV		19.9	20.2	20.2	20.2
Reporting Limit		5.0	5.0	5.0	5.0
RPD		1	1	2	0
% Extraction Accuracy		109	101	99	108
% Instrument Accuracy		100	101	102	101

METHODS: EPA SW 846-6010B, 3005A
CHEMIST: RR
TOTAL SPIKE: 1,000 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.
TOTAL CV: 20 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich

01/17/00
Date

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E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING CO.
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

January 17, 2000
Receiving Date: 01/06/00
Sample Type: Water
Project #: N/A
Project Location: N/A

Analysis Date: 01/14/00
Sampling Date: 01/05/00
Sample Condition: I & C
Sample Received by: VW
Project Name: Injection Wells

TA#	Field Code	REACTIVITY	SULFIDES (ppm)	CYANIDES (ppm)	CORROSIVITY (mm/yr)	pH (s.u.)	FLASHPOINT (F)
	EPA LIMIT =	---	500	250	>6.5 mm/yr	<2 >12.5	>140 F
T138278	Injection Wells	Non-reactive	<10	<2.5	Non 0.40 mm/yr	8.16	>150 Non-Ignitable
RPD		0	0	0	0	0	0
% Extraction Accuracy		100	100	100	100	100	100
% Instrument Accuracy		---	---	---	---	---	---

METHODS: EPA SW 846-Chapter 7 7.3, Chapter 7 7.2, Chapter 7 7.1.
CHEMIST: JM

Director, Dr. Blair Leftwich

01/17/00
Date

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TRACE ANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

January 14, 2000
Receiving Date: 01/06/2000
Sample Type: Water
Project No: NA
Project Location: NA

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

Sampling Date: 01/05/2000
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Injection Wells

TOTAL METALS (mg/L)

TA#	Field Code	Ag	As	Ba	Cd	Cr	Pb	Se	Hg
T138278	Injection Wells	<0.05	0.19	<0.10	<0.02	<0.05	<0.10	0.27	<0.0002
ICV		0.21	0.98	0.94	0.94	0.94	0.94	0.98	0.00104
CCV		0.19	0.94	0.94	0.94	0.92	0.94	0.94	0.00107
Reporting Limit		0.05	0.10	0.10	0.02	0.05	0.10	0.10	0.0002
RPD		4	3	3	1	1	2	3	7
% Extraction Accuracy		73	89	86	83	86	83	88	85
% Instrument Accuracy		100	96	94	94	93	94	96	106
PREP DATE		01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/13/2000
ANALYSIS DATE		01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/13/2000

CHEMIST: As, Se, Cd, Cr, Pb, Ag, Ba: RR Hg: BP
METHODS: EPA SW 846-3010A, 6010B, 7470A.
TOTAL METALS SPIKE: 0.40 mg/L Ag; 2.0 mg/L As, Ba, Cd, Cr, Pb, Se; 0.0010 mg/L Hg.
TOTAL METALS CV: 0.20 mg/L Ag; 1.0 mg/L As, Ba, Cd, Cr, Pb, Se; 0.0010 mg/L Hg.

Director, Dr. Blair Leftwich

01/17/00
Date

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E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 1/19/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00010608

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
138278	Injection Wells	Water	1/5/00	9:45	1/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 2 of 15
N/A Injection Wells N/A

Analytical Results Report

Sample Number: 138278
Description: Injection Wells

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
8260 (µg/L)										
Dichlorodifluoromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromomethane		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Chloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Trichlorofluoromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Methylene chloride		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
MTBE		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,2-Dichloroethene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,2-dichloroethene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2,2-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloroethane (EDC)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1-Trichloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Carbon Tetrachloride		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromomethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromodichloromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,3-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,3-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,2-Trichloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromochloromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dibromoethane (EDB)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Tetrachloroethene (PCE)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1,2-Tetrachloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
m,p-Xylene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromoform		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Styrene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
o-Xylene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Isopropylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2-Chlorotoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Propylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
4-Chlorotoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3,5-Trimethylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
tert-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trimethylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,4-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
sec-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
p-Isopropyltoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichlorobenzene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Naphthalene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trichlorobenzene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
1,2-Dibromo-3-chloropropane		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Hexachlorobutadiene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 3 of 15

N/A Injection Wells N/A

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
Dibromofluoromethane	50.71	1	50	101	83 - 121	JG	PB00190	QC00251	
Toluene-d8	51.32	1	50	103	91 - 108	JG	PB00190	QC00251	
4-Bromofluorobenzene	47.70	1	50	95	80 - 120	JG	PB00190	QC00251	
8270 (mg/L)									
Pyridine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosodimethylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Picoline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Methyl methanesulfonate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Ethyl methanesulfonate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Aniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroethyl) ether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Chlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,3-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,4-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzyl alcohol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroisopropyl) ether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Methylphenol/3-Methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acetophenone	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosodi-n-propylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachloroethane	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Nitrobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosopiperidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Isophorone	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Nitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dimethylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroethoxy) methane	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzoic acid	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2,4-Trichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
a,a-Dimethylphenethylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Naphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chloroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,6-Dichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorobutadiene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitroso-di-n-butylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chloro-3-methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Methylnaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Methylnaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2,4,5-Tetrachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorocyclopentadiene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4,6-Trichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4,5-Trichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Chloronaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Chloronaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dimethylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acenaphthylene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,6-Dinitrotoluene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acenaphthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 4 of 15

N/A Injection Wells N/A

2,4-Dinitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzofuran	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Nitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Napthylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dinitrotoluene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Napthylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,3,4,6-Tetrachlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Fluorene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diethylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chlorophenyl-phenylether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4,6-Dinitro-2-methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diphenylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diphenylhydrazine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Bromophenyl-phenylether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenacetin	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Aminobiphenyl	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachloronitrobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pronamide	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenanthrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Di-n-butylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
p-Dimethylaminoazobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Butylbenzylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(a)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3,3-Dichlorobenzidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Chrysene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Bis (2-ethylhexyl) phthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Di-n-octylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(b)fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
7,12-Dimethylbenz(a)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(k)fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(a)pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3-Methylcholanthrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzo(a,j)acridine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Indeno(1,2,3-cd)pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzo(a,h)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(g,h,i)perylene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005

Surrogate (mg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
2-Fluorophenol	34.11	1	80	43	9 - 71	MA	PB00185	QC00333	
Phenol-d5	30.32	1	80	38	4 - 64	MA	PB00185	QC00333	
Nitrobenzene-d5	54.02	1	80	68	44 - 109	MA	PB00185	QC00333	
2-Fluorobiphenyl	51.81	1	80	65	47 - 108	MA	PB00185	QC00333	
2,4,6-Tribromophenol	44.98	1	80	56	51 - 128	MA	PB00185	QC00333	
Terphenyl-d14	66.88	1	80	84	58 - 115	MA	PB00185	QC00333	
Alkalinity (mg/L as CaCo3)									
Hydroxide Alkalinity	<1.0	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Carbonate Alkalinity	<1.0	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 5 of 15

N/A Injection Wells N/A

Bicarbonate Alkalinity		320	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Total Alkalinity		320	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Conductivity (uMHOS/cm)										
Specific Conductance		4982	1	SM 2510B	1/11/00	1/11/00	MF	PB00232	QC00304	
Ion Chromatography (IC) (mg/L)										
CL		920	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.5
Fluoride		27	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.1
Nitrate-N		2.6	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.2
Sulfate		700	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.5
pH (s.u.)										
pH	*	8.2	1	E 150.1	1/6/00	1/6/00	RS	PB00253	QC00327	1
TDS (mg/L)										
Total Dissolved Solids		2300	1	E 160.1	1/11/00	1/12/00	JS	PB00238	QC00311	10

* pH - Out of holding time.

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dichlorodifluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromomethane (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Chloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Trichlorofluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Methylene chloride (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
MTBE (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,2-Dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,2-dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Carbon Tetrachloride (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromomethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromodichloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,2-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromochloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Tetrachloroethene (PCE) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
m,p-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromoform (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Styrene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
o-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Isopropylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Propylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
4-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3,5-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
tert-Butylbenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2,4-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,4-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
sec-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,3-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
p-Isopropyltoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichlorobenzene (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Naphthalene (µg/L)		<2	2	1/6/00	PB00190	QC00251

1,2,4-Trichlorobenzene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
Hexachlorobutadiene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	50.11	50	100	83 - 121	QC00251
Toluene-d8 (µg/L)	52.65	50	105	91 - 108	QC00251
4-Bromofluorobenzene (µg/L)	46.07	50	92	80 - 120	QC00251

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Pyridine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosodimethylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Picoline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Methyl methanesulfonate (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Ethyl methanesulfonate (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Phenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Aniline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroethyl) ether (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Chlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,3-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,4-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Benzyl alcohol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroisopropyl) ether (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Methylphenol/3-Methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Acetophenone (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosodi-n-propylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachloroethane (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Nitrobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosopiperidine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Isophorone (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Nitrophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dimethylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroethoxy) methane (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Benzoic acid (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2,4-Trichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
a,a-Dimethylphenethylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Naphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Chloroaniline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,6-Dichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorobutadiene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitroso-di-n-butylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Chloro-3-methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1-Methylnaphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Methylnaphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2,4,5-Tetrachlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorocyclopentadiene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4,6-Trichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333

Report Date: 1/19/00	Order ID Number: A00010608				Page Number: 8 of 15
N/A	Injection Wells				N/A
2,4,5-Trichlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Chloronaphthalene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
1-Chloronaphthalene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dimethylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Acenaphthylene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,6-Dinitrotoluene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Acenaphthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dinitrophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dibenzofuran (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachlorobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Nitrophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
1-Napthylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dinitrotoluene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Napthylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,3,4,6-Tetrachlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Fluorene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diethylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Chlorophenyl-phenylether (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4,6-Dinitro-2-methylphenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diphenylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diphenylhydrazine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Bromophenyl-phenylether (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Phenacetin (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Aminobiphenyl (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachloronitrobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pronamide (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Phenanthrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Di-n-butylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzidine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
p-Dimethylaminoazobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Butylbenzylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(a)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3,3-Dichlorobenzidine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Chrysene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Bis (2-ethylhexyl) phthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Di-n-octylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(b)fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
7,12-Dimethylbenz(a)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(k)fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(a)pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3-Methylcholanthrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dibenzo(a,j)acridine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Indeno(1,2,3-cd)pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333

Dibenzo(a,h)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(g,h,i)perylene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
2-Fluorophenol (mg/L)	35.26	80	44	9 - 71	QC00333
Phenol-d5 (mg/L)	22.41	80	28	4 - 64	QC00333
Nitrobenzene-d5 (mg/L)	59.32	80	74	44 - 109	QC00333
2-Fluorobiphenyl (mg/L)	63.26	80	79	47 - 108	QC00333
2,4,6-Tribromophenol (mg/L)	58.13	80	73	51 - 128	QC00333
Terphenyl-d14 (mg/L)	67.36	80	84	58 - 115	QC00333

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Hydroxide Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Carbonate Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Bicarbonate Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Total Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Specific Conductance (uMHOS/cm)		6.7		1/11/00	PB00232	QC00304

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL (mg/L)		<0.5	0.5	1/6/00	PB00196	QC00257
Fluoride (mg/L)		<0.1	0.1	1/6/00	PB00196	QC00257
Nitrate-N (mg/L)		<0.2	0.2	1/6/00	PB00196	QC00257
Sulfate (mg/L)		<0.5	0.5	1/6/00	PB00196	QC00257

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Dissolved Solids (mg/L)		<10	10	1/12/00	PB00238	QC00311

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param		Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	*	920	1	1250	2060.31	91		80 - 120	0 - 20	QC00257
MS	Fluoride (mg/L)	*	27	1	250	253.06	90		80 - 120	0 - 20	QC00257
MS	Nitrate-N (mg/L)	*	2.6	1	500	477.41	95		80 - 120	0 - 20	QC00257
MS	Sulfate (mg/L)	*	700	1	1250	1935.14	99		80 - 120	0 - 20	QC00257

* CL - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 92.
* Fluoride - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 89.
* Nitrate-N - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 95.
* Sulfate - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 98.

Standard	Param		Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MSD	CL (mg/L)	*	920	1	1250	2061.14	91	0	80 - 120	0 - 20	QC00257
MSD	Fluoride (mg/L)	*	27	1	250	255.32	91	1	80 - 120	0 - 20	QC00257
MSD	Nitrate-N (mg/L)	*	2.6	1	500	482.88	96	1	80 - 120	0 - 20	QC00257
MSD	Sulfate (mg/L)	*	700	1	1250	1969.34	102	3	80 - 120	0 - 20	QC00257

* CL - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 92.
* Fluoride - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 89.
* Nitrate-N - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 95.
* Sulfate - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 98.

Quality Control Report
Duplicates

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydroxide Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC00275
Duplicate	Carbonate Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC00275
Duplicate	Bicarbonate Alkalinity (mg/L as CaC		330	320	1	3	0 - 20	QC00275
Duplicate	Total Alkalinity (mg/L as CaCo3)		330	320	1	3	0 - 20	QC00275

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Specific Conductance (uMHOS/cm)		966	978	1	1	0 - 20	QC00304

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	pH (s.u.)		7.4	7.4	1	0	0 - 20	QC00327

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 11 of 15

N/A Injection Wells N/A

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Total Dissolved Solids (mg/L)		1870	1800	1	4	0 - 20	QC00311

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	1,1-Dichloroethene (ug/L)		1	100	88	88		77 - 136	0 - 20	QC00251
LCS	Benzene (ug/L)		1	100	95	95		71 - 120	0 - 20	QC00251
LCS	Trichloroethene (TCE) (ug/L)		1	100	90	90		84 - 109	0 - 20	QC00251
LCS	Toluene (ug/L)		1	100	94	94		74 - 113	0 - 20	QC00251
LCS	Chlorobenzene (ug/L)		1	100	95	95		79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	Dibromofluoromethane (µg/L)	1	50	50.97	102	83 - 121	QC00251
LCS	Toluene-d8 (µg/L)	1	50	51.40	103	91 - 108	QC00251
LCS	4-Bromofluorobenzene (µg/L)	1	50	45.29	91	80 - 120	QC00251

LCSD	1,1-Dichloroethene (ug/L)		1	100	86	86	2	77 - 136	0 - 20	QC00251
LCSD	Benzene (ug/L)		1	100	95	95	0	71 - 120	0 - 20	QC00251
LCSD	Trichloroethene (TCE) (ug/L)		1	100	89	89	1	84 - 109	0 - 20	QC00251
LCSD	Toluene (ug/L)		1	100	94	94	0	74 - 113	0 - 20	QC00251
LCSD	Chlorobenzene (ug/L)		1	100	94	94	1	79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	Dibromofluoromethane (µg/L)	1	50	49.67	99	83 - 121	QC00251
LCSD	Toluene-d8 (µg/L)	1	50	51.67	103	91 - 108	QC00251
LCSD	4-Bromofluorobenzene (µg/L)	1	50	44.87	90	80 - 120	QC00251

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Phenol (mg/L)	<0.005	1	80	22.818	29		5 - 112	0 - 20	QC00333
LCS	2-Chlorophenol (mg/L)	<0.005	1	80	55.548	69		28 - 110	0 - 20	QC00333
LCS	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	50.523	63		27 - 94	0 - 20	QC00333
LCS	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	66.130	83		Det - 230	0 - 20	QC00333
LCS	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	53.798	67		31 - 109	0 - 20	QC00333
LCS	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	52.521	66		41 - 126	0 - 20	QC00333
LCS	Acenaphthene (mg/L)	<0.005	1	80	63.740	80		46 - 118	0 - 20	QC00333
LCS	4-Nitrophenol (mg/L)	<0.005	1	80	17.704	22		0 - 70	0 - 20	QC00333
LCS	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	62.222	78		50 - 132	0 - 20	QC00333
LCS	Pentachlorophenol (mg/L)	<0.005	1	80	42.948	54		1 - 150	0 - 20	QC00333
LCS	Pyrene (mg/L)	<0.005	1	80	66.491	83		49 - 122	0 - 20	QC00333

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	2-Fluorophenol (mg/L)	1	80	36.50	46	9 - 71	QC00333
LCS	Phenol-d5 (mg/L)	1	80	24.31	30	4 - 64	QC00333
LCS	Nitrobenzene-d5 (mg/L)	1	80	63.52	79	44 - 109	QC00333
LCS	2-Fluorobiphenyl (mg/L)	1	80	63.34	79	47 - 108	QC00333
LCS	2,4,6-Tribromophenol (mg/L)	1	80	63.27	79	51 - 128	QC00333
LCS	Terphenyl-d14 (mg/L)	1	80	63.55	79	58 - 115	QC00333

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 13 of 15

N/A Injection Wells N/A

LCSD	Phenol (mg/L)	<0.005	I	80	22.026	28	4	2 - 55	0 - 20	QC00333
LCSD	2-Chlorophenol (mg/L)	<0.005	1	80	52.863	66	5	28 - 110	0 - 20	QC00333
LCSD	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	48.069	60	5	27 - 94	0 - 20	QC00333
LCSD	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	64.392	80	3	Det - 230	0 - 20	QC00333
LCSD	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	52.282	65	3	31 - 109	0 - 20	QC00333
LCSD	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	54.382	68	3	41 - 126	0 - 20	QC00333
LCSD	Acenaphthene (mg/L)	<0.005	1	80	62.427	78	2	46 - 118	0 - 20	QC00333
LCSD	4-Nitrophenol (mg/L)	<0.005	1	80	18.749	23	6	0 - 70	0 - 20	QC00333
LCSD	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	64.415	81	3	50 - 132	0 - 20	QC00333
LCSD	Pentachlorophenol (mg/L)	<0.005	1	80	43.506	54	1	I - 150	0 - 20	QC00333
LCSD	Pyrene (mg/L)	<0.005	1	80	69.022	86	4	49 - 122	0 - 20	QC00333

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	2-Fluorophenol (mg/L)	1	80	34.57	43	9 - 71	QC00333
LCSD	Phenol-d5 (mg/L)	1	80	23.20	29	4 - 64	QC00333
LCSD	Nitrobenzene-d5 (mg/L)	1	80	60.47	76	44 - 109	QC00333
LCSD	2-Fluorobiphenyl (mg/L)	1	80	62.00	78	47 - 108	QC00333
LCSD	2,4,6-Tribromophenol (mg/L)	1	80	66.43	83	51 - 128	QC00333
LCSD	Terphenyl-d14 (mg/L)	1	80	66.95	84	58 - 115	QC00333

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV (1	1,2-Dichloropropane (µg/L)		100	106	106	80 - 120	1/6/00	QC00251
CCV (1	Dibromofluoromethane (µg/L)		50	50.35	101	83 - 121	1/6/00	QC00251
CCV (1	Toluene-d8 (µg/L)		50	49.3	99	91 - 108	1/6/00	QC00251
CCV (1	4-Bromofluorobenzene (µg/L)		50	51.76	104	80 - 120	1/6/00	QC00251

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV (1	Phenol (mg/L)		60	60.31	101	80 - 120	1/11/00	QC00333
CCV (1	1,4-Dichlorobenzene (mg/L)		60	61.32	102	27 - 94	1/11/00	QC00333
CCV (1	2-Nitrophenol (mg/L)		60	58.50	98	80 - 120	1/11/00	QC00333
CCV (1	2,4-Dichlorophenol (mg/L)		60	57.94	97	80 - 120	1/11/00	QC00333
CCV (1	Hexachlorobutadiene (mg/L)		60	61.10	102	80 - 120	1/11/00	QC00333
CCV (1	4-Chloro-3-methylphenol (mg/L)		60	55.24	92	41 - 126	1/11/00	QC00333
CCV (1	2,4,6-Trichlorophenol (mg/L)		60	57.30	96	80 - 120	1/11/00	QC00333
CCV (1	Acenaphthene (mg/L)		60	59.46	99	46 - 118	1/11/00	QC00333
CCV (1	Diphenylamine (mg/L)		60	56.48	94	80 - 120	1/11/00	QC00333
CCV (1	Pentachlorophenol (mg/L)		60	54.86	91	1 - 150	1/11/00	QC00333
CCV (1	Fluoranthene (mg/L)		60	59.83	100	80 - 120	1/11/00	QC00333
CCV (1	Di-n-octylphthalate (mg/L)		60	56.06	93	80 - 120	1/11/00	QC00333
CCV (1	Benzo(a)pyrene (mg/L)		60	58.81	98	80 - 120	1/11/00	QC00333

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	1/10/00	QC00275
ICV	Carbonate Alkalinity (mg/L as CaCo3)		0	2280	0	80 - 120	1/10/00	QC00275
ICV	Bicarbonate Alkalinity (mg/L as CaCo3)		0	40	0	80 - 120	1/10/00	QC00275
ICV	Total Alkalinity (mg/L as CaCo3)		2400	2320	97	80 - 120	1/10/00	QC00275
CCV (1	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	1/10/00	QC00275
CCV (1	Carbonate Alkalinity (mg/L as CaCo3)		0	2120	0	80 - 120	1/10/00	QC00275
CCV (1	Bicarbonate Alkalinity (mg/L as CaCo3)		0	80	0	80 - 120	1/10/00	QC00275
CCV (1	Total Alkalinity (mg/L as CaCo3)		2400	2200	92	80 - 120	1/10/00	QC00275

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Specific Conductance (uMHOS/cm)		1413	1351	96	80 - 120	1/11/00	QC00304
CCV (1	Specific Conductance (uMHOS/cm)		1413	1347	95	80 - 120	1/11/00	QC00304

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.37	91	80 - 120	1/6/00	QC00257
ICV	Fluoride (mg/L)		2.5	2.28	91	80 - 120	1/6/00	QC00257
ICV	Nitrate-N (mg/L)		5	4.59	92	80 - 120	1/6/00	QC00257
ICV	Sulfate (mg/L)		12.5	12.51	100	80 - 120	1/6/00	QC00257
CCV (1	CL (mg/L)		12.5	11.37	91	80 - 120	1/6/00	QC00257
CCV (1	Fluoride (mg/L)		2.5	2.26	90	80 - 120	1/6/00	QC00257
CCV (1	Nitrate-N (mg/L)		5	4.51	90	80 - 120	1/6/00	QC00257
CCV (1	Sulfate (mg/L)		12.5	12.64	101	80 - 120	1/6/00	QC00257

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	pH (s.u.)		7	7.0	100	80 - 120	1/6/00	QC00327
CCV (1	pH (s.u.)		7	7.0	100	80 - 120	1/6/00	QC00327

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Dissolved Solids (mg/L)		1000	965	97	80 - 120	1/12/00	QC00311
CCV (1	Total Dissolved Solids (mg/L)		1000	968	97	80 - 120	1/12/00	QC00311

Page 4778 of 5828

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID #: A000106008

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) PO BOX 159
Fax #: 505 748 9077
Contact Person: Charlie Plymale
Invoice to: (If different from above)
Project #:
Project Name: Inj Wells
Project Location:
Sampler Signature: Charlie Plymale

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME
138278	Inj WELLS	2	40ml	X				X		X		1/5/00	9:45
	"	1	1L	X					X	X		1/5/00	9:45
	"	1	1L	X							X	1/5/00	9:45
	"	1	250ml	X							X	1/5/00	9:45

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC-MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Turn Around Time if different from standard	Hold
			See Attachment													

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Plymale	1/5/00	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Wrinkle	Date: 1-6-00	Time: 10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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LAB USE ONLY
Intact (Y) N
Headspace Y / N
Temp -1 °
Log-in Review MB

REMARKS:
F 1-18-00
1-20-00

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TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 2/7/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00010608

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
138278	Injection Wells	Water	1/5/00	9:45	1/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 5 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

TELEPHONE
(505) 748-3311

Navajo REFINING COMPANY
501 EAST MAIN STREET • P. O. DRAWER 159
ARTESIA, NEW MEXICO 88210

EASYLINK
62905278
FAX
(505) 746-6410

FAX NUMBERS:

ACCOUNTING OFFICES:	505/746-6410	MARKETING OFFICES:	505/746-6155
REFINING/ENGINEERING:	505/748-9077	PIPELINE DIVISION:	505/746-4438

PLEASE DELIVER 6 PAGES, INCLUDING THIS COVER SHEET

TO: Wayne Price PHONE: _____

COMPANY/DEPARTMENT: OCD

MESSAGE: Wayne, here is the volatile analysis

FROM: Darrell Moore DATE: 3/16/00

If you do not receive all pages, please call _____ at 505/748-3311, ext. _____.

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Report Date: 2/7/00 Order ID Number: A00010608 Page Number: 2 of 5
N/A Injection Wells N/A

Analytical Results Report

Sample Number: 138278
Description: Injection Wells

Param	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
8260 (µg/L)									
Dichlorodifluoromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromomethane	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Chloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Trichlorofluoromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Methylene chloride	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
MTBE	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,2-Dichloroethene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,2-dichloroethene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2,2-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloroethane (EDC)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1-Trichloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Carbon Tetrachloride	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Benzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromomethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromodichloromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,3-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,3-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,2-Trichloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromochloromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dibromoethane (EDB)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Tetrachloroethene (PCE)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1,2-Tetrachloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
m,p-Xylene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromoform	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Styrene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
o-Xylene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Isopropylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2-Chlorotoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Propylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
4-Chlorotoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3,5-Trimethylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
tert-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trimethylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,4-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
sec-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
p-Isopropyltoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichlorobenzene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Naphthalene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trichlorobenzene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
1,2-Dibromo-3-chloropropane	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

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Report Date: 2/7/00 Order ID Number: A00010608 Page Number: 3 of 5

N/A Injection Wells N/A

Hexachlorobutadiene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #
Dibromofluoromethane	50.71	1	50	101	69 - 121	JG	PB00190	QC00251
Toluene-d8	51.32	1	50	103	91 - 108	JG	PB00190	QC00251
4-Bromofluorobenzene	47.70	1	50	95	80 - 120	JG	PB00190	QC00251

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 3/16/2022 2:12:41 PM

Report Date: 2/7/00 Order ID Number: A00010608 Page Number: 4 of 5
N/A Injection Wells N/A

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dichlorodifluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromomethane (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Chloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Trichlorofluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Methylene chloride (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
MTBE (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,2-Dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,2-dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Carbon Tetrachloride (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromomethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromodichloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,2-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromochloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Tetrachloroethene (PCE) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
m,p-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromoform (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Styrene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
o-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Isopropylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Propylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
4-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3,5-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
tert-Butylbenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2,4-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,4-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
sec-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,3-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
p-Isopropyltoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichlorobenzene (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Naphthalene (µg/L)		<2	2	1/6/00	PB00190	QC00251

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Report Date: 2/7/00	Order ID Number: A00010608				Page Number: 5 of 5
N/A	Injection Wells				N/A
1,2,4-Trichlorobenzene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
Hexachlorobutadiene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	50.11	50	100	69 - 121	QC00251
Toluene-d8 (µg/L)	52.65	50	105	91 - 108	QC00251
4-Bromofluorobenzene (µg/L)	46.07	50	92	80 - 120	QC00251

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	1,1-Dichloroethene (ug/L)		1	100	88	88		77 - 136	0 - 20	QC00251
LCS	Benzene (ug/L)		1	100	95	95		71 - 120	0 - 20	QC00251
LCS	Trichloroethene (TCE) (ug/L)		1	100	90	90		84 - 109	0 - 20	QC00251
LCS	Toluene (ug/L)		1	100	94	94		74 - 113	0 - 20	QC00251
LCS	Chlorobenzene (ug/L)		1	100	95	95		79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	Dibromofluoromethane (µg/L)	1	50	50.97	102	69 - 121	QC00251
LCS	Toluene-d8 (µg/L)	1	50	51.40	103	91 - 108	QC00251
LCS	4-Bromofluorobenzene (µg/L)	1	50	45.29	91	80 - 120	QC00251

LCSD	1,1-Dichloroethene (ug/L)		1	100	86	86	2	77 - 136	0 - 20	QC00251
LCSD	Benzene (ug/L)		1	100	95	95	0	71 - 120	0 - 20	QC00251
LCSD	Trichloroethene (TCE) (ug/L)		1	100	89	89	1	84 - 109	0 - 20	QC00251
LCSD	Toluene (ug/L)		1	100	94	94	0	74 - 113	0 - 20	QC00251
LCSD	Chlorobenzene (ug/L)		1	100	94	94	1	79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	Dibromofluoromethane (µg/L)	1	50	49.67	99	69 - 121	QC00251
LCSD	Toluene-d8 (µg/L)	1	50	51.67	103	91 - 108	QC00251
LCSD	4-Bromofluorobenzene (µg/L)	1	50	44.87	90	80 - 120	QC00251

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	1,2-Dichloropropane (µg/L)		100	106	106	80 - 120	1/6/00	QC00251
CCV 1	Dibromofluoromethane (µg/L)		50	50.35	101	83 - 121	1/6/00	QC00251
CCV 1	Toluene-d8 (µg/L)		50	49.3	99	91 - 108	1/6/00	QC00251
CCV 1	4-Bromofluorobenzene (µg/L)		50	51.76	104	80 - 120	1/6/00	QC00251

QUARTERLY INJECTION REPORTS

HOLLYFRONTIER

January 23, 2019

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 7357

RE: 2018 4th Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3
HollyFrontier Navajo Refining LLC.

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a table showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for all three wells was 1245 psig and the average flows were 261 gpm for WDW-1, 79 gpm for WDW-2 and 115 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicate parameters are within permit limits.

This report covers the period from October 1, 2018 to December 31, 2018. Navajo has disposed a total of 1,433,520 barrels of fluid into the three wells during the fourth quarter of 2018. The volume per well is:

- 822,549 barrels into WDW-1; 30-015-27592
- 248,228 barrels into WDW-2; 30-015-20894
- 362,743 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager

Electronic cc (w/enc.): R. Combs, L. Dade
Environmental File: NRC/ENV/INJ WELLS/REPORTS C-115/2018

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

Page 4787 of 5828

2018 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	42,439,146
Oct-18	1,291	1,400	1,200	290	328	157	517	930	203	308,229	348,617	215,760	308,229	42,747,375
Nov-18	1,237	1,400	1,066	251	299	161	423	609	221	258,171	307,543	165,600	258,171	43,005,546
Dec-18	1,240	1,400	903	241	297	84	347	538	200	256,149	315,669	89,280	256,149	43,261,695
Monthly Avg	1,256			261										
30-015-20894 WDW-2													**Previous Quarter**	27,588,714
Oct-18	1,276	1,400	1,169	89	180	58	435	565	316	94,594	191,314	61,645	94,954	27,683,308
Nov-18	1,240	1,400	1,174	76	90	62	434	571	274	78,171	92,571	63,771	78,171	27,761,479
Dec-18	1,225	1,400	908	71	84	1	478	585	273	75,463	89,280	1,063	75,463	27,836,942
Monthly Avg	1,247			79										
30-015-26575 WDW-3													**Previous Quarter**	19,076,037
Oct-18	1,251	1,400	1,136	125	146	80	738	932	490	132,857	155,177	85,029	132,857	19,208,894
Nov-18	1,230	1,400	1,133	115	140	76	736	822	599	118,286	144,000	78,171	118,286	19,327,180
Dec-18	1,217	1,400	914	105	124	2	713	812	607	111,600	131,794	2,126	111,600	19,438,780
Monthly Avg	1,233			115										
AVG:	1,245			152										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	43,261,695	42,439,146	822,549
WDW2	27,836,942	27,588,714	248,228
WDW3	19,438,780	19,076,037	362,743
	90,537,417	89,103,897	1,433,520

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4Q INJECTION 2018.xlsx

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 18, 2019

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 3 Inj Well OrderNo.: 1812E95

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/29/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **JME**
Chlordane	ND	0.030		mg/L	1	1/9/2019 9:47:37 AM
Surr: Decachlorobiphenyl	42.3	47.2-117	S	%Rec	1	1/9/2019 9:47:37 AM
Surr: Tetrachloro-m-xylene	42.3	26.4-126		%Rec	1	1/9/2019 9:47:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Fluoride	20	0.50	*	mg/L	5	1/4/2019 1:02:43 PM
Chloride	660	25	*	mg/L	50	1/15/2019 12:03:59 AM
Bromide	1.5	0.50		mg/L	5	1/4/2019 1:02:43 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	1/4/2019 1:02:43 PM
Sulfate	1900	25	*	mg/L	50	1/15/2019 12:03:59 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/4/2019 6:24:12 PM
EPA METHOD 7470: MERCURY						Analyst: **pmf**
Mercury	ND	0.00020		mg/L	1	1/10/2019 1:48:58 PM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: **rde**
Calcium	66	1.0		mg/L	1	1/4/2019 1:29:10 PM
Magnesium	21	1.0		mg/L	1	1/4/2019 1:29:10 PM
Potassium	94	1.0		mg/L	1	1/4/2019 1:29:10 PM
Sodium	950	10		mg/L	10	1/4/2019 1:35:13 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **rde**
Arsenic	0.085	0.020		mg/L	1	1/9/2019 4:36:22 PM
Barium	0.020	0.020		mg/L	1	1/9/2019 4:36:22 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2019 4:36:22 PM
Chromium	0.0061	0.0060		mg/L	1	1/9/2019 4:36:22 PM
Lead	ND	0.0050		mg/L	1	1/9/2019 4:36:22 PM
Selenium	ND	0.050		mg/L	1	1/9/2019 4:36:22 PM
Silver	ND	0.0050		mg/L	1	1/9/2019 4:36:22 PM
EPA METHOD 8270C TCLP						Analyst: **DAM**
2-Methylphenol	ND	200		mg/L	1	1/9/2019 12:34:44 PM
3+4-Methylphenol	ND	200		mg/L	1	1/9/2019 12:34:44 PM
2,4-Dinitrotoluene	ND	0.13		mg/L	1	1/9/2019 12:34:44 PM
Hexachlorobenzene	ND	0.13		mg/L	1	1/9/2019 12:34:44 PM
Hexachlorobutadiene	ND	0.50		mg/L	1	1/9/2019 12:34:44 PM
Hexachloroethane	ND	3.0		mg/L	1	1/9/2019 12:34:44 PM
Nitrobenzene	ND	2.0		mg/L	1	1/9/2019 12:34:44 PM
Pentachlorophenol	ND	100		mg/L	1	1/9/2019 12:34:44 PM
Pyridine	ND	5.0		mg/L	1	1/9/2019 12:34:44 PM
2,4,5-Trichlorophenol	ND	400		mg/L	1	1/9/2019 12:34:44 PM
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	1/9/2019 12:34:44 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C TCLP						Analyst: **DAM**
Cresols, Total	ND	200		mg/L	1	1/9/2019 12:34:44 PM
Surr: 2-Fluorophenol	58.1	15-73.6		%Rec	1	1/9/2019 12:34:44 PM
Surr: Phenol-d5	41.9	15-63.4		%Rec	1	1/9/2019 12:34:44 PM
Surr: 2,4,6-Tribromophenol	75.6	15-119		%Rec	1	1/9/2019 12:34:44 PM
Surr: Nitrobenzene-d5	78.7	33.5-111		%Rec	1	1/9/2019 12:34:44 PM
Surr: 2-Fluorobiphenyl	57.5	31.8-101		%Rec	1	1/9/2019 12:34:44 PM
Surr: 4-Terphenyl-d14	66.2	17.2-84.7		%Rec	1	1/9/2019 12:34:44 PM
TCLP VOLATILES BY 8260B						Analyst: **DJF**
Benzene	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
2-Butanone	ND	200		mg/L	200	1/3/2019 12:42:43 AM
Carbon Tetrachloride	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
Chloroform	ND	6.0		mg/L	200	1/3/2019 12:42:43 AM
1,4-Dichlorobenzene	ND	7.5		mg/L	200	1/3/2019 12:42:43 AM
1,1-Dichloroethene	ND	0.70		mg/L	200	1/3/2019 12:42:43 AM
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	1/3/2019 12:42:43 AM
Trichloroethene (TCE)	ND	0.50		mg/L	200	1/3/2019 12:42:43 AM
Vinyl chloride	ND	0.20		mg/L	200	1/3/2019 12:42:43 AM
Chlorobenzene	ND	100		mg/L	200	1/3/2019 12:42:43 AM
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: 4-Bromofluorobenzene	94.4	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: Dibromofluoromethane	107	70-130		%Rec	200	1/3/2019 12:42:43 AM
Surr: Toluene-d8	102	70-130		%Rec	200	1/3/2019 12:42:43 AM
CORROSIVITY						Analyst: **SUB**
pH	6.93			su	1	1/4/2019
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>170			°F	1	1/5/2019
OXIDATION REDUCTION POTENTIAL						Analyst: **SUB**
Oxidation-Reduction Potential	200			mV	1	1/4/2019
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	0.0196	0.00500		mg/L	1	1/7/2019
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	0.093	0.0050		mg/L	1	1/9/2019
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5600	5.0		µmhos/c	1	1/2/2019 3:11:27 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1812E95**
Date Reported: **1/18/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well
Lab ID: 1812E95-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 12/27/2018 9:50:00 AM
Received Date: 12/29/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	149.5	20.00		mg/L Ca	1	1/2/2019 3:11:27 PM
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	1/2/2019 3:11:27 PM
Total Alkalinity (as CaCO3)	149.5	20.00		mg/L Ca	1	1/2/2019 3:11:27 PM
SPECIFIC GRAVITY						Analyst: **JRR**
Specific Gravity	1.001	0			1	1/8/2019 10:12:00 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3880	100	*D	mg/L	1	1/7/2019 10:44:00 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**
18-Jan-19

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R56793**	RunNo: **56793**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900898** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R56793**	RunNo: **56793**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900899** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			
Bromide	2.4	0.10	2.500	0	94.6	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.1	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.5	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R56999**	RunNo: **56999**
Prep Date:	Analysis Date: **1/14/2019**	SeqNo: **1906790** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R56999**	RunNo: **56999**
Prep Date:	Analysis Date: **1/14/2019**	SeqNo: **1906791** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.2	90	110			
Sulfate	10	0.50	10.00	0	99.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID MB-42425	SampType: MBLK	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: PBW	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902962	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0015		0.002500		59.2	47.2	117			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		54.6	26.4	126			

Sample ID LCS-42425	SampType: LCS	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSW	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902963	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0017		0.002500		69.4	47.2	117			
Surr: Tetrachloro-m-xylene	0.0015		0.002500		61.6	26.4	126			

Sample ID LCSD-42425	SampType: LCSD	TestCode: EPA Method 8081: Pesticides TCLP							
Client ID: LCSS02	Batch ID: 42425	RunNo: 56860							
Prep Date: 1/3/2019	Analysis Date: 1/9/2019	SeqNo: 1902964	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0014		0.002500		54.4	47.2	117	0	0	
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.6	26.4	126	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **rb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T56703**	RunNo: **56703**
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898710** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.010		0.01000		100	70	130			
Surr: 4-Bromofluorobenzene	0.010		0.01000		99.8	70	130			
Surr: Dibromofluoromethane	0.010		0.01000		104	70	130			
Surr: Toluene-d8	0.010		0.01000		105	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T56703**	RunNo: **56703**
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898711** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.017	0.0050	0.02000	0	84.3	70	130			
1,1-Dichloroethene	0.019	0.0050	0.02000	0	96.7	70	130			
Trichloroethene (TCE)	0.016	0.0050	0.02000	0	81.2	70	130			
Chlorobenzene	0.019	0.0050	0.02000	0	93.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.0093		0.01000		92.6	70	130			
Surr: 4-Bromofluorobenzene	0.011		0.01000		105	70	130			
Surr: Dibromofluoromethane	0.0099		0.01000		99.1	70	130			
Surr: Toluene-d8	0.010		0.01000		99.5	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **1812e95-001bms** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903284** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.052	0.0010	0.1000	0	51.5	23.9	129			
3+4-Methylphenol	0.11	0.0010	0.2000	0	52.6	15	167			
2,4-Dinitrotoluene	0.045	0.0010	0.1000	0	45.0	15	147			
Hexachlorobenzene	0.050	0.0010	0.1000	0	49.6	41.4	136			
Hexachlorobutadiene	0.024	0.0010	0.1000	0	24.5	16.2	134			
Hexachloroethane	0.018	0.0010	0.1000	0	18.1	20.6	124			S
Nitrobenzene	0.054	0.0010	0.1000	0	53.7	39.5	134			
Pentachlorophenol	0.048	0.0010	0.1000	0	47.7	15	137			
Pyridine	0.0025	0.0010	0.1000	0	2.46	15	129			S
2,4,5-Trichlorophenol	0.058	0.0010	0.1000	0	58.2	15	158			
2,4,6-Trichlorophenol	0.068	0.0010	0.1000	0	68.5	15	153			
Cresols, Total	0.16	0.0010	0.3000	0	52.2	10.6	179			
Surr: 2-Fluorophenol	0.080		0.2000		40.1	15	73.6			
Surr: Phenol-d5	0.066		0.2000		33.1	15	63.4			
Surr: 2,4,6-Tribromophenol	0.12		0.2000		58.2	15	119			
Surr: Nitrobenzene-d5	0.054		0.1000		53.9	33.5	111			
Surr: 2-Fluorobiphenyl	0.038		0.1000		37.7	31.8	101			
Surr: 4-Terphenyl-d14	0.051		0.1000		50.9	17.2	84.7			

Sample ID **1812e95-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903285** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.068	0.0010	0.1000	0	68.2	23.9	129	27.9	20	R
3+4-Methylphenol	0.14	0.0010	0.2000	0	70.7	15	167	29.3	20	R
2,4-Dinitrotoluene	0.063	0.0010	0.1000	0	63.0	15	147	33.3	23.2	R
Hexachlorobenzene	0.073	0.0010	0.1000	0	73.2	41.4	136	38.5	20	R
Hexachlorobutadiene	0.042	0.0010	0.1000	0	42.3	16.2	134	53.2	20	R
Hexachloroethane	0.032	0.0010	0.1000	0	32.2	20.6	124	56.1	31.3	R
Nitrobenzene	0.073	0.0010	0.1000	0	73.2	39.5	134	30.7	26.6	R
Pentachlorophenol	0.070	0.0010	0.1000	0	69.8	15	137	37.7	27.9	R
Pyridine	0.0043	0.0010	0.1000	0	4.26	15	129	53.6	47.4	RS
2,4,5-Trichlorophenol	0.075	0.0010	0.1000	0	75.3	15	158	25.6	36.9	
2,4,6-Trichlorophenol	0.096	0.0010	0.1000	0	95.8	15	153	33.2	37.2	
Cresols, Total	0.21	0.0010	0.3000	0	69.9	10.6	179	28.8	27.4	R
Surr: 2-Fluorophenol	0.10		0.2000		52.4	15	73.6	0	0	
Surr: Phenol-d5	0.082		0.2000		41.2	15	63.4	0	0	
Surr: 2,4,6-Tribromophenol	0.16		0.2000		81.4	15	119	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **1812e95-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **42420** RunNo: **56875**

Prep Date: **1/3/2019** Analysis Date: **1/9/2019** SeqNo: **1903285** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.077		0.1000		76.9	33.5	111	0	0	
Surr: 2-Fluorobiphenyl	0.062		0.1000		62.0	31.8	101	0	0	
Surr: 4-Terphenyl-d14	0.078		0.1000		78.4	17.2	84.7	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID	lcs-1 99.0uS eC	SampType:	LCS		TestCode:	SM2510B: Specific Conductance				
Client ID:	LCSW	Batch ID:	R56730		RunNo:	56730				
Prep Date:		Analysis Date:	1/2/2019		SeqNo:	1898774	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	99	5.0	99.00	0	100	80	120			

Sample ID	lcs-2 99.0uS eC	SampType:	LCS		TestCode:	SM2510B: Specific Conductance				
Client ID:	LCSW	Batch ID:	R56730		RunNo:	56730				
Prep Date:		Analysis Date:	1/2/2019		SeqNo:	1898798	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID	**MB-42524**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**42524**	RunNo:	**56898**					
Prep Date:	**1/9/2019**	Analysis Date:	**1/10/2019**	SeqNo:	**1903938**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-42524**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**42524**	RunNo:	**56898**					
Prep Date:	**1/9/2019**	Analysis Date:	**1/10/2019**	SeqNo:	**1903939**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.7	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID MB-A	SampType: MBLK	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: PBW	Batch ID: A56777	RunNo: 56777
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900123 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID LCS-A	SampType: LCS	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: LCSW	Batch ID: A56777	RunNo: 56777
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900124 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	51	1.0	50.00	0	103	80	120			
Potassium	51	1.0	50.00	0	102	80	120			
Sodium	51	1.0	50.00	0	101	80	120			

Sample ID 1812E95-001DMS	SampType: MS	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: A56777	RunNo: 56777
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900141 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	73	1.0	50.00	20.95	104	75	125			

Sample ID 1812E95-001DMSD	SampType: MSD	TestCode: EPA Method 6010B: Dissolved Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: A56777	RunNo: 56777
Prep Date:	Analysis Date: 1/4/2019	SeqNo: 1900142 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	72	1.0	50.00	20.95	101	75	125	1.57	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1812E95

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID	MB-42405	SampType:	MBLK	TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW	Batch ID:	42405	RunNo:	56870				
Prep Date:	1/2/2019	Analysis Date:	1/9/2019	SeqNo:	1903095	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-42405	SampType:	LCS	TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSW	Batch ID:	42405	RunNo:	56870				
Prep Date:	1/2/2019	Analysis Date:	1/9/2019	SeqNo:	1903096	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0	97.5	80	120			
Barium	0.48	0.020	0.5000	0	96.3	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.1	80	120			
Chromium	0.49	0.0060	0.5000	0	98.0	80	120			
Lead	0.48	0.0050	0.5000	0	95.0	80	120			
Selenium	0.45	0.050	0.5000	0	90.8	80	120			
Silver	0.097	0.0050	0.1000	0	97.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-R56892**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/7/2019**	SeqNo: **1903741**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID **LCS-R56892**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/7/2019**	SeqNo: **1903742**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.101		0.1000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-R56892**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/9/2019**	SeqNo: **1903744**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID **LCS-R56892**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R56892**	RunNo: **56892**							
Prep Date:	Analysis Date: **1/9/2019**	SeqNo: **1903745**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.45		0.5000	0	90.6	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R56730**	RunNo: **56730**							
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898751**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R56730**	RunNo: **56730**							
Prep Date:	Analysis Date: **1/2/2019**	SeqNo: **1898752**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.96	20.00	80.00	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1812E95**

18-Jan-19

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 3 Inj Well

Sample ID **MB-42426**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **42426**	RunNo: **56796**
Prep Date: **1/3/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901042** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-42426**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **42426**	RunNo: **56796**
Prep Date: **1/3/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901043** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1812E95 RcptNo: 1

Received By: Andy Freeman 12/29/2018 11:00:00 AM

Completed By: Erin Melendrez 12/31/2018 9:08:51 AM

Reviewed By: DAD 12/31/18

Labeled by: JAB 12/31/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐	
2. How was the sample delivered?	Courier			

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐	
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐	
5. Sample(s) in proper container(s)?	Yes ☑	No ☐		
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐		
7. Are samples (except VOA and ONG) properly preserved?	Yes ☐	No ☑		
8. Was preservative added to bottles?	Yes ☑	No ☐	NA ☐	
9. VOA vials have zero headspace?	Yes ☑	No ☐	HNO3 See remarks No VOA Vials ☐	
10. Were any sample containers received broken?	Yes ☐	No ☑	2 JAB 12/31/18	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 1; 2 (<2 or >12 unless noted)	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? Yes	
13. Is it clear what analyses were requested?	Yes ☑	No ☐		
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: JAB 12/31/18	

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑	

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks.

For dissolved metals analysis: Poured off and filter approx. 125mLs into separate container from extra bottle and preserved with 0.4mLs HNO3 for preffered pH. Held 24 hours prior to analysis

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P O Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251641

Project Manager:

Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.7 °

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1812E95	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals. only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A									
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X										
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X											
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X															
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X														
12/27/18	9:50	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X													

Date:	Time:	Relinquished by:	Received by:	Date Time
12-27-18	12:00	Brad Hilliard		12/27/18 1100
Date:	Time:	Relinquished by:	Received by:	Date Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade. Field pH: 7.28 Field temp: 31.5°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	**Contaminant**	**SW-846 Method**	**Regulatory Level (mg/l)**
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallower 200 - 250 ft bgs

Need All

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HOLLYFRONTIER.

October 29, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 7012

RE: 2018 3rd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, HollyFrontier Navajo Refining LLC.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1285 psig and the average flows were 220 gpm for WDW-1, 92 gpm for WDW-2 and 118 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2018 to September 30, 2018. We have disposed a total of 1,510,625 barrels of fluid into the three wells during the third quarter of 2018. The volume per well is:

- 693,900 barrels into WDW-1; 30-015-27592
- 357,879 barrels into WDW-2; 30-015-20894
- 458,846 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

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Page 4811 of 5828

2018 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												**Previous Quarter**		41,745,246
Jul-18	1,378	1,400	1,315	248	341	73	385	491	195	8,503	10,526	4,320	263,593	42,008,839
Aug-18	1,304	1,400	936	221	657	41	443	836	136	7,577	10,629	5,726	234,887	42,243,726
Sep-18	1,224	1,400	920	190	535	49	397	705	93	6,514	11,623	7,954	195,420	42,439,146
Monthly Avg	1,302			220										
30-015-20894 WDW-2												**Previous Quarter**		27,230,835
Jul-18	1,349	1,400	960	101	114	0	440	1,102	260	3,463	3,909	0	107,349	27,338,184
Aug-18	1,305	1,400	942	96	118	0	415	646	316	3,291	4,046	0	138,222	27,476,406
Sep-18	1,211	1,400	926	78	135	1	419	549	330	2,674	4,629	34	112,308	27,588,714
Monthly Avg	1,286			80										
30-015-26575 WDW-3												**Previous Quarter**		18,617,191
Jul-18	1,338	1,400	1,298	135	142	117	363	454	174	4,629	4,869	4,011	143,486	18,760,677
Aug-18	1,258	1,400	948	116	156	0	570	931	239	3,977	5,349	0	167,040	18,927,717
Sep-18	1,195	1,400	931	103	138	2	639	849	325	3,531	4,731	69	148,320	19,076,037
Monthly Avg	1,264			112								**Total Injected fluids:**		
AVG:	1,285			158										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	42,439,146	41,745,246	693,900
WDW2	27,588,714	27,230,835	357,879
WDW3	19,076,037	18,617,191	458,846
	89,103,897	87,593,272	1,510,625

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 15, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 and 3 Inj Well OrderNo.: 1809619

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/12/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1809619**
Date Reported: **10/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1809619-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2018 9:24:00 AM
Received Date: 9/12/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SPECIFIC GRAVITY						Analyst: **JDC**	
Specific Gravity	0.9997	0			1	9/14/2018 2:05:00 PM	R54162
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	25	2.0	*	mg/L	20	9/13/2018 3:30:00 AM	R54103
Chloride	420	50		mg/L	100	10/2/2018 7:04:14 PM	R54600
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Bromide	0.90	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	9/13/2018 3:23:51 AM	R54103
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	9/13/2018 3:30:00 AM	R54103
Sulfate	2400	50		mg/L	100	10/2/2018 7:04:14 PM	R54600
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5500	5.0		µmhos/c	1	9/18/2018 12:32:37 PM	R54265
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	119.6	20.00		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
Total Alkalinity (as CaCO3)	119.6	20.00		mg/L Ca	1	9/18/2018 12:32:37 PM	R54265
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4180	40.0	*D	mg/L	1	8/18/2019 7:19:00 PM	40386
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	7.07		H	pH units	1	9/18/2018 12:32:37 PM	R54265
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	9/13/2018 12:27:55 PM	40321
MERCURY, TCLP						Analyst: **rde**	
Mercury	ND	0.020		mg/L	1	10/3/2018 3:45:28 PM	40779
EPA METHOD 6010B: TCLP METALS						Analyst: **pmf**	
Arsenic	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Barium	ND	100		mg/L	1	10/2/2018 3:33:44 PM	40718
Cadmium	ND	1.0		mg/L	1	10/2/2018 3:33:44 PM	40718
Chromium	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Lead	ND	5.0		mg/L	1	10/2/2018 3:33:44 PM	40718
Selenium	ND	1.0		mg/L	1	10/2/2018 2:37:44 PM	40718
Silver	ND	5.0		mg/L	1	10/2/2018 2:37:44 PM	40718
EPA 6010B: METALS						Analyst: **ELS**	
Aluminum	5.3	0.10		mg/L	5	10/11/2018 8:56:07 AM	40718
Antimony	ND	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Arsenic	0.050	0.020		mg/L	1	10/11/2018 8:04:22 AM	40718

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1809619**
Date Reported: **10/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1809619-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2018 9:24:00 AM
Received Date: 9/12/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: METALS						Analyst: **ELS**	
Barium	0.022	0.020		mg/L	1	10/10/2018 11:36:58 AM	40718
Beryllium	ND	0.0030		mg/L	1	10/10/2018 11:36:58 AM	40718
Cadmium	ND	0.0020		mg/L	1	10/10/2018 11:36:58 AM	40718
Calcium	63	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Chromium	ND	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Cobalt	ND	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Copper	0.013	0.0060		mg/L	1	10/10/2018 11:36:58 AM	40718
Iron	3.6	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Lead	ND	0.0050		mg/L	1	10/10/2018 11:36:58 AM	40718
Magnesium	21	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Manganese	0.13	0.0020		mg/L	1	10/10/2018 11:36:58 AM	40718
Nickel	0.023	0.010		mg/L	1	10/10/2018 11:36:58 AM	40718
Potassium	75	1.0		mg/L	1	10/10/2018 11:36:58 AM	40718
Selenium	ND	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Silver	ND	0.0050		mg/L	1	10/10/2018 11:36:58 AM	40718
Sodium	1300	50		mg/L	50	10/10/2018 11:42:09 AM	40718
Thallium	ND	0.050		mg/L	1	10/10/2018 12:31:48 PM	40718
Vanadium	0.052	0.050		mg/L	1	10/10/2018 11:36:58 AM	40718
Zinc	0.066	0.020		mg/L	1	10/10/2018 11:36:58 AM	40718

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-001	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001D / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1,1,2-Tetrachloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,1-Trichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1,2-Trichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-Dichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-Dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,1-dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2,3-Trichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dibromo-3-chloropropane(DBCP)	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dibromoethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichlorobenzene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,2-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,3-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
1,4-Dichlorobenzene	ND	ug/L	0.5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2,2-Dichloropropane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2-Butanone	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
2-hexanone	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acetone	886	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acetonitrile	130	ug/L	100	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acrolein	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Acrylonitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Allyl Chloride	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Benzene	161	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromochloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromodichloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Bromoform	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0026; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Sample Number 180919003-001 **Sampling Date** 9/11/2018 **Date/Time Received** 9/14/201811:23 AM
Client Sample ID 1809619-001D / WDW-1,2,&3 EFFLUENT **Sampling Time** 9:24 AM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Bromomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Carbon disulfide	11.8	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Carbon Tetrachloride	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chlorobenzene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroform	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Chloroprene	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
cis-1,2-dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
cis-1,3-Dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dibromochloromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dibromomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Dichlorodifluoromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Ethyl methacrylate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Ethylbenzene	89.9	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Iodomethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Isobutanol	ND	ug/L	1000	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
m+p-Xylene	197	ug/L	10	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methacrylonitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl ethyl ketone (MEK)	35.8	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl isobutyl ketone (MIBK)	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methyl Methacrylate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Methylene chloride	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
o-Xylene	114	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Propionitrile	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Styrene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Tetrachloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Toluene	378	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C586; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-001	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001D / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
trans-1,2-Dichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
trans-1,3-Dichloropropene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
trans-1-4-Dichloro-2-butene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Trichloroethene	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Trichlorofiouromethane	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Vinyl acetate	ND	ug/L	25	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Vinyl Chloride	ND	ug/L	5	9/25/2018 12:36:00 PM	SAT	EPA 8260C	
Epichlorohydrin	ND	ug/L	50	9/25/2018 12:36:00 PM	SAT	EPA 8260C	

Surrogate Data

Sample Number 180919003-001

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260C	108.2	70-130
1,2-Dichlorobenzene-d4	EPA 8260C	99.6	70-130
4-Bromofluorobenzene	EPA 8260C	98.0	70-130
4-Bromofluorobenzene	EPA 8260C	104.0	70-130
Toluene-d8	EPA 8260C	98.4	70-130
Toluene-d8	EPA 8260C	99.6	70-130

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Trichloroethene	9.40	ug/L	10	94.0	80-120	9/25/2018	9/25/2018
Toluene	9.79	ug/L	10	97.9	80-120	9/25/2018	9/25/2018
Tetrachloroethene	9.13	ug/L	10	91.3	80-120	9/25/2018	9/25/2018
o-Xylene	9.64	ug/L	10	96.4	80-120	9/25/2018	9/25/2018
Ethylbenzene	9.92	ug/L	10	99.2	80-120	9/25/2018	9/25/2018
Chlorobenzene	9.78	ug/L	10	97.8	80-120	9/25/2018	9/25/2018
Benzene	9.79	ug/L	10	97.9	80-120	9/25/2018	9/25/2018
1,1-Dichloroethene	9.57	ug/L	10	95.7	80-120	9/25/2018	9/25/2018

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Trichloroethene	9.69	ug/L	10	96.9	3.0	0-25	9/25/2018	9/25/2018
Toluene	10.1	ug/L	10	101.0	3.1	0-25	9/25/2018	9/25/2018
Tetrachloroethene	9.48	ug/L	10	94.8	3.8	0-25	9/25/2018	9/25/2018
o-Xylene	10.3	ug/L	10	103.0	6.6	0-25	9/25/2018	9/25/2018
Ethylbenzene	10.2	ug/L	10	102.0	2.8	0-25	9/25/2018	9/25/2018
Chlorobenzene	10.4	ug/L	10	104.0	6.1	0-25	9/25/2018	9/25/2018
Benzene	10.4	ug/L	10	104.0	6.0	0-25	9/25/2018	9/25/2018
1,1-Dichloroethene	9.87	ug/L	10	98.7	3.1	0-25	9/25/2018	9/25/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,1,1,2-Tetrachloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,1-Trichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,2,2-Tetrachloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1,2-Trichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-Dichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-Dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,1-dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2,3-Trichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dibromo-3-chloropropane(DBCP)	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dibromoethane	ND	ug/L	0.5	9/25/2018	9/25/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87693; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2-Dichlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dichloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,2-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,3-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
1,4-Dichlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
2,2-Dichloropropane	ND	ug/L	0.5	9/25/2018	9/25/2018
2-Butanone	ND	ug/L	2.5	9/25/2018	9/25/2018
2-hexanone	ND	ug/L	0.5	9/25/2018	9/25/2018
Acetone	ND	ug/L	2.5	9/25/2018	9/25/2018
Acetonitrile	ND	ug/L	0.5	9/25/2018	9/25/2018
Acrolein	ND	ug/L	2.5	9/25/2018	9/25/2018
Acrylonitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Allyl Chloride	ND	ug/L	0.5	9/25/2018	9/25/2018
Benzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromochloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromodichloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromoform	ND	ug/L	0.5	9/25/2018	9/25/2018
Bromomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Carbon disulfide	ND	ug/L	0.5	9/25/2018	9/25/2018
Carbon Tetrachloride	ND	ug/L	0.5	9/25/2018	9/25/2018
Chlorobenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroform	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Chloroprene	ND	ug/L	0.5	9/25/2018	9/25/2018
cis-1,2-dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
cis-1,3-Dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
Dibromochloromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Dibromomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Dichlorodifluoromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Ethyl methacrylate	ND	ug/L	2.5	9/25/2018	9/25/2018
Ethylbenzene	ND	ug/L	0.5	9/25/2018	9/25/2018
Iodomethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Isobutanol	ND	ug/L	10	9/25/2018	9/25/2018
m+p-Xylene	ND	ug/L	1	9/25/2018	9/25/2018
Methacrylonitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Methyl ethyl ketone (MEK)	ND	ug/L	2.5	9/25/2018	9/25/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Methyl isobutyl ketone (MIBK)	ND	ug/L	2.5	9/25/2018	9/25/2018
Methyl Methacrylate	ND	ug/L	2.5	9/25/2018	9/25/2018
Methylene chloride	ND	ug/L	2.5	9/25/2018	9/25/2018
o-Xylene	ND	ug/L	0.5	9/25/2018	9/25/2018
Propionitrile	ND	ug/L	2.5	9/25/2018	9/25/2018
Styrene	ND	ug/L	0.5	9/25/2018	9/25/2018
Tetrachloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
Toluene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1,2-Dichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1,3-Dichloropropene	ND	ug/L	0.5	9/25/2018	9/25/2018
trans-1-4-Dichloro-2-butene	ND	ug/L	0.5	9/25/2018	9/25/2018
Trichloroethene	ND	ug/L	0.5	9/25/2018	9/25/2018
Trichlorofluoromethane	ND	ug/L	0.5	9/25/2018	9/25/2018
Vinyl acetate	ND	ug/L	0.5	9/25/2018	9/25/2018
Vinyl Chloride	ND	ug/L	0.5	9/25/2018	9/25/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2,4-Trichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,2-Diphenyl hydrazine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3,5-TNB	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,3-DNB	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Dichlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Dioxane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1,4-Naphthoquinone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1-Methylnaphthalene	56.5	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
1-Naphthylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,2-Oxybis(1-chloropropane)	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,3,5,6-Tetrachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dimethylphenol	123	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
2,4-Dinitrotoluene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,6-Dichlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Acetylaminofluorene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Chlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Methylnaphthalene	59.6	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Methylphenol	585	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Naphthylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Nitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
2-Picoline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3,3-Dimethylbenzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3+4-Methylphenol	1060	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3-Methylcholanthrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
3-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Aminobiphenyl	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
4-Chloro-3-methylphenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Chloroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitroaniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitrophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
4-Nitroquinoline-1-oxide	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
5-Nitro-o-toluidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
7,12-Dimethylbenz(a)anthracene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
a,a-Dimethylphenethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acenaphthene	ND	ug/L	5	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acenaphthylene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Acetophenone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Aniline	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Anthracene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Aramite	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo(ghi)perylene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Benzo[k]fluoranthene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Benzyl alcohol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Chloroethyl)ether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Butylbenzylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Carbazole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Chlorobenzilate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Chrysene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Diallate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Diethylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dimethoate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Dimethylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
diphenylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Disulfoton	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Ethyl methanesulfonate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Ethyl parathion	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Famphur	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Fluoranthene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Fluorene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorobenzene	ND	ug/L	10	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachloroethane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachloropropene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Hexachorophene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	1	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isodrin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isophorone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Isosafrole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Kepone	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methapyrilene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methyl methanesulfonate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Methyl parathion	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Naphthalene	123	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-002	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/201811:23 AM
Client Sample ID	1809619-001E / WDW-1,2,&3 EFFLUENT			**Extraction Date**	9/18/2018
Matrix	Water	**Sampling Time**	9:24 AM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Nitrosodimethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-nitrosodibutylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosodiethylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitroso-di-n-propylamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosodiphenylamine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosomethylethylamine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosomorpholine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosopiperadine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
n-Nitrosopyrrolidine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
o,o,o-Triethyl phosphorothioate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
o-Toluidine	ND	ug/L	20	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
p-(Dimethylamino)azobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachlorobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachloroethane	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachloronitrobenzene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenacetin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenanthrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Phenol	5330	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Sample Number 180919003-002 **Sampling Date** 9/11/2018 **Date/Time Received** 9/14/201811:23 AM
Client Sample ID 1809619-001E / WDW-1,2,&3 EFFLUENT **Extraction Date** 9/18/2018
Matrix Water **Sampling Time** 9:24 AM
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Phorate	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
p-Phenylenediamine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pronamide	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pyrene	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Pyridine	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Safrole	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Sulfotep	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	
Thionazin	ND	ug/L	50	9/27/2018 12:32:00 AM	TGT	EPA 8270D	

Surrogate Data

Sample Number 180919003-002

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	100.4	63-122
2-Fluorobiphenyl	EPA 8270D	82.8	58-127
2-Fluorophenol	EPA 8270D	85.6	44-119
Nitrobenzene-d5	EPA 8270D	77.6	58-120
Phenol-d5	EPA 8270D	71.6	52-115
Terphenyl-d14	EPA 8270D	58.8	22-133

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 180919003
Project Name: 1809619

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Pyrene	4.75	ug/L	5	95.0	45-138	9/18/2018	9/26/2018
Phenol	4.17	ug/L	5	83.4	45-134	9/18/2018	9/26/2018
Pentachlorophenol	4.06	ug/L	5	81.2	22-138	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	4.57	ug/L	5	91.4	46-140	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	5.26	ug/L	5	105.2	43-142	9/18/2018	9/26/2018
Acenaphthene	4.50	ug/L	5	90.0	36-122	9/18/2018	9/26/2018
4-Nitrophenol	4.96	ug/L	5	99.2	19-137	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	4.78	ug/L	5	95.6	42-139	9/18/2018	9/26/2018
2-Chlorophenol	4.39	ug/L	5	87.8	50-131	9/18/2018	9/26/2018
2,4-Dinitrotoluene	4.75	ug/L	5	95.0	49-134	9/18/2018	9/26/2018
1,4-Dichlorobenzene	3.74	ug/L	5	74.8	28-108	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	3.84	ug/L	5	76.8	33-109	9/18/2018	9/26/2018

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Pyrene	4.84	ug/L	5	96.8	1.9	0-36	9/18/2018	9/26/2018
Phenol	4.39	ug/L	5	87.8	5.1	0-35	9/18/2018	9/26/2018
Pentachlorophenol	4.09	ug/L	5	81.8	0.7	0-47	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	4.96	ug/L	5	99.2	8.2	0-38	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	5.37	ug/L	5	107.4	2.1	0-50	9/18/2018	9/26/2018
Acenaphthene	4.71	ug/L	5	94.2	4.6	0-23	9/18/2018	9/26/2018
4-Nitrophenol	5.25	ug/L	5	105.0	5.7	0-50	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	4.90	ug/L	5	98.0	2.5	0-33	9/18/2018	9/26/2018
2-Chlorophenol	4.74	ug/L	5	94.8	7.7	0-50	9/18/2018	9/26/2018
2,4-Dinitrotoluene	4.98	ug/L	5	99.6	4.7	0-47	9/18/2018	9/26/2018
1,4-Dichlorobenzene	4.07	ug/L	5	81.4	8.5	0-27	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	3.99	ug/L	5	79.8	3.8	0-27	9/18/2018	9/26/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2,4,5-Tetrachlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,2,4-Trichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,2-Diphenyl hydrazine	ND	ug/L	5	9/18/2018	9/26/2018
1,3,5-TNB	ND	ug/L	5	9/18/2018	9/26/2018
1,3-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,3-DNB	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Dichlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Dioxane	ND	ug/L	5	9/18/2018	9/26/2018
1,4-Naphthoquinone	ND	ug/L	5	9/18/2018	9/26/2018
1-Methylnaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
1-Naphthylamine	ND	ug/L	5	9/18/2018	9/26/2018
2,2-Oxybis(1-chloropropane)	ND	ug/L	5	9/18/2018	9/26/2018
2,3,4,6-Tetrachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,3,5,6-Tetrachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4,5-Trichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4,6-Trichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dimethylphenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dinitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,4-Dinitrotoluene	ND	ug/L	5	9/18/2018	9/26/2018
2,6-Dichlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2,6-Dinitrotoluene	ND	ug/L	5	9/18/2018	9/26/2018
2-Acetylaminofluorene	ND	ug/L	5	9/18/2018	9/26/2018
2-Chloronaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
2-Chlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Methylnaphthalene	ND	ug/L	5	9/18/2018	9/26/2018
2-Methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Naphthylamine	ND	ug/L	5	9/18/2018	9/26/2018
2-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
2-Nitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
2-Picoline	ND	ug/L	5	9/18/2018	9/26/2018
3,3'-Dichlorobenzidine	ND	ug/L	5	9/18/2018	9/26/2018
3,3-Dimethylbenzidine	ND	ug/L	5	9/18/2018	9/26/2018
3+4-Methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
3-Methylcholanthrene	ND	ug/L	5	9/18/2018	9/26/2018
3-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4,6-Dinitro-2-methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Aminobiphenyl	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

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Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1809619
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
4-Bromophenyl-phenylether	ND	ug/L	5	9/18/2018	9/26/2018
4-Chloro-3-methylphenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Chloroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4-Chlorophenyl-phenylether	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitroaniline	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitrophenol	ND	ug/L	5	9/18/2018	9/26/2018
4-Nitroquinoline-1-oxide	ND	ug/L	5	9/18/2018	9/26/2018
5-Nitro-o-toluidine	ND	ug/L	5	9/18/2018	9/26/2018
7,12-Dimethylbenz(a)anthracene	ND	ug/L	5	9/18/2018	9/26/2018
a,a-Dimethylphenethylamine	ND	ug/L	5	9/18/2018	9/26/2018
Acenaphthene	ND	ug/L	5	9/18/2018	9/26/2018
Acenaphthylene	ND	ug/L	5	9/18/2018	9/26/2018
Acetophenone	ND	ug/L	5	9/18/2018	9/26/2018
Aniline	ND	ug/L	5	9/18/2018	9/26/2018
Anthracene	ND	ug/L	5	9/18/2018	9/26/2018
Aramite	ND	ug/L	5	9/18/2018	9/26/2018
Benzidine	ND	ug/L	5	9/18/2018	9/26/2018
Benzo(ghi)perylene	ND	ug/L	5	9/18/2018	9/26/2018
Benzo[a]anthracene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[a]pyrene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[b]fluoranthene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzo[k]fluoranthene	ND	ug/L	0.1	9/18/2018	9/26/2018
Benzyl alcohol	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Chloroethoxy)methane	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Chloroethyl)ether	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-chloroisopropyl)ether	ND	ug/L	5	9/18/2018	9/26/2018
bis(2-Ethylhexyl)phthalate	ND	ug/L	5	9/18/2018	9/26/2018
Butylbenzylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Carbazole	ND	ug/L	5	9/18/2018	9/26/2018
Chlorobenzilate	ND	ug/L	5	9/18/2018	9/26/2018
Chrysene	ND	ug/L	0.1	9/18/2018	9/26/2018
Diallate	ND	ug/L	5	9/18/2018	9/26/2018
Dibenz[a,h]anthracene	ND	ug/L	0.1	9/18/2018	9/26/2018
Dibenzofuran	ND	ug/L	5	9/18/2018	9/26/2018
Diethylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Dimethoate	ND	ug/L	5	9/18/2018	9/26/2018
Dimethylphthalate	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Di-n-butylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
Di-n-octylphthalate	ND	ug/L	5	9/18/2018	9/26/2018
diphenylamine	ND	ug/L	5	9/18/2018	9/26/2018
Disulfoton	ND	ug/L	5	9/18/2018	9/26/2018
Ethyl methanesulfonate	ND	ug/L	5	9/18/2018	9/26/2018
Ethyl parathion	ND	ug/L	5	9/18/2018	9/26/2018
Famphur	ND	ug/L	5	9/18/2018	9/26/2018
Fluoranthene	ND	ug/L	5	9/18/2018	9/26/2018
Fluorene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachlorobenzene	ND	ug/L	1	9/18/2018	9/26/2018
Hexachlorobutadiene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachlorocyclopentadiene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachloroethane	ND	ug/L	5	9/18/2018	9/26/2018
Hexachloropropene	ND	ug/L	5	9/18/2018	9/26/2018
Hexachorophene	ND	ug/L	5	9/18/2018	9/26/2018
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.1	9/18/2018	9/26/2018
Isodrin	ND	ug/L	5	9/18/2018	9/26/2018
Isophorone	ND	ug/L	5	9/18/2018	9/26/2018
Isosafrole	ND	ug/L	5	9/18/2018	9/26/2018
Kepone	ND	ug/L	5	9/18/2018	9/26/2018
Methapyrilene	ND	ug/L	5	9/18/2018	9/26/2018
Methyl methanesulfonate	ND	ug/L	5	9/18/2018	9/26/2018
Methyl parathion	ND	ug/L	5	9/18/2018	9/26/2018
Naphthalene	ND	ug/L	5	9/18/2018	9/26/2018
Nitrobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Nitrosodimethylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-nitrosodibutylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosodiethylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitroso-di-n-propylamine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosodiphenylamine	ND	ug/L	2	9/18/2018	9/26/2018
n-Nitrosomethylethylamine	ND	ug/L	2	9/18/2018	9/26/2018
n-Nitrosomorpholine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosopiperadine	ND	ug/L	5	9/18/2018	9/26/2018
n-Nitrosopyrrolidine	ND	ug/L	5	9/18/2018	9/26/2018
o,o,o-Triethyl phosphorothioate	ND	ug/L	5	9/18/2018	9/26/2018
o-Toluidine	ND	ug/L	2	9/18/2018	9/26/2018
p-(Dimethylamino)azobenzene	ND	ug/L	5	9/18/2018	9/26/2018

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Pentachlorobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Pentachloroethane	ND	ug/L	5	9/18/2018	9/26/2018
Pentachloronitrobenzene	ND	ug/L	5	9/18/2018	9/26/2018
Pentachlorophenol	ND	ug/L	5	9/18/2018	9/26/2018
Phenacetin	ND	ug/L	5	9/18/2018	9/26/2018
Phenanthrene	ND	ug/L	1	9/18/2018	9/26/2018
Phenol	ND	ug/L	5	9/18/2018	9/26/2018
Phorate	ND	ug/L	5	9/18/2018	9/26/2018
p-Phenylenediamine	ND	ug/L	5	9/18/2018	9/26/2018
Pronamide	ND	ug/L	5	9/18/2018	9/26/2018
Pyrene	ND	ug/L	5	9/18/2018	9/26/2018
Pyridine	ND	ug/L	5	9/18/2018	9/26/2018
Safrole	ND	ug/L	5	9/18/2018	9/26/2018
Sulfotep	ND	ug/L	5	9/18/2018	9/26/2018
Thionazin	ND	ug/L	5	9/18/2018	9/26/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	180919003-003	**Sampling Date**	9/11/2018	**Date/Time Received**	9/14/2018 11:23 AM
Client Sample ID	1809619-001F / WDW-1,2,&3 EFFLUENT			**Sampling Time**	9:24 AM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/L	0.1	9/21/2018 1:00:00 PM	BKP	SW846 CH7	
Flashpoint	>200	°F		9/26/2018 4:45:00 PM	GPB	EPA 1010	
pH	7.28	ph Units		9/26/2018 1:40:00 PM	LAC	SM 4500pH-B	
Reactive sulfide	2.00	mg/L	0.19	10/1/2018 2:00:00 PM	ETL	SW846 CH7	

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87693; ID:ID00013; MT:CERT0026; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C585
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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	180919003
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1809619
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Reactive sulfide	0.180	mg/L	0.2	90.0	70-130	10/1/2018	10/1/2018
Cyanide (reactive)	0.520	mg/L	0.5	104.0	80-120	9/20/2018	9/25/2018

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
180925019-001	Reactive sulfide	0.385	0.693	mg/L	0.385	80.0	70-130	10/1/2018	10/1/2018
180919003-003	Cyanide (reactive)	ND	4.91	mg/L	5	98.2	80-120	9/20/2018	9/25/2018

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide (reactive)	4.76	mg/L	5	95.2	3.1	0-25	9/20/2018	9/25/2018

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide (reactive)	ND	mg/L	1	9/20/2018	9/25/2018
Reactive sulfide	ND	mg/L	0.1	10/1/2018	10/1/2018

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0026; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R54103**	RunNo: **54103**
Prep Date:	Analysis Date: **9/13/2018**	SeqNo: **1788975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R54103**	RunNo: **54103**
Prep Date:	Analysis Date: **9/13/2018**	SeqNo: **1788976** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	99.5	90	110			
Bromide	2.5	0.10	2.500	0	98.9	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	101	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R54600**	RunNo: **54600**
Prep Date:	Analysis Date: **10/2/2018**	SeqNo: **1811003** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R54600**	RunNo: **54600**
Prep Date:	Analysis Date: **10/2/2018**	SeqNo: **1811004** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.8	90	110			
Sulfate	9.3	0.50	10.00	0	93.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **lcs-1 98.6uS eC** SampType: **LCS** TestCode: **SM2510B: Specific Conductance**

Client ID: **LCSW** Batch ID: **R54265** RunNo: **54265**

Prep Date: Analysis Date: **9/18/2018** SeqNo: **1795469** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	98.30	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40321**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789572** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-40321**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789573** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	80	120			

Sample ID **1809619-001BMS**	SampType: **MS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789583** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0055	0.00020	0.005000	.00006886	110	75	125			

Sample ID **1809619-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **40321**	RunNo: **54130**
Prep Date: **9/12/2018**	Analysis Date: **9/13/2018**	SeqNo: **1789584** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0057	0.00020	0.005000	.00006886	112	75	125	2.54	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-40779**	SampType: **MBLK**		TestCode: **MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID: **40779**		RunNo: **54613**					
Prep Date:	**10/3/2018**	Analysis Date: **10/3/2018**		SeqNo: **1811409**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-40779**	SampType: **LCS**		TestCode: **MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID: **40779**		RunNo: **54613**					
Prep Date:	**10/3/2018**	Analysis Date: **10/3/2018**		SeqNo: **1811410**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	96.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1809619

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID MB-40718	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810218 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Chromium	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID LCS-40718	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810220 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	96.8	80	120			
Chromium	ND	5.0	0.5000	0	101	80	120			
Selenium	ND	1.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	106	80	120			

Sample ID 1809619-001CMS	SampType: MS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810226 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02964	98.4	75	125			
Chromium	ND	5.0	0.5000	0.0009400	97.2	75	125			
Selenium	ND	1.0	0.5000	0	107	75	125			
Silver	ND	5.0	0.1000	0.001420	109	75	125			

Sample ID 1809619-001CMSD	SampType: MSD	TestCode: EPA Method 6010B: TCLP Metals
Client ID: WDW-1,2,&3 Effluen	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810227 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02964	98.8	75	125	0	20	
Chromium	ND	5.0	0.5000	0.0009400	97.1	75	125	0	20	
Selenium	ND	1.0	0.5000	0	108	75	125	0	20	
Silver	ND	5.0	0.1000	0.001420	109	75	125	0	20	

Sample ID MB-40718	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 40718	RunNo: 54590
Prep Date: 10/1/2018	Analysis Date: 10/2/2018	SeqNo: 1810246 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	**MB-40718**	SampType: **MBLK**			TestCode: **EPA Method 6010B: TCLP Metals**					
Client ID:	**PBW**	Batch ID: **40718**			RunNo: **54590**					
Prep Date:	**10/1/2018**	Analysis Date: **10/2/2018**			SeqNo: **1810246**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Cadmium	ND	1.0								
Lead	ND	5.0								

Sample ID	**LCS-40718**	SampType: **LCS**			TestCode: **EPA Method 6010B: TCLP Metals**					
Client ID:	**LCSW**	Batch ID: **40718**			RunNo: **54590**					
Prep Date:	**10/1/2018**	Analysis Date: **10/2/2018**			SeqNo: **1810248**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	96.7	80	120			
Cadmium	ND	1.0	0.5000	0	103	80	120			
Lead	ND	5.0	0.5000	0	100	80	120			

Sample ID	**1809619-001CMS**	SampType: **MS**			TestCode: **EPA Method 6010B: TCLP Metals**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **40718**			RunNo: **54590**					
Prep Date:	**10/1/2018**	Analysis Date: **10/2/2018**			SeqNo: **1810254**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.09061	93.5	75	125			
Cadmium	ND	1.0	0.5000	0	103	75	125			
Lead	ND	5.0	0.5000	0	98.2	75	125			

Sample ID	**1809619-001CMSD**	SampType: **MSD**			TestCode: **EPA Method 6010B: TCLP Metals**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **40718**			RunNo: **54590**					
Prep Date:	**10/1/2018**	Analysis Date: **10/2/2018**			SeqNo: **1810255**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.09061	93.0	75	125	0	20	
Cadmium	ND	1.0	0.5000	0	99.7	75	125	0	20	
Lead	ND	5.0	0.5000	0	93.1	75	125	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40718**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**
Client ID: **PBW**	Batch ID: **40718**	RunNo: **54775**
Prep Date: **10/1/2018**	Analysis Date: **10/10/2018**	SeqNo: **1818830** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-40718**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSW**	Batch ID: **40718**	RunNo: **54775**
Prep Date: **10/1/2018**	Analysis Date: **10/10/2018**	SeqNo: **1818832** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.50	0.050	0.5000	0	100	80	120			
Barium	0.52	0.020	0.5000	0	104	80	120			
Beryllium	0.52	0.0030	0.5000	0	105	80	120			
Cadmium	0.52	0.0020	0.5000	0	104	80	120			
Calcium	48	1.0	50.00	0	95.2	80	120			
Chromium	0.51	0.0060	0.5000	0	102	80	120			
Cobalt	0.51	0.0060	0.5000	0	101	80	120			
Copper	0.51	0.0060	0.5000	0	103	80	120			
Iron	0.50	0.050	0.5000	0	99.6	80	120			
Lead	0.51	0.0050	0.5000	0	101	80	120			
Magnesium	50	1.0	50.00	0	99.4	80	120			
Manganese	0.47	0.0020	0.5000	0	95.0	80	120			
Nickel	0.51	0.010	0.5000	0	102	80	120			
Potassium	49	1.0	50.00	0	97.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**
15-Oct-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	LCS-40718	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	40718		RunNo:	54775				
Prep Date:	10/1/2018	Analysis Date:	10/10/2018		SeqNo:	1818832	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.50	0.050	0.5000	0	99.2	80	120			
Silver	0.11	0.0050	0.1000	0	110	80	120			
Sodium	51	1.0	50.00	0	102	80	120			
Vanadium	0.49	0.050	0.5000	0	98.2	80	120			
Zinc	0.49	0.020	0.5000	0	98.7	80	120			

Sample ID	MB-40718	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	40718		RunNo:	54775				
Prep Date:	10/1/2018	Analysis Date:	10/10/2018		SeqNo:	1818855	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	ND	0.050								

Sample ID	LCS-40718	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	40718		RunNo:	54775				
Prep Date:	10/1/2018	Analysis Date:	10/10/2018		SeqNo:	1818857	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.52	0.050	0.5000	0	103	80	120			

Sample ID	MB-40718	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	40718		RunNo:	54800				
Prep Date:	10/1/2018	Analysis Date:	10/11/2018		SeqNo:	1820075	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Arsenic	ND	0.020								

Sample ID	LCS-40718	SampType:	LCS		TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	40718		RunNo:	54800				
Prep Date:	10/1/2018	Analysis Date:	10/11/2018		SeqNo:	1820077	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.54	0.020	0.5000	0	108	80	120			
Arsenic	0.48	0.020	0.5000	0	96.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795420**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795421**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.20	20.00	80.00	0	97.7	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795444**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R54265**	RunNo: **54265**							
Prep Date:	Analysis Date: **9/18/2018**	SeqNo: **1795445**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.92	20.00	80.00	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **1809619-001A** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R54162** RunNo: **54162**

Prep Date: Analysis Date: **9/14/2018** SeqNo: **1790677** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9995	0						0.0200	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1809619**

15-Oct-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-40386**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **40386**	RunNo: **54232**
Prep Date: **9/17/2018**	Analysis Date: **8/18/2019**	SeqNo: **1793445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-40386**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **40386**	RunNo: **54232**
Prep Date: **9/17/2018**	Analysis Date: **8/18/2019**	SeqNo: **1793446** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	999	20.0	1000	0	99.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1809619 RcptNo: 1

Received By: Jazzmine Burkhead 9/12/2018 8:40:00 AM

Completed By: Ashley Gallegos 9/12/2018 12:31:07 PM

Reviewed By: 9/12/18

Labeled by: JAB 09/12/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1;2 (<2 or >12 unless noted)

Adjusted?

Checked by: JAB 09/12/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
X Standard ☐ Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: ☑ Yes ☐ No

Sample Temperature: 4.1+0.2(n) 4.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1809019	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X		
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
9/11/18	9:24	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/11/18	5:30	Brady Hubbard		09/12/18	08:40
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH=7.03
37.3°C

Courier

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

JUL 12 2018 PM01:17

HOLLYFRONTIER.

July 10, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 6664

RE: 2018 2nd Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1265 psig and the average flows were 281 gpm for WDW-1, 80 gpm for WDW-2 and 112 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2018 to June 30, 2018. We have disposed a total of 1,870,028 barrels of fluid into the three wells during the second quarter of 2018. The volume per well is:

- 1,108,783 barrels into WDW-1; 30-015-27592
- 320,640 barrels into WDW-2; 30-015-20894
- 440,605 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Lewis R. (Randy) Dade at 575-746-5281.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Released to Imaging: 7/12/2024 10:49:45 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 28, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1 2 and 3 Inj Well OrderNo.: 1806778

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/13/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JRR**
Fluoride	9.5	0.50	*	mg/L	5	6/13/2018 7:04:58 PM
Chloride	570	25		mg/L	50	6/18/2018 9:58:46 PM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	6/13/2018 7:04:58 PM
Bromide	1.6	0.50		mg/L	5	6/13/2018 7:04:58 PM
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	6/13/2018 7:04:58 PM
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	6/13/2018 7:04:58 PM
Sulfate	2100	25		mg/L	50	6/18/2018 9:58:46 PM
EPA METHOD 7470: MERCURY						Analyst: **rde**
Mercury	ND	0.00020		mg/L	1	6/22/2018 4:48:51 PM
MERCURY, TCLP						Analyst: **rde**
Mercury	ND	0.020		mg/L	1	6/22/2018 3:44:25 PM
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**
Arsenic	ND	5.0		mg/L	1	6/24/2018 6:29:55 PM
Barium	ND	100		mg/L	1	6/21/2018 9:34:34 AM
Cadmium	ND	1.0		mg/L	1	6/21/2018 9:34:34 AM
Chromium	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
Lead	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
Selenium	ND	1.0		mg/L	1	6/21/2018 12:16:01 PM
Silver	ND	5.0		mg/L	1	6/21/2018 9:34:34 AM
EPA 6010B: METALS						Analyst: **MED**
Aluminum	0.27	0.020		mg/L	1	6/24/2018 6:58:28 PM
Antimony	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Arsenic	ND	0.020		mg/L	1	6/24/2018 6:58:28 PM
Barium	0.028	0.020		mg/L	1	6/24/2018 6:58:28 PM
Beryllium	ND	0.0030		mg/L	1	6/24/2018 6:58:28 PM
Cadmium	ND	0.0020		mg/L	1	6/24/2018 6:58:28 PM
Calcium	110	5.0		mg/L	5	6/25/2018 1:17:11 PM
Chromium	ND	0.0060		mg/L	1	6/24/2018 6:58:28 PM
Cobalt	ND	0.0060		mg/L	1	6/24/2018 6:58:28 PM
Copper	ND	0.0060		mg/L	1	6/25/2018 12:25:43 PM
Iron	0.30	0.050		mg/L	1	6/24/2018 6:58:28 PM
Lead	ND	0.0050		mg/L	1	6/24/2018 6:58:28 PM
Magnesium	34	1.0		mg/L	1	6/25/2018 1:18:27 PM
Manganese	0.047	0.0020		mg/L	1	6/24/2018 6:58:28 PM
Nickel	ND	0.010		mg/L	1	6/24/2018 6:58:28 PM
Potassium	41	1.0		mg/L	1	6/25/2018 1:18:27 PM
Selenium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: METALS						Analyst: **MED**
Silver	ND	0.0050		mg/L	1	6/24/2018 6:58:28 PM
Sodium	1000	50		mg/L	50	6/25/2018 1:15:55 PM
Thallium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Vanadium	ND	0.050		mg/L	1	6/24/2018 6:58:28 PM
Zinc	ND	0.020		mg/L	1	6/24/2018 6:58:28 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
Benzene	ND	0.50		µg/L	1	6/19/2018
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/19/2018
2-Butanone	ND	5.0		µg/L	1	6/19/2018
Carbon Tetrachloride	ND	0.50		µg/L	1	6/19/2018
Chlorobenzene	ND	0.50		µg/L	1	6/19/2018
Chloroform	ND	0.50		µg/L	1	6/19/2018
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/19/2018
1,1-Dichloroethene	ND	0.50		µg/L	1	6/19/2018
Hexachlorobutadiene	ND	0.50		µg/L	1	6/19/2018
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/19/2018
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/19/2018
Vinyl chloride	ND	0.50		µg/L	1	6/19/2018
Surr: 1,2-Dichlorobenzene-d4	103	70-130		%Rec	1	6/19/2018
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	6/19/2018
Surr: Toluene-d8	102	70-130		%Rec	1	6/19/2018
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
2,4,5-Trichlorophenol	ND	50		µg/L	1	6/20/2018
2,4,6-Trichlorophenol	ND	50		µg/L	1	6/20/2018
2,4-Dinitrotoluene	ND	50		µg/L	1	6/20/2018
2-Methylphenol	ND	50		µg/L	1	6/20/2018
Hexachlorobenzene	ND	10		µg/L	1	6/20/2018
Hexachlorobutadiene	ND	50		µg/L	1	6/20/2018
Hexachloroethane	ND	50		µg/L	1	6/20/2018
Nitrobenzene	ND	50		µg/L	1	6/20/2018
Pentachlorophenol	ND	50		µg/L	1	6/20/2018
Phenol	ND	50		µg/L	1	6/20/2018
Pyridine	ND	50		µg/L	1	6/20/2018
Surr: 2,4,6-Tribromophenol	93.4	63-122		%Rec	1	6/20/2018
Surr: 2-Fluorobiphenyl	86.0	58-127		%Rec	1	6/20/2018
Surr: 2-Fluorophenol	81.8	44-119		%Rec	1	6/20/2018
Surr: Nitrobenzene-d5	88.8	58-120		%Rec	1	6/20/2018
Surr: Phenol-d5	101	52-115		%Rec	1	6/20/2018

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1806778**
Date Reported: **6/28/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well
Lab ID: 1806778-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 6/12/2018 8:43:00 AM
Received Date: 6/13/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
Surr: Terphenyl-d14	106	20-133		%Rec	1	6/20/2018
CORROSIVITY						Analyst: **SUB**
pH	8.05			pH Units	1	6/19/2018
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>200			°F	1	6/18/2018
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	ND	0.100		mg/L	1	6/20/2018
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	ND	0.20		mg/L	1	6/19/2018
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5900	5.0		µmhos/c	1	6/18/2018 5:39:09 PM
SM4500-H+B / 9040C: PH						Analyst: **JRR**
pH	7.96		H	pH units	1	6/18/2018 5:39:09 PM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	237.5	20.00		mg/L Ca	1	6/18/2018 5:39:09 PM
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	6/18/2018 5:39:09 PM
Total Alkalinity (as CaCO3)	237.5	20.00		mg/L Ca	1	6/18/2018 5:39:09 PM
SPECIFIC GRAVITY						Analyst: **SRM**
Specific Gravity	1.006	0			1	6/18/2018 7:15:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **sat**
Total Dissolved Solids	4100	100	*D	mg/L	1	6/15/2018 1:01:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R51968**	RunNo: **51968**
Prep Date:	Analysis Date: **6/13/2018**	SeqNo: **1699258** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R51968**	RunNo: **51968**
Prep Date:	Analysis Date: **6/13/2018**	SeqNo: **1699259** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.7	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.9	90	110			
Bromide	2.3	0.10	2.500	0	90.2	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.4	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	92.0	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A52074**	RunNo: **52074**
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1704016** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.500								
Sulfate	ND	0.500								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A52074**	RunNo: **52074**
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1704017** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.89	0.500	5.000	0	97.9	90	110			
Sulfate	9.64	0.500	10.00	0	96.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711983** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
2-Butanone	ND	2.5								
Benzene	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroform	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.50								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711984** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	9.9	0	10.00	0	98.6	80	120			
Benzene	9.7	0	10.00	0	96.6	80	120			
Chlorobenzene	9.5	0	10.00	0	94.8	80	120			
Tetrachloroethene (PCE)	9.3	0	10.00	0	93.0	80	120			
Trichloroethene (TCE)	9.7	0	10.00	0	96.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711986** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2-Methylphenol	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenol	ND	5.0								
Pyridine	ND	5.0								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711987** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	3.6	0	5.000	0	71.4	22	138			
Phenol	4.6	0	5.000	0	92.8	45	134			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **lcs-1 ~20uS eC** SampType: **LCS** TestCode: **SM2510B: Specific Conductance**

Client ID: **LCSW** Batch ID: **R52062** RunNo: **52062**

Prep Date: Analysis Date: **6/18/2018** SeqNo: **1703214** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	22	5.0	19.98	0	113	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38840**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **38840**	RunNo: **52177**
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709180** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-38840**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **38840**	RunNo: **52177**
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709181** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.7	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38837**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **38837**	RunNo: **52174**
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709087** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-38837**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **38837**	RunNo: **52174**
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709088** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	103	80	120			

Sample ID **TCLP#1-3752**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **38837**	RunNo: **52174**
Prep Date: **6/22/2018**	Analysis Date: **6/22/2018**	SeqNo: **1709107** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38797**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707267** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Silver	ND	5.0								

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707268** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	104	80	120			
Cadmium	ND	1.0	0.5000	0	103	80	120			
Chromium	ND	5.0	0.5000	0	101	80	120			
Lead	ND	5.0	0.5000	0	103	80	120			
Silver	ND	5.0	0.1000	0	110	80	120			

Sample ID **LCSD-38797**	SampType: **LCSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707269** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	104	80	120	0	20	
Cadmium	ND	1.0	0.5000	0	103	80	120	0	20	
Chromium	ND	5.0	0.5000	0	101	80	120	0	20	
Lead	ND	5.0	0.5000	0	104	80	120	0	20	
Silver	ND	5.0	0.1000	0	111	80	120	0	20	

Sample ID **MB-38797**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707278** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0								

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707279** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707279** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0	0.5000	0	97.2	80	120			

Sample ID **LCSD-38797**	SampType: **LCSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **38797**	RunNo: **52127**
Prep Date: **6/20/2018**	Analysis Date: **6/21/2018**	SeqNo: **1707280** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0	0.5000	0	105	80	120	0	20	

Sample ID **MB-38797**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709602** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								

Sample ID **LCS-38797**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709603** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	93.7	80	120			

Sample ID **LCSD-38797**	SampType: **LCSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSS02**	Batch ID: **38797**	RunNo: **52182**
Prep Date: **6/20/2018**	Analysis Date: **6/24/2018**	SeqNo: **1709612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.3	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38830** SampType: **MBLK** TestCode: **EPA 6010B: Metals**

Client ID: **PBW** Batch ID: **38830** RunNo: **52182**

Prep Date: **6/21/2018** Analysis Date: **6/24/2018** SeqNo: **1709613** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-38830** SampType: **LCS** TestCode: **EPA 6010B: Metals**

Client ID: **LCSW** Batch ID: **38830** RunNo: **52182**

Prep Date: **6/21/2018** Analysis Date: **6/24/2018** SeqNo: **1709614** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	110	80	120			
Antimony	0.46	0.050	0.5000	0	92.9	80	120			
Arsenic	0.47	0.020	0.5000	0	95.0	80	120			
Barium	0.50	0.020	0.5000	0	101	80	120			
Beryllium	0.53	0.0030	0.5000	0	106	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.4	80	120			
Chromium	0.47	0.0060	0.5000	0	94.5	80	120			
Cobalt	0.47	0.0060	0.5000	0	94.6	80	120			
Iron	0.51	0.050	0.5000	0	102	80	120			
Lead	0.47	0.0050	0.5000	0	94.5	80	120			
Manganese	0.49	0.0020	0.5000	0	97.7	80	120			
Nickel	0.49	0.010	0.5000	0	98.2	80	120			
Selenium	0.45	0.050	0.5000	0	89.1	80	120			
Silver	0.11	0.0050	0.1000	0	111	80	120			
Thallium	0.50	0.050	0.5000	0	99.6	80	120			
Vanadium	0.50	0.050	0.5000	0	99.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **LCS-38830** SampType: **LCS** TestCode: **EPA 6010B: Metals**
Client ID: **LCSW** Batch ID: **38830** RunNo: **52182**
Prep Date: **6/21/2018** Analysis Date: **6/24/2018** SeqNo: **1709614** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.46	0.020	0.5000	0	91.6	80	120			

Sample ID **1806778-001BMS** SampType: **MS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **38830** RunNo: **52182**
Prep Date: **6/21/2018** Analysis Date: **6/24/2018** SeqNo: **1709617** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.86	0.020	0.5000	0.2671	119	75	125			
Antimony	0.46	0.050	0.5000	0	91.6	75	125			
Arsenic	0.47	0.020	0.5000	0	94.1	75	125			
Barium	0.52	0.020	0.5000	0.02756	97.7	75	125			
Beryllium	0.49	0.0030	0.5000	0	98.7	75	125			
Cadmium	0.49	0.0020	0.5000	0	97.2	75	125			
Chromium	0.46	0.0060	0.5000	0	92.0	75	125			
Cobalt	0.45	0.0060	0.5000	0.001940	89.7	75	125			
Iron	0.78	0.050	0.5000	0.3011	96.1	75	125			
Lead	0.47	0.0050	0.5000	0	93.4	75	125			
Manganese	0.51	0.0020	0.5000	0.04674	92.9	75	125			
Nickel	0.48	0.010	0.5000	0.009450	94.8	75	125			
Selenium	0.50	0.050	0.5000	0.03875	92.8	75	125			
Silver	0.12	0.0050	0.1000	0.001780	116	75	125			
Thallium	0.47	0.050	0.5000	0	94.3	75	125			
Vanadium	0.53	0.050	0.5000	0.03973	97.1	75	125			
Zinc	0.46	0.020	0.5000	0.01812	89.2	75	125			

Sample ID **1806778-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **38830** RunNo: **52182**
Prep Date: **6/21/2018** Analysis Date: **6/24/2018** SeqNo: **1709618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.87	0.020	0.5000	0.2671	120	75	125	0.456	20	
Antimony	0.44	0.050	0.5000	0	88.1	75	125	3.91	20	
Arsenic	0.47	0.020	0.5000	0	93.5	75	125	0.578	20	
Barium	0.51	0.020	0.5000	0.02756	96.9	75	125	0.792	20	
Beryllium	0.49	0.0030	0.5000	0	97.5	75	125	1.14	20	
Cadmium	0.48	0.0020	0.5000	0	95.5	75	125	1.78	20	
Chromium	0.45	0.0060	0.5000	0	91.0	75	125	1.12	20	
Cobalt	0.44	0.0060	0.5000	0.001940	88.0	75	125	1.87	20	
Iron	0.79	0.050	0.5000	0.3011	97.2	75	125	0.718	20	
Lead	0.46	0.0050	0.5000	0	91.2	75	125	2.36	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	1806778-001BMSD	SampType:	MSD	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52182					
Prep Date:	6/21/2018	Analysis Date:	6/24/2018	SeqNo:	1709618	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.51	0.0020	0.5000	0.04674	93.2	75	125	0.328	20	
Nickel	0.47	0.010	0.5000	0.009450	93.0	75	125	1.82	20	
Selenium	0.50	0.050	0.5000	0.03875	92.2	75	125	0.590	20	
Silver	0.12	0.0050	0.1000	0.001780	116	75	125	0.356	20	
Thallium	0.47	0.050	0.5000	0	94.9	75	125	0.636	20	
Vanadium	0.53	0.050	0.5000	0.03973	97.6	75	125	0.477	20	
Zinc	0.46	0.020	0.5000	0.01812	87.8	75	125	1.53	20	

Sample ID	MB-38830	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710333	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.0060								

Sample ID	LCS-38830	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710334	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.47	0.0060	0.5000	0	94.0	80	120			

Sample ID	1806778-001BMS	SampType:	MS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710337	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.50	0.0060	0.5000	0	101	75	125			

Sample ID	1806778-001BMSD	SampType:	MSD	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710338	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.50	0.0060	0.5000	0	101	75	125	0.300	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID	MB-38830	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710647	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	LCS-38830	SampType:	LCS	TestCode:	EPA 6010B: Metals					
Client ID:	LCSW	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710648	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.9	80	120			
Magnesium	48	1.0	50.00	0	97.0	80	120			
Potassium	48	1.0	50.00	0	96.4	80	120			
Sodium	49	1.0	50.00	0	97.4	80	120			

Sample ID	1806778-001BMS	SampType:	MS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710653	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	82	1.0	50.00	34.10	95.8	75	125			
Potassium	89	1.0	50.00	40.69	96.0	75	125			

Sample ID	1806778-001BMSD	SampType:	MSD	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	38830	RunNo:	52203					
Prep Date:	6/21/2018	Analysis Date:	6/25/2018	SeqNo:	1710654	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	84	1.0	50.00	34.10	98.9	75	125	1.93	20	
Potassium	90	1.0	50.00	40.69	98.4	75	125	1.36	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1806778

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711993** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**
Prep Date:	Analysis Date: **6/20/2018**	SeqNo: **1711994** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.505		0.5000	0	101	80	20			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-R52251**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R52251**	RunNo: **52251**							
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711996**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.10								

Sample ID **LCS-R52251**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R52251**	RunNo: **52251**							
Prep Date:	Analysis Date: **6/19/2018**	SeqNo: **1711997**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company
Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703175**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703176**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.04	20.00	80.00	0	96.3	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703199**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R52062**	RunNo: **52062**							
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1703200**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.28	20.00	80.00	0	99.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specifed

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **1806778-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R52078** RunNo: **52078**

Prep Date: Analysis Date: **6/18/2018** SeqNo: **1704219** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.500	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806778**

28-Jun-18

Client: Navajo Refining Company

Project: Quarterly WDW 1 2 and 3 Inj Well

Sample ID **MB-38675**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **PBW**	Batch ID: **38675**	RunNo: **52038**							
Prep Date: **6/14/2018**	Analysis Date: **6/15/2018**	SeqNo: **1702120**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-38675**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**							
Client ID: **LCSW**	Batch ID: **38675**	RunNo: **52038**							
Prep Date: **6/14/2018**	Analysis Date: **6/15/2018**	SeqNo: **1702121**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1806778 RcptNo: 1

Received By: Jazzmine Burkhead 6/13/2018 9:45:00 AM
Completed By: Ashley Gallegos 6/13/2018 11:22:33 AM
Reviewed By: ENM 6/13/18 labeled by: JB 06/13/18

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 2;3 (<2 or >12 unless noted)
Adjusted? No
Checked by: JB

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standar X Rush

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager:
Robert Combs / Scott Denton / Randy Dade

Sampler: Brady Hubbard

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.3 + 0.0(CF) = 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1806 176	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X	
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X		
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X						
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X					
6/12/18	8:43	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X				

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6-12-18	4:00	Brady Hubbard		Courier JB	06/13/18	09:45
Date:	Time:	Relinquished by:	Received by:		Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH= 7.55, 45.4°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	Contaminant	SW-846 Method	Regulatory Level (mg/l)
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D008	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

Shallow to 200 - 250 ft bgs

Need All

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2018 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

		Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**		40,636,463
Apr-18	1,215	1,400	1,160	266	307	126	386	687	244	9,120	10,526	4,320	273,463	40,909,926
May-18	1,224	1,400	1,195	270	310	167	400	892	174	9,257	10,629	5,726	388,800	41,298,726
Jun-18	1,342	1,400	1,374	308	339	232	528	696	297	10,560	11,623	7,954	446,520	41,745,246
Monthly Avg	1,260			281										
30-015-20894 WDW-2													**Previous Quarter**		26,910,195
Apr-18	1,221	1,400	1,160	61	92	1	315	411	211	2,091	3,154	34	62,880	26,973,075
May-18	1,260	1,400	1,177	77	91	61	310	467	219	2,640	3,120	2,091	110,880	27,083,955
Jun-18	1,359	1,400	1,081	102	111	78	341	548	241	3,497	3,806	2,674	146,880	27,230,835
Monthly Avg	1,280			80										
30-015-26575 WDW-3													**Previous Quarter**		18,176,586
Apr-18	1,210	1,400	1,160	102	132	84	451	596	273	3,497	4,526	2,880	105,085	18,281,671
May-18	1,255	1,400	1,155	108	125	89	374	544	275	3,703	4,286	3,051	155,520	18,437,191
Jun-18	1,302	1,400	1,082	125	141	66	527	701	187	4,286	4,834	2,263	180,000	18,617,191
Monthly Avg	1,256			112								**Total Injected fluids:**		
AVG:	1266			158										

	Total BBLS	Beginning Volume	Ending Volume
WDW1	1,108,783	40,636,463	41,745,246
WDW2	320,640	26,910,195	27,230,835
WDW3	440,605	18,176,586	18,617,191
	1,870,028	85,723,244	87,593,272

HOLLYFRONTIER.

May 8, 2018

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 6510

RE: 2018 1st Quarter Injection Report for Wells WDW-1, WDW-2, WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2018 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1298 psig and the average flows were 133 gpm for WDW-1, 112 gpm for WDW-2 and 99 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits. The Mewbourne WDW-1; 30-015-27592, did have repairs due to well issues starting 01/08/2018. Repairs were made and C-103 submitted, MIT was witnessed on 3/7/2018 and well returned to service on 3/8/2018.

This report covers the period from January 1, 2018 to March 31, 2018. We have disposed a total of 1,424,202 barrels of fluid into the three wells during the first quarter of 2018. The volume per well is:

- 540,144 barrels into WDW-1; 30-015-27592
- 317,136 barrels into WDW-2; 30-015-20894
- 566,922 barrels into WDW-3; 30-015-26575

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-746-5487.

Respectfully,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

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Received by OCD: 5/16/2022 2:12:41 PM

2018 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1												**Previous Quarter**		40,096,319
Jan-18	1,361	1,400	1,364	134	144	80	1,142	1,393	213	4,152	4,937	2,743	174,384	40,270,703
Feb-18	1,305	1,400	1,195	128	142	96	1,297	1,393	1,192	4,389	4,869	3,291	184,320	40,455,023
Mar-18	1,183	1,400	1,374	126	454	96	504	1,270	331	3,160	15,566	3,291	181,440	40,636,463
Monthly Avg	1,363			133										
30-015-20894 WDW-2												**Previous Quarter**		26,593,059
Jan-18	1,389	1,400	1,344	114	351	107	479	730	308	3,548	12,034	3,669	140,016	26,733,075
Feb-18	1,312	1,400	1,177	75	118	69	361	447	279	2,571	4,046	2,366	108,000	26,841,075
Mar-18	1,263	1,400	1,081	48	111	54	335	468	232	1,477	3,806	1,851	69,120	26,910,195
Monthly Avg	1,300			112										
30-015-26575 WDW-3												**Previous Quarter**		17,609,664
Jan-18	1,340	1,400	1,248	152	162	119	555	663	430	4,721	5,554	4,080	198,282	17,807,946
Feb-18	1,282	1,400	1,155	133	159	100	535	593	441	4,560	5,451	3,429	191,520	17,999,466
Mar-18	1,251	1,400	1,082	123	157	53	467	587	380	3,808	5,383	1,817	177,120	18,176,586
Monthly Avg	1232			99								**Total Injected fluids:**		85,723,244

	Total BBLS	Beginning Volume	Ending Volume
WDW1	540,144	40,096,319	40,636,463
WDW2	317,136	26,593,059	26,910,195
WDW3	566,922	17,609,664	18,176,586
	1,424,202		
		84,299,042	85,723,244

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 15, 2018

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW 1, 2 and 3 Inj Well OrderNo.: 1802968

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/16/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8081: PESTICIDES TCLP						Analyst: **MAB**	
Chlordane	ND	0.30		mg/L	10	2/22/2018 10:33:17 AM	36636
Surr: Decachlorobiphenyl	63.2	41.2-177		%Rec	10	2/22/2018 10:33:17 AM	36636
Surr: Tetrachloro-m-xylene	64.4	29-171		%Rec	10	2/22/2018 10:33:17 AM	36636
EPA METHOD 8270C TCLP						Analyst: **DAM**	
2-Methylphenol	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
3+4-Methylphenol	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
Phenol	ND	200		mg/L	10	3/13/2018 8:51:59 PM	36637
2,4-Dinitrotoluene	ND	0.13		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachlorobenzene	ND	0.13		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachlorobutadiene	ND	0.50		mg/L	1	3/5/2018 11:38:07 AM	36637
Hexachloroethane	ND	3.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Nitrobenzene	ND	2.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Pentachlorophenol	ND	100		mg/L	1	3/5/2018 11:38:07 AM	36637
Pyridine	ND	5.0		mg/L	1	3/5/2018 11:38:07 AM	36637
2,4,5-Trichlorophenol	ND	400		mg/L	1	3/5/2018 11:38:07 AM	36637
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	3/5/2018 11:38:07 AM	36637
Cresols, Total	ND	200		mg/L	1	3/5/2018 11:38:07 AM	36637
Surr: 2-Fluorophenol	62.3	15-73.6		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: Phenol-d5	51.2	15-63.4		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 2,4,6-Tribromophenol	91.6	15-119		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: Nitrobenzene-d5	88.7	33.5-111		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 2-Fluorobiphenyl	85.5	31.8-101		%Rec	1	3/5/2018 11:38:07 AM	36637
Surr: 4-Terphenyl-d14	53.0	17.2-84.7		%Rec	1	3/5/2018 11:38:07 AM	36637
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>170			°F	1	2/20/2018	R49787
OXIDATION REDUCTION POTENTIAL						Analyst: **SUB**	
Oxidation-Reduction Potential	140			mV	1	2/21/2018	R49787
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	0.38	0.050		mg/L	1	2/20/2018	R49787
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9980	0			1	2/20/2018 12:44:00 PM	R49250
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.50	0.50		mg/L	5	2/27/2018 4:16:33 PM	R49460
Chloride	420	25		mg/L	50	3/4/2018 3:17:41 PM	R49545
Bromide	1.2	0.50		mg/L	5	2/27/2018 4:16:33 PM	R49460
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	2/27/2018 4:16:33 PM	R49460

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well
Lab ID: 1802968-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 2/14/2018 1:11:00 PM
Received Date: 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Sulfate	1200	25		mg/L	50	3/2/2018 9:09:19 PM	R49522
Nitrate+Nitrite as N	ND	1.0		mg/L	5	2/28/2018 12:07:17 PM	R49476
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	4600	5.0		µmhos/cm	1	2/22/2018 12:59:56 PM	R49344
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	286.5	20.00		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
Carbonate (As CaCO3)	36.16	2.000		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
Total Alkalinity (as CaCO3)	322.6	20.00		mg/L CaCO3	1	2/22/2018 12:59:56 PM	R49344
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3040	20.0	*	mg/L	1	2/21/2018 7:01:00 PM	36630
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	0.0493	0.00500		mg/L	1	2/23/2018	R49787
SM4500-H+B / 9040C: PH						Analyst: **JRR**	
pH	8.59		*H	pH units	1	2/22/2018 12:59:56 PM	R49344
EPA METHOD 7470: MERCURY						Analyst: **rde**	
Mercury	ND	0.00020		mg/L	1	2/21/2018 10:33:26 AM	36616
MERCURY, TCLP						Analyst: **rde**	
Mercury	ND	0.020		mg/L	1	3/8/2018 3:33:51 PM	36908
EPA METHOD 6010B: TCLP METALS						Analyst: **JLF**	
Arsenic	ND	5.0		mg/L	1	3/13/2018 11:04:59 AM	36855
Barium	ND	100		mg/L	1	3/7/2018 7:32:52 PM	36855
Cadmium	ND	1.0		mg/L	1	3/7/2018 7:32:52 PM	36855
Chromium	ND	5.0		mg/L	1	3/12/2018 2:53:01 PM	36855
Lead	ND	5.0		mg/L	1	3/7/2018 7:32:52 PM	36855
Selenium	ND	1.0		mg/L	1	3/13/2018 1:28:45 PM	36855
Silver	ND	5.0		mg/L	1	3/7/2018 7:32:52 PM	36855
EPA 6010B: METALS						Analyst: **JLF**	
Aluminum	1.3	0.020		mg/L	1	3/7/2018 7:34:50 PM	36855
Antimony	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Arsenic	ND	0.020		mg/L	1	3/13/2018 11:03:41 AM	36855
Barium	ND	0.020		mg/L	1	3/7/2018 7:34:50 PM	36855
Beryllium	ND	0.0030		mg/L	1	3/7/2018 7:34:50 PM	36855
Cadmium	ND	0.0020		mg/L	1	3/7/2018 7:34:50 PM	36855
Calcium	67	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Chromium	ND	0.0060		mg/L	1	3/12/2018 2:50:53 PM	36855

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Analytical Report
Lab Order **1802968**
Date Reported: **3/15/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW 1, 2 and 3 Inj Well
Collection Date: 2/14/2018 1:11:00 PM
Lab ID: 1802968-001 **Matrix:** AQUEOUS **Received Date:** 2/16/2018 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: METALS						Analyst: **JLF**	
Cobalt	ND	0.0060		mg/L	1	3/12/2018 2:50:53 PM	36855
Copper	ND	0.0060		mg/L	1	3/7/2018 7:34:50 PM	36855
Iron	0.59	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Lead	ND	0.0050		mg/L	1	3/7/2018 7:34:50 PM	36855
Magnesium	21	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Manganese	0.041	0.0020		mg/L	1	3/7/2018 7:34:50 PM	36855
Nickel	ND	0.010		mg/L	1	3/7/2018 7:34:50 PM	36855
Potassium	84	1.0		mg/L	1	3/7/2018 7:34:50 PM	36855
Selenium	0.10	0.050		mg/L	1	3/13/2018 1:27:28 PM	36855
Silver	ND	0.0050		mg/L	1	3/7/2018 7:34:50 PM	36855
Sodium	820	20		mg/L	20	3/7/2018 7:38:57 PM	36855
Thallium	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Vanadium	ND	0.050		mg/L	1	3/7/2018 7:34:50 PM	36855
Zinc	ND	0.020		mg/L	1	3/13/2018 11:03:41 AM	36855
TCLP VOLATILES BY 8260B						Analyst: **RAA**	
Benzene	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
2-Butanone	ND	200		mg/L	200	2/21/2018 9:53:00 PM	T49300
Carbon Tetrachloride	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Chloroform	ND	6.0		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,4-Dichlorobenzene	ND	7.5		mg/L	200	2/21/2018 9:53:00 PM	T49300
1,1-Dichloroethene	ND	0.70		mg/L	200	2/21/2018 9:53:00 PM	T49300
Hexachlorobutadiene	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Tetrachloroethene (PCE)	ND	0.70		mg/L	200	2/21/2018 9:53:00 PM	T49300
Trichloroethene (TCE)	ND	0.50		mg/L	200	2/21/2018 9:53:00 PM	T49300
Vinyl chloride	ND	0.20		mg/L	200	2/21/2018 9:53:00 PM	T49300
Chlorobenzene	ND	100		mg/L	200	2/21/2018 9:53:00 PM	T49300
Surr: 1,2-Dichloroethane-d4	84.8	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: 4-Bromofluorobenzene	78.7	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: Dibromofluoromethane	88.2	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300
Surr: Toluene-d8	77.3	70-130		%Rec	200	2/21/2018 9:53:00 PM	T49300

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R49460**	RunNo: **49460**
Prep Date:	Analysis Date: **2/27/2018**	SeqNo: **1597256** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R49460**	RunNo: **49460**
Prep Date:	Analysis Date: **2/27/2018**	SeqNo: **1597257** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.1	90	110			
Bromide	2.4	0.10	2.500	0	95.9	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.3	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R49476**	RunNo: **49476**
Prep Date:	Analysis Date: **2/28/2018**	SeqNo: **1598370** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R49476**	RunNo: **49476**
Prep Date:	Analysis Date: **2/28/2018**	SeqNo: **1598371** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.2	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R49522**	RunNo: **49522**
Prep Date:	Analysis Date: **3/2/2018**	SeqNo: **1600511** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS-b**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R49522**	RunNo: **49522**
Prep Date:	Analysis Date: **3/2/2018**	SeqNo: **1600513** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.2	0.50	10.00	0	91.9	90	110			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R49545**	RunNo: **49545**							
Prep Date:	Analysis Date: **3/4/2018**	SeqNo: **1601219**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R49545**	RunNo: **49545**							
Prep Date:	Analysis Date: **3/4/2018**	SeqNo: **1601220**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.3	90	110			

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36636**	SampType: **MBLK**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **PBW**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592030** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlordane	ND	0.030								
Surr: Decachlorobiphenyl	0.0013		0.002500		52.0	41.2	177			
Surr: Tetrachloro-m-xylene	0.0014		0.002500		55.9	29	171			

Sample ID **LCS-36636**	SampType: **LCS**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSW**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592031** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0019		0.002500		74.9	41.2	177			
Surr: Tetrachloro-m-xylene	0.0019		0.002500		77.6	29	171			

Sample ID **LCSD-36636**	SampType: **LCSD**	TestCode: **EPA Method 8081: Pesticides TCLP**
Client ID: **LCSS02**	Batch ID: **36636**	RunNo: **49321**
Prep Date: **2/21/2018**	Analysis Date: **2/22/2018**	SeqNo: **1592036** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0019		0.002500		77.8	41.2	177	0	0	
Surr: Tetrachloro-m-xylene	0.0019		0.002500		77.2	29	171	0	0	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **LCSW**	Batch ID: **T49300**	RunNo: **49300**
Prep Date:	Analysis Date: **2/21/2018**	SeqNo: **1590903** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.024	0.010	0.02000	0	118	70	130			
1,1-Dichloroethene	0.026	0.010	0.02000	0	128	70	130			
Trichloroethene (TCE)	0.022	0.010	0.02000	0	110	70	130			
Chlorobenzene	0.020	0.010	0.02000	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	0.0088		0.01000		88.4	70	130			
Surr: 4-Bromofluorobenzene	0.0080		0.01000		79.5	70	130			
Surr: Dibromofluoromethane	0.0091		0.01000		90.8	70	130			
Surr: Toluene-d8	0.0078		0.01000		78.2	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **TCLP Volatiles by 8260B**
Client ID: **PBW**	Batch ID: **T49300**	RunNo: **49300**
Prep Date:	Analysis Date: **2/21/2018**	SeqNo: **1590905** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Chlorobenzene	ND	100								
Surr: 1,2-Dichloroethane-d4	0.0089		0.01000		88.9	70	130			
Surr: 4-Bromofluorobenzene	0.0076		0.01000		76.1	70	130			
Surr: Dibromofluoromethane	0.0092		0.01000		91.7	70	130			
Surr: Toluene-d8	0.0077		0.01000		77.3	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001ems** SampType: **MS** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611310** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.14	0.0010	0.1000	0	142	23.9	129			S
3+4-Methylphenol	0.34	0.0010	0.2000	0.01344	165	15	167			
2,4-Dinitrotoluene	0.081	0.0010	0.1000	0	81.2	15	147			
Hexachlorobenzene	0.089	0.0010	0.1000	0	89.1	41.4	136			
Hexachlorobutadiene	0.085	0.0010	0.1000	0	84.9	16.2	134			
Hexachloroethane	0.068	0.0010	0.1000	0	67.6	20.6	124			
Nitrobenzene	0.084	0.0010	0.1000	0	84.4	39.5	134			
Pentachlorophenol	0.084	0.0010	0.1000	0	83.6	15	137			
Pyridine	0.022	0.0010	0.1000	0	21.5	15	129			
2,4,5-Trichlorophenol	0.095	0.0010	0.1000	0	95.2	15	158			
2,4,6-Trichlorophenol	0.096	0.0010	0.1000	0	96.0	15	153			
Cresols, Total	0.93	0.0010	0.3000	0.05632	291	10.6	179			S
Surr: 2-Fluorophenol	0.12		0.2000		57.8	15	73.6			
Surr: Phenol-d5	0.097		0.2000		48.7	15	63.4			
Surr: 2,4,6-Tribromophenol	0.18		0.2000		91.0	15	119			
Surr: Nitrobenzene-d5	0.085		0.1000		84.8	33.5	111			
Surr: 2-Fluorobiphenyl	0.084		0.1000		84.3	31.8	101			
Surr: 4-Terphenyl-d14	0.052		0.1000		52.0	17.2	84.7			

Sample ID **1802968-001emsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611311** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.12	0.0010	0.1000	0	119	23.9	129	17.4	20	
3+4-Methylphenol	0.29	0.0010	0.2000	0.01344	138	15	167	17.1	20	
2,4-Dinitrotoluene	0.069	0.0010	0.1000	0	69.1	15	147	16.1	23.2	
Hexachlorobenzene	0.077	0.0010	0.1000	0	76.6	41.4	136	15.1	20	
Hexachlorobutadiene	0.075	0.0010	0.1000	0	74.8	16.2	134	12.6	20	
Hexachloroethane	0.058	0.0010	0.1000	0	58.4	20.6	124	14.7	31.3	
Nitrobenzene	0.073	0.0010	0.1000	0	72.8	39.5	134	14.7	26.6	
Pentachlorophenol	0.071	0.0010	0.1000	0	71.4	15	137	15.7	27.9	
Pyridine	0.022	0.0010	0.1000	0	21.7	15	129	1.02	47.4	
2,4,5-Trichlorophenol	0.074	0.0010	0.1000	0	74.5	15	158	24.4	36.9	
2,4,6-Trichlorophenol	0.079	0.0010	0.1000	0	78.9	15	153	19.6	37.2	
Cresols, Total	0.79	0.0010	0.3000	0.05632	246	10.6	179	15.6	27.4	S
Surr: 2-Fluorophenol	0.098		0.2000		48.8	15	73.6	0	0	
Surr: Phenol-d5	0.079		0.2000		39.7	15	63.4	0	0	
Surr: 2,4,6-Tribromophenol	0.16		0.2000		77.7	15	119	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- PQL Practical Quanitative Limit
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001emsd** SampType: **MSD** TestCode: **EPA Method 8270C TCLP**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **36637** RunNo: **49558**

Prep Date: **2/21/2018** Analysis Date: **3/5/2018** SeqNo: **1611311** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	0.070		0.1000		70.4	33.5	111	0	0	
Surr: 2-Fluorobiphenyl	0.065		0.1000		64.8	31.8	101	0	0	
Surr: 4-Terphenyl-d14	0.043		0.1000		43.1	17.2	84.7	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	**lcs-1 ~20uS eC**	SampType: **LCS**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**LCSW**	Batch ID: **R49344**		RunNo: **49344**						
Prep Date:		Analysis Date: **2/22/2018**		SeqNo: **1592912**		Units: **µmhos/cm**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		22	5.0	19.96	0	112	80	120			

Sample ID	**1802968-001a dup**	SampType: **DUP**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **R49344**		RunNo: **49344**						
Prep Date:		Analysis Date: **2/22/2018**		SeqNo: **1592915**		Units: **µmhos/cm**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		4600	5.0						0.0261	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36616**	SampType: **MBLK**			TestCode: **EPA Method 7470: Mercury**						
Client ID: **PBW**	Batch ID: **36616**			RunNo: **49292**						
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**			SeqNo: **1590635**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-36616**	SampType: **LCS**			TestCode: **EPA Method 7470: Mercury**						
Client ID: **LCSW**	Batch ID: **36616**			RunNo: **49292**						
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**			SeqNo: **1590636**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36908**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **36908**	RunNo: **49646**							
Prep Date: **3/8/2018**	Analysis Date: **3/8/2018**	SeqNo: **1605458**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-36908**	SampType: **LCS**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSW**	Batch ID: **36908**	RunNo: **49646**							
Prep Date: **3/8/2018**	Analysis Date: **3/8/2018**	SeqNo: **1605459**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.6	80	120			

Sample ID **LCSD-36908**	SampType: **LCSD**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSS02**	Batch ID: **36908**	RunNo: **49646**							
Prep Date: **3/8/2018**	Analysis Date: **3/8/2018**	SeqNo: **1605460**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.7	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604968 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0								
Selenium	ND	1.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604970 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0	0.5000	0	106	80	120			
Selenium	ND	1.0	0.5000	0	97.7	80	120			

Sample ID LCSD-36855	SampType: LCSD	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSS02	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604971 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	1.0	0.5000	0	104	80	120	0	20	
Selenium	ND	1.0	0.5000	0	106	80	120	0	20	

Sample ID MB-36855	SampType: MBLK	TestCode: EPA Method 6010B: TCLP Metals
Client ID: PBW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604981 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Lead	ND	5.0								
Silver	ND	5.0								

Sample ID LCS-36855	SampType: LCS	TestCode: EPA Method 6010B: TCLP Metals
Client ID: LCSW	Batch ID: 36855	RunNo: 49620
Prep Date: 3/6/2018	Analysis Date: 3/7/2018	SeqNo: 1604983 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	102	80	120			
Lead	ND	5.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	LCSD-36855	SampType:	LCSD			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	LCSS02	Batch ID:	36855			RunNo:	49620			
Prep Date:	3/6/2018	Analysis Date:	3/7/2018			SeqNo:	1604984	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	102	80	120	0	20	
Lead	ND	5.0	0.5000	0	101	80	120	0	20	
Silver	ND	5.0	0.1000	0	102	80	120	0	20	

Sample ID	MB-36855	SampType:	MBLK			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	PBW	Batch ID:	36855			RunNo:	49727			
Prep Date:	3/6/2018	Analysis Date:	3/12/2018			SeqNo:	1608232	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0								

Sample ID	LCS-36855	SampType:	LCS			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	LCSW	Batch ID:	36855			RunNo:	49727			
Prep Date:	3/6/2018	Analysis Date:	3/12/2018			SeqNo:	1608237	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0	0.5000	0	97.3	80	120			

Sample ID	LCSD-36855	SampType:	LCSD			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	LCSS02	Batch ID:	36855			RunNo:	49727			
Prep Date:	3/6/2018	Analysis Date:	3/12/2018			SeqNo:	1608238	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0	0.5000	0	99.4	80	120	0	20	

Sample ID	MB-36855	SampType:	MBLK			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	PBW	Batch ID:	36855			RunNo:	49740			
Prep Date:	3/6/2018	Analysis Date:	3/13/2018			SeqNo:	1608916	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								

Sample ID	LCS-36855	SampType:	LCS			TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	LCSW	Batch ID:	36855			RunNo:	49740			
Prep Date:	3/6/2018	Analysis Date:	3/13/2018			SeqNo:	1608918	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **LCSD-36855**	SampType: **LCSD**			TestCode: **EPA Method 6010B: TCLP Metals**						
Client ID: **LCSS02**	Batch ID: **36855**			RunNo: **49740**						
Prep Date: **3/6/2018**	Analysis Date: **3/13/2018**			SeqNo: **1608919**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	102	80	120	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36855**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**
Client ID: **PBW**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605015** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605017** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	111	80	120			
Beryllium	0.52	0.0030	0.5000	0	105	80	120			
Cadmium	0.53	0.0020	0.5000	0	106	80	120			
Calcium	47	1.0	50.00	0	94.2	80	120			
Cobalt	0.49	0.0060	0.5000	0	98.0	80	120			
Copper	0.52	0.0060	0.5000	0	104	80	120			
Iron	0.49	0.050	0.5000	0	98.5	80	120			
Magnesium	48	1.0	50.00	0	96.3	80	120			
Manganese	0.50	0.0020	0.5000	0	99.8	80	120			
Nickel	0.51	0.010	0.5000	0	101	80	120			
Potassium	47	1.0	50.00	0	94.7	80	120			
Selenium	0.49	0.050	0.5000	0	97.7	80	120			
Vanadium	0.52	0.050	0.5000	0	103	80	120			
Zinc	0.49	0.020	0.5000	0	98.5	80	120			

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49620**
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605018** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company
Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605018**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	110	80	120	0.806	20	
Beryllium	0.52	0.0030	0.5000	0	105	80	120	0.0553	20	
Cadmium	0.52	0.0020	0.5000	0	104	80	120	1.39	20	
Calcium	47	1.0	50.00	0	94.4	80	120	0.153	20	
Cobalt	0.49	0.0060	0.5000	0	97.0	80	120	1.02	20	
Copper	0.52	0.0060	0.5000	0	103	80	120	1.22	20	
Iron	0.49	0.050	0.5000	0	98.7	80	120	0.110	20	
Magnesium	48	1.0	50.00	0	95.3	80	120	0.952	20	
Manganese	0.50	0.0020	0.5000	0	99.8	80	120	0.00601	20	
Nickel	0.51	0.010	0.5000	0	101	80	120	0.00395	20	
Potassium	47	1.0	50.00	0	93.4	80	120	1.31	20	
Selenium	0.53	0.050	0.5000	0	106	80	120	8.29	20	
Vanadium	0.52	0.050	0.5000	0	103	80	120	0.240	20	
Zinc	0.49	0.020	0.5000	0	98.7	80	120	0.254	20	

Sample ID **MB-36855**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**							
Client ID: **PBW**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605019**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Barium	ND	0.020								
Lead	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49620**							
Prep Date: **3/6/2018**	Analysis Date: **3/7/2018**	SeqNo: **1605021**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.50	0.050	0.5000	0	101	80	120			
Barium	0.51	0.020	0.5000	0	102	80	120			
Lead	0.50	0.0050	0.5000	0	101	80	120			
Silver	0.10	0.0050	0.1000	0	101	80	120			
Sodium	47	1.0	50.00	0	94.6	80	120			
Thallium	0.49	0.050	0.5000	0	98.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1802968

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID	LCSD-36855	SampType:	LCSD	TestCode:	EPA 6010B: Metals				
Client ID:	LCSS02	Batch ID:	36855	RunNo:	49620				
Prep Date:	3/6/2018	Analysis Date:	3/7/2018	SeqNo:	1605022	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.51	0.050	0.5000	0	102	80	120	1.00	20	
Barium	0.51	0.020	0.5000	0	102	80	120	0.114	20	
Lead	0.51	0.0050	0.5000	0	101	80	120	0.131	20	
Silver	0.10	0.0050	0.1000	0	102	80	120	0.913	20	
Sodium	46	1.0	50.00	0	92.7	80	120	2.00	20	
Thallium	0.51	0.050	0.5000	0	102	80	120	3.95	20	

Sample ID	MB-36855	SampType:	MBLK	TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	36855	RunNo:	49727				
Prep Date:	3/6/2018	Analysis Date:	3/12/2018	SeqNo:	1608906	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060								

Sample ID	LCS-36855	SampType:	LCS	TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	36855	RunNo:	49727				
Prep Date:	3/6/2018	Analysis Date:	3/12/2018	SeqNo:	1608908	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.49	0.0060	0.5000	0	97.3	80	120			

Sample ID	LCSD-36855	SampType:	LCSD	TestCode:	EPA 6010B: Metals				
Client ID:	LCSS02	Batch ID:	36855	RunNo:	49727				
Prep Date:	3/6/2018	Analysis Date:	3/12/2018	SeqNo:	1608909	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.50	0.0060	0.5000	0	99.4	80	120	2.07	20	

Sample ID	MB-36855	SampType:	MBLK	TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	36855	RunNo:	49740				
Prep Date:	3/6/2018	Analysis Date:	3/13/2018	SeqNo:	1608962	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								

Sample ID	LCS-36855	SampType:	LCS	TestCode:	EPA 6010B: Metals				
Client ID:	LCSW	Batch ID:	36855	RunNo:	49740				
Prep Date:	3/6/2018	Analysis Date:	3/13/2018	SeqNo:	1608964	Units:	mg/L		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **LCS-36855**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **36855**	RunNo: **49740**							
Prep Date: **3/6/2018**	Analysis Date: **3/13/2018**	SeqNo: **1608964**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.52	0.020	0.5000	0	105	80	120			

Sample ID **LCSD-36855**	SampType: **LCSD**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSS02**	Batch ID: **36855**	RunNo: **49740**							
Prep Date: **3/6/2018**	Analysis Date: **3/13/2018**	SeqNo: **1608965**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.51	0.020	0.5000	0	102	80	120	2.38	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **1802968-001a dup** SampType: **DUP** TestCode: **SM4500-H+B / 9040C: pH**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R49344** RunNo: **49344**

Prep Date: Analysis Date: **2/22/2018** SeqNo: **1592953** Units: **pH units**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.57									*H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-R49787**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R49787**	RunNo: **49787**							
Prep Date:	Analysis Date: **2/23/2018**	SeqNo: **1610825**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.00500								

Sample ID **LCS-R49787**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R49787**	RunNo: **49787**							
Prep Date:	Analysis Date: **2/23/2018**	SeqNo: **1610826**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.107		0.1000	0	107	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-R49787**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R49787**	RunNo: **49787**
Prep Date:	Analysis Date: **2/20/2018**	SeqNo: **1610828** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.050								

Sample ID **LCS-R49787**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R49787**	RunNo: **49787**
Prep Date:	Analysis Date: **2/20/2018**	SeqNo: **1610829** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.50		0.5000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592876**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592877**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.16	20.00	80.00	0	99.0	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592900**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R49344**	RunNo: **49344**							
Prep Date:	Analysis Date: **2/22/2018**	SeqNo: **1592901**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.04	20.00	80.00	0	100	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802968**

15-Mar-18

Client: Navajo Refining Company

Project: Quarterly WDW 1, 2 and 3 Inj Well

Sample ID **MB-36630**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **36630**	RunNo: **49297**
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**	SeqNo: **1590748** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-36630**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **36630**	RunNo: **49297**
Prep Date: **2/20/2018**	Analysis Date: **2/21/2018**	SeqNo: **1590749** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1802968 RcptNo: 1

Received By: Sophia Campuzano 2/16/2018 9:30:00 AM Sophia Campuzano
Completed By: Anne Thorne 2/19/2018 7:17:43 AM Anne Thorne
Reviewed By:

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 4 2 (<2 or >12 unless noted)
Adjusted? _____
Checked by: AT 02/19/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks: Custody seals intact on sample bottles / AT 02/19/18

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turnaround Time: X Standard Rush

Project Name: Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 251841

Project Manager: Robert Combs / Scott Denton / Randy Dade

Sampler:

On Ice: X Yes ☐ No

Sample Temperature: 0.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No 1802968	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311	Chlordane 8081 A
2/14/18	1:11	Liquid	WDW-1, 2, & 3 Effluent	15	H2SO4/HNO3/HCL	001	X	X	X	X	X	X	X	X

Date	Time	Relinquished by	Received by	Date	Time
2.15.18	10:00	Brady Hibbard	courier	02/16/18	0930
		Brady Hibbard			

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Randy Dade.

pH: 8.15
Temp: 42.7°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Received by OCD: 5/16/2022 2:12:41 PM

The written notice shall be signed by both the Permittee and transferee, include an acknowledgment by the transferee that they will be responsible for compliance with the permit upon taking possession of the facility; set a specific date for transfer of the permit and include information related to the transferee's financial responsibility as required by 20.6.2.5210B(17) NMAC.

1.I. Compliance and Enforcement. If the Permittee violates any condition of this permit, OCD may issue a compliance order requiring compliance immediately or within a specified time period, and/or assess a civil penalty, or both (74-6-10 NMSA 1978). The compliance order may also include a suspension or termination of this permit. OCD may also commence a civil action in district court for appropriate relief, including injunctive relief (74-6-10(A)(2) NMSA 1978). The Permittee may be subject to criminal penalties for discharging a water contaminant without a permit or in violation of a condition of a permit; making any false material statement, representation, certification or omission of material fact in a renewal application, record, report, plan or other document filed, submitted or required to be maintained under the Water Quality Act; falsifying, tampering with or rendering inaccurate any monitoring device, method or record required to be maintained under the Water Quality Act; or failing to monitor, sample or report as required by a discharge permit issued pursuant to a state or federal law or regulation (74-6-10.2 NMSA 1978).

2. GENERAL FACILITY OPERATIONS

2.A. Quarterly Monitoring Requirements. The Permittee shall properly conduct operations at its facility by injecting only RCRA exempt and RCRA non-hazardous, non-exempt oil field waste fluids. Injected waste fluids shall not exhibit the toxicity characteristics of ignitability, reactivity, corrosivity, or toxicity under 40 CFR 261 Subpart "C" 261.21 – 261.24 (July 1, 1992), at the point of injection into WDW-1 based upon environmental analytical laboratory testing and/or monitoring data results. Pursuant to 20.6.2.5207B, the Permittee shall provide analyses of the injected fluids at least quarterly to yield data representative of their toxicity characteristics. OCD shall be notified via a C-141 Form release report if waste fluids test positive for the above.

The Permittee shall also analyze the injected fluids quarterly for the following characteristics:

- pH as determined by Method 9040
- Eh
- Specific conductance
- Specific gravity
- Temperature
- Concentrations of major dissolved cations and anions, including: fluoride, calcium, potassium, magnesium, sodium bicarbonate, carbonate, chloride, sulfate, bromide, total dissolved solids, and cation/anion balance using the methods specified in 40 CFR 136.3
- RCRA Characteristics for ignitability (ASTM Methods), corrosivity (SW-846), and reactivity (determined through Permittee's application of knowledge or generating process)

The Permittee shall also analyze the injected fluids quarterly for the constituents identified in the Quarterly Monitoring List below to demonstrate that the injected fluids do not exhibit the characteristic of toxicity using the Toxicity Characteristic Leaching Procedure, EPA SW-846 Test Method 1311 (see Table 1, 40 CFR 261.24(b)).

QUARTERLY MONITORING LIST			
EPA Hazardous Waste No.	Contaminant	SW-846 Method	Regulatory Level (mg/l)
D004	Arsenic	1311	5.0
D005	Barium	1311	100.0
D018	Benzene	8021B	0.5
D006	Cadmium	1311	1.0
D019	Carbon tetrachloride	8021B 8260B	0.5
D020	Chlordane	8081A	0.03

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D021	Chlorobenzene	8021B 8260B	100.0
D022	Chloroform	8021B 8260B	6.0
D007	Chromium	1311	5.0
D023	o-Cresol	8270D	200.0
D024	m-Cresol	8270D	200.0
D025	p-Cresol	8270D	200.0
D026	Cresol	8270D	200.0
D027	1,4-Dichlorobenzene	8021B 8121 8260B 8270D	7.5
D028	1,2-Dichloroethane	8021B 8260B	0.5
D029	1,1-Dichloroethylene	8021B 8260B	0.7
D030	2,4-Dinitrotoluene	8091 8270D	0.13
D032	Hexachlorobenzene	8121	0.13
D033	Hexachlorobutadiene	8021B 8121 8260B	0.5
D034	Hexachloroethane	8121	3.0
D006	Lead	1311	5.0
D009	Mercury	7470A 7471B	0.2
D035	Methyl ethyl ketone	8015B 8260B	200.0
D036	Nitrobenzene	8091 8270D	2.0
D037	Pentrachlorophenol	8041	100.0
D038	Pyridine	8260B 8270D	5.0
D010	Selenium	1311	1.0
D011	Silver	1311	5.0
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8021B 8260B	0.5
D041	2,4,5-Trichlorophenol	8270D	400.0
D042	2,4,6-Trichlorophenol	8041A 8270D	2.0
D043	Vinyl chloride	8021B 8260B	0.2

If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used.
If the quantitation limit is greater than the regulatory level, then the quantitation limit becomes the regulatory level.
If dissolved metals, EPA Method 1311 TCLP is required with the exception of total mercury.

2.B. Groundwater Monitoring Wells. At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-1. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

shallower 200 - 250 ftbgs

Need All

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HOLLYFRONTIER.

April 20, 2017

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 6274

RE: 2017 1st Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2017 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1315 psig and the average flows were 129 gpm for WDW-1, 107 gpm for WDW-2 and 140 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2017 to March 31, 2017. We have disposed a total of 1,162,526 barrels of fluid into the three wells during the first quarter of 2017. The volume per well is:

- 398,023 barrels into WDW-1
- 332,126 barrels into WDW-2
- 432,377 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-748-5487.

Respectfully,

Scott Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R. O'Brien, R Orosco, R Combs, M. Holder, L Dade
Environmental File: Injection Wells/Reports C-115 & Quarterly/2017/1st quarter/2017-4-20 1st QTR Inj. Rpt. for Wells WDW-1,2,3

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Received by OCD: 5/16/2022 2:12:41 PM

2017 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	38,368,242
Jan-17	1,390	1,400	1,364	130	144	80	414	690	175	4,028	4,937	2,743	138,103	38,506,345
Feb-17	1,318	1,400	1,195	120	142	96	247	446	134	3,370	4,869	3,291	115,543	38,621,888
Mar-17	1,272	1,400	1,374	136	454	96	419	639	123	4,211	15,566	3,291	144,377	38,766,265
30-015-20894 WDW-2													**Previous Quarter**	25,195,125
Jan-17	1,383	1,400	1,344	132	351	107	249	394	103	4,101	12,034	3,669	140,606	25,335,731
Feb-17	1,313	1,400	1,177	100	118	69	274	407	175	2,801	4,046	2,366	96,034	25,431,765
Mar-17	1,267	1,400	1,081	90	111	54	330	561	192	2,785	3,806	1,851	95,486	25,527,251
30-015-26575 WDW-3													**Previous Quarter**	15,743,225
Jan-17	1,344	1,400	1,248	151	162	119	712	800	629	4,684	5,554	4,080	160,594	15,903,819
Feb-17	1,301	1,400	1,155	142	159	100	714	804	600	3,970	5,451	3,429	136,114	16,039,933
Mar-17	1,246	1,400	1,082	128	157	53	679	859	568	3,957	5,383	1,817	135,669	16,175,602
													Total Injected fluids:	80,469,118

	Monthly Avg.	Monthly Avg.
WDW-1	1,327	129
WDW-2	1,321	107
WDW-3	1,297	140

	Total BBLS	Beginning Volume	Ending Volume
WDW1	398,023	38,368,242	38,766,265
WDW2	332,126	25,195,125	25,527,251
WDW3	432,377	15,743,225	16,175,602
	1,162,526	79,306,592	80,469,118

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 28, 2017

Micki Schultz

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1701255

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/9/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **LGT**
Fluoride	4.2	0.50	*	mg/L	5	1/9/2017 10:45:27 PM
Chloride	800	25		mg/L	50	1/11/2017 1:20:45 AM
Bromide	2.7	0.50		mg/L	5	1/9/2017 10:45:27 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	1/9/2017 10:45:27 PM
Sulfate	1300	25		mg/L	50	1/11/2017 1:20:45 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/10/2017 12:24:43 AM
EPA METHOD 7470: MERCURY						Analyst: **MED**
Mercury	ND	0.00020		mg/L	1	1/10/2017 12:31:08 PM
MERCURY, TCLP						Analyst: **pmf**
Mercury	ND	0.10		mg/L	5	1/11/2017 5:09:34 PM
EPA METHOD 6010B: TCLP METALS						Analyst: **pmf**
Arsenic	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Barium	ND	100		mg/L	1	1/20/2017 12:57:03 PM
Cadmium	ND	1.0		mg/L	1	1/20/2017 12:57:03 PM
Chromium	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Lead	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
Selenium	ND	1.0		mg/L	1	1/20/2017 12:57:03 PM
Silver	ND	5.0		mg/L	1	1/20/2017 12:57:03 PM
EPA 6010B: METALS						Analyst: **pmf**
Aluminum	0.62	0.020		mg/L	1	1/18/2017 2:20:24 PM
Antimony	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Arsenic	0.026	0.020		mg/L	1	1/18/2017 2:20:24 PM
Barium	0.025	0.020		mg/L	1	1/18/2017 2:20:24 PM
Beryllium	ND	0.0030		mg/L	1	1/18/2017 2:20:24 PM
Cadmium	ND	0.0020		mg/L	1	1/18/2017 2:20:24 PM
Calcium	99	5.0		mg/L	5	1/18/2017 3:52:07 PM
Chromium	ND	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Cobalt	ND	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Copper	0.011	0.0060		mg/L	1	1/18/2017 2:20:24 PM
Iron	1.3	0.050		mg/L	1	1/18/2017 2:20:24 PM
Lead	ND	0.0050		mg/L	1	1/18/2017 2:20:24 PM
Magnesium	31	1.0		mg/L	1	1/18/2017 2:20:24 PM
Manganese	0.13	0.0020		mg/L	1	1/18/2017 2:20:24 PM
Nickel	0.011	0.010		mg/L	1	1/18/2017 2:20:24 PM
Potassium	31	1.0		mg/L	1	1/18/2017 2:20:24 PM
Selenium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Silver	ND	0.0050		mg/L	1	1/18/2017 2:20:24 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: METALS						Analyst: **pmf**
Sodium	950	20		mg/L	20	1/20/2017 1:05:10 PM
Thallium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Vanadium	ND	0.050		mg/L	1	1/18/2017 2:20:24 PM
Zinc	ND	0.020		mg/L	1	1/18/2017 2:20:24 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
2-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Acetonitrile	ND	2.5		µg/L	1	1/16/2017
Allyl chloride	ND	0.50		µg/L	1	1/16/2017
Chloroprene	ND	0.50		µg/L	1	1/16/2017
Cyclohexane	ND	2.0		µg/L	1	1/16/2017
Diethyl ether	ND	2.0		µg/L	1	1/16/2017
Diisopropyl ether	ND	2.0		µg/L	1	1/16/2017
Epichlorohydrin	ND	5.0		µg/L	1	1/16/2017
Ethyl acetate	ND	2.0		µg/L	1	1/16/2017
Ethyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Ethyl tert-butyl ether	ND	2.0		µg/L	1	1/16/2017
Freon-113	ND	2.0		µg/L	1	1/16/2017
Isobutanol	ND	10		µg/L	1	1/16/2017
Isopropyl acetate	ND	2.0		µg/L	1	1/16/2017
Methacrylonitrile	ND	2.5		µg/L	1	1/16/2017
Methyl acetate	ND	2.0		µg/L	1	1/16/2017
Methyl ethyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl isobutyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Methylcyclohexane	ND	2.0		µg/L	1	1/16/2017
n-Amyl acetate	ND	2.0		µg/L	1	1/16/2017
n-Hexane	ND	2.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
Pentachloroethane	ND	5.0		µg/L	1	1/16/2017
p-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Propionitrile	ND	2.5		µg/L	1	1/16/2017
Tetrahydrofuran	ND	0.50		µg/L	1	1/16/2017
Benzene	ND	0.50		µg/L	1	1/16/2017
Toluene	ND	0.50		µg/L	1	1/16/2017
Ethylbenzene	ND	0.50		µg/L	1	1/16/2017
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	1/16/2017
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	1/16/2017
Naphthalene	ND	0.50		µg/L	1	1/16/2017
Acetone	8.4	2.5		µg/L	1	1/16/2017
Bromobenzene	ND	0.50		µg/L	1	1/16/2017
Bromodichloromethane	ND	0.50		µg/L	1	1/16/2017
Bromoform	ND	0.50		µg/L	1	1/16/2017
Bromomethane	ND	0.50		µg/L	1	1/16/2017
2-Butanone	ND	2.5		µg/L	1	1/16/2017
Carbon disulfide	0.56	0.50		µg/L	1	1/16/2017
Carbon Tetrachloride	ND	0.50		µg/L	1	1/16/2017
Chlorobenzene	ND	0.50		µg/L	1	1/16/2017
Chloroethane	5.9	0.50		µg/L	1	1/16/2017
Chloroform	ND	0.50		µg/L	1	1/16/2017
Chloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
4-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
cis-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	1/16/2017
Dibromochloromethane	ND	0.50		µg/L	1	1/16/2017
Dibromomethane	ND	0.50		µg/L	1	1/16/2017
1,2-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,3-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,4-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
Dichlorodifluoromethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,3-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
2,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	0.50		µg/L	1	1/16/2017
2-Hexanone	ND	0.50		µg/L	1	1/16/2017
Isopropylbenzene	ND	0.50		µg/L	1	1/16/2017
Methylene Chloride	ND	2.5		µg/L	1	1/16/2017
n-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
n-Propylbenzene	ND	0.50		µg/L	1	1/16/2017
sec-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
Styrene	ND	0.50		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
tert-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	1/16/2017
trans-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
Trichloroethene (TCE)	ND	0.50		µg/L	1	1/16/2017
Trichlorofluoromethane	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichloropropane	ND	0.50		µg/L	1	1/16/2017
Vinyl chloride	ND	0.50		µg/L	1	1/16/2017
mp-Xylenes	ND	1.0		µg/L	1	1/16/2017
o-Xylene	ND	0.50		µg/L	1	1/16/2017
tert-Amyl methyl ether	ND	2.0		µg/L	1	1/16/2017
tert-Butyl alcohol	ND	10		µg/L	1	1/16/2017
Acrolein	ND	2.5		µg/L	1	1/16/2017
Acrylonitrile	ND	2.5		µg/L	1	1/16/2017
Bromochloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chloroethyl vinyl ether	ND	4.0		µg/L	1	1/16/2017
Iodomethane	ND	0.50		µg/L	1	1/16/2017
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	1/16/2017
Vinyl acetate	ND	0.50		µg/L	1	1/16/2017
1,4-Dioxane	ND	20		µg/L	1	1/16/2017
Surr: 1,2-Dichlorobenzene-d4	103	70-130		%Rec	1	1/16/2017
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	1/16/2017
Surr: Toluene-d8	106	70-130		%Rec	1	1/16/2017
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
1,1-Biphenyl	ND	0.50		µg/L	1	1/16/2017
Atrazine	ND	0.50		µg/L	1	1/16/2017
Benzaldehyde	1.4	0.50		µg/L	1	1/16/2017
Caprolactam	ND	0.50		µg/L	1	1/16/2017
N-Nitroso-di-n-butylamine	ND	0.50		µg/L	1	1/16/2017
Acetophenone	ND	5.0		µg/L	1	1/16/2017
1-Methylnaphthalene	ND	5.0		µg/L	1	1/16/2017
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dichlorophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dimethylphenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dinitrophenol	ND	5.0		µg/L	1	1/16/2017
2,4-Dinitrotoluene	ND	5.0		µg/L	1	1/16/2017
2,6-Dinitrotoluene	ND	5.0		µg/L	1	1/16/2017
2-Chloronaphthalene	ND	5.0		µg/L	1	1/16/2017
2-Chlorophenol	ND	5.0		µg/L	1	1/16/2017
2-Methylnaphthalene	ND	5.0		µg/L	1	1/16/2017
2-Methylphenol	ND	5.0		µg/L	1	1/16/2017
2-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
2-Nitrophenol	ND	5.0		µg/L	1	1/16/2017
3,3´-Dichlorobenzidine	ND	5.0		µg/L	1	1/16/2017
3-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	1/16/2017
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	1/16/2017
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	1/16/2017
4-Chloroaniline	ND	5.0		µg/L	1	1/16/2017
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	1/16/2017
4-Nitroaniline	ND	5.0		µg/L	1	1/16/2017
4-Nitrophenol	ND	5.0		µg/L	1	1/16/2017
Acenaphthene	ND	5.0		µg/L	1	1/16/2017
Acenaphthylene	ND	5.0		µg/L	1	1/16/2017
Anthracene	ND	5.0		µg/L	1	1/16/2017
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	1/16/2017
Benz(a)anthracene	ND	0.50		µg/L	1	1/16/2017
Benzo(a)pyrene	ND	0.50		µg/L	1	1/16/2017
Benzo(b)fluoranthene	ND	0.50		µg/L	1	1/16/2017
Benzo(k)fluoranthene	ND	0.50		µg/L	1	1/16/2017
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	1/16/2017
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	1/16/2017
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	1/16/2017
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	1/16/2017
Butyl benzyl phthalate	ND	5.0		µg/L	1	1/16/2017
Carbazole	ND	5.0		µg/L	1	1/16/2017
Chrysene	ND	0.50		µg/L	1	1/16/2017
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	1/16/2017
Dibenzofuran	ND	5.0		µg/L	1	1/16/2017
Diethyl phthalate	ND	5.0		µg/L	1	1/16/2017

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Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001 **Matrix:** AQUEOUS **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**
Dimethyl phthalate	ND	5.0		µg/L	1	1/16/2017
Di-n-butyl phthalate	ND	5.0		µg/L	1	1/16/2017
Di-n-octyl phthalate	ND	5.0		µg/L	1	1/16/2017
Fluoranthene	ND	5.0		µg/L	1	1/16/2017
Fluorene	ND	5.0		µg/L	1	1/16/2017
Hexachlorobenzene	ND	1.0		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	5.0		µg/L	1	1/16/2017
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	1/16/2017
Hexachloroethane	ND	5.0		µg/L	1	1/16/2017
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	1/16/2017
Isophorone	ND	5.0		µg/L	1	1/16/2017
Naphthalene	ND	5.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	1/16/2017
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	1/16/2017
Pentachlorophenol	ND	5.0		µg/L	1	1/16/2017
Phenanthrene	ND	5.0		µg/L	1	1/16/2017
Phenol	ND	5.0		µg/L	1	1/16/2017
Pyrene	ND	5.0		µg/L	1	1/16/2017
o-Toluidine	ND	2.0		µg/L	1	1/16/2017
Pyridine	ND	5.0		µg/L	1	1/16/2017
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	1/16/2017
Surr: 2,4,6-Tribromophenol	134	63-110	S	%Rec	1	1/16/2017
Surr: 2-Fluorobiphenyl	88.4	58-112		%Rec	1	1/16/2017
Surr: 2-Fluorophenol	88.2	47-109		%Rec	1	1/16/2017
Surr: Nitrobenzene-d5	99.6	58-110		%Rec	1	1/16/2017
Surr: Phenol-d5	97.0	52-105		%Rec	1	1/16/2017
Surr: Terphenyl-d14	23.9	22-133		%Rec	1	1/16/2017
CORROSIVITY						Analyst: **SUB**
pH	7.47			pH Units	1	1/12/2017
IGNITABILITY METHOD 1010						Analyst: **SUB**
Ignitability	>200			°F	1	1/12/2017
CYANIDE, REACTIVE						Analyst: **SUB**
Cyanide, Reactive	0.0802	0.0100		mg/L	1	1/18/2017
SULFIDE, REACTIVE						Analyst: **SUB**
Reactive Sulfide	0.50	0.50		mg/L	1	1/16/2017
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 1/5/2017 3:57:00 PM
Lab ID: 1701255-001
Matrix: AQUEOUS
Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**
Conductivity	5300	1.0		µmhos/cm	1	1/9/2017 3:38:00 PM
SM4500-H+B: PH						Analyst: **JRR**
pH	7.51	1.68	H	pH units	1	1/9/2017 3:38:00 PM
SM2320B: ALKALINITY						Analyst: **JRR**
Bicarbonate (As CaCO3)	165.9	20.00		mg/L CaCO3	1	1/11/2017 4:55:22 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	1/11/2017 4:55:22 PM
Total Alkalinity (as CaCO3)	165.9	20.00		mg/L CaCO3	1	1/11/2017 4:55:22 PM
SPECIFIC GRAVITY						Analyst: **LGT**
Specific Gravity	1.000	0			1	1/10/2017 12:21:00 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3310	40.0	*D	mg/L	1	1/11/2017 5:59:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well **Collection Date:** 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
2-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Acetonitrile	ND	2.5		µg/L	1	1/16/2017
Allyl chloride	ND	0.50		µg/L	1	1/16/2017
Chloroprene	ND	0.50		µg/L	1	1/16/2017
Cyclohexane	ND	2.0		µg/L	1	1/16/2017
Diethyl ether	ND	2.0		µg/L	1	1/16/2017
Diisopropyl ether	ND	2.0		µg/L	1	1/16/2017
Epichlorohydrin	ND	5.0		µg/L	1	1/16/2017
Ethyl acetate	ND	2.0		µg/L	1	1/16/2017
Ethyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Ethyl tert-butyl ether	ND	2.0		µg/L	1	1/16/2017
Freon-113	ND	2.0		µg/L	1	1/16/2017
Isobutanol	ND	10		µg/L	1	1/16/2017
Isopropyl acetate	ND	2.0		µg/L	1	1/16/2017
Methacrylonitrile	ND	2.5		µg/L	1	1/16/2017
Methyl acetate	ND	2.0		µg/L	1	1/16/2017
Methyl ethyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl isobutyl ketone	ND	2.5		µg/L	1	1/16/2017
Methyl methacrylate	ND	2.5		µg/L	1	1/16/2017
Methylcyclohexane	ND	2.0		µg/L	1	1/16/2017
n-Amyl acetate	ND	2.0		µg/L	1	1/16/2017
n-Hexane	ND	2.0		µg/L	1	1/16/2017
Nitrobenzene	ND	5.0		µg/L	1	1/16/2017
Pentachloroethane	ND	5.0		µg/L	1	1/16/2017
p-isopropyltoluene	ND	0.50		µg/L	1	1/16/2017
Propionitrile	ND	2.5		µg/L	1	1/16/2017
Tetrahydrofuran	ND	0.50		µg/L	1	1/16/2017
Benzene	ND	0.50		µg/L	1	1/16/2017
Toluene	ND	0.50		µg/L	1	1/16/2017
Ethylbenzene	ND	0.50		µg/L	1	1/16/2017
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	1/16/2017
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	1/16/2017
Naphthalene	ND	0.50		µg/L	1	1/16/2017
Acetone	ND	2.5		µg/L	1	1/16/2017
Bromobenzene	ND	0.50		µg/L	1	1/16/2017
Bromodichloromethane	ND	0.50		µg/L	1	1/16/2017

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Qualifiers:

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Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well **Collection Date:** 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
Bromoform	ND	0.50		µg/L	1	1/16/2017
Bromomethane	ND	0.50		µg/L	1	1/16/2017
2-Butanone	ND	2.5		µg/L	1	1/16/2017
Carbon disulfide	ND	0.50		µg/L	1	1/16/2017
Carbon Tetrachloride	ND	0.50		µg/L	1	1/16/2017
Chlorobenzene	ND	0.50		µg/L	1	1/16/2017
Chloroethane	ND	0.50		µg/L	1	1/16/2017
Chloroform	ND	0.50		µg/L	1	1/16/2017
Chloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
4-Chlorotoluene	ND	0.50		µg/L	1	1/16/2017
cis-1,2-DCE	ND	0.50		µg/L	1	1/16/2017
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	1/16/2017
Dibromochloromethane	ND	0.50		µg/L	1	1/16/2017
Dibromomethane	ND	0.50		µg/L	1	1/16/2017
1,2-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,3-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,4-Dichlorobenzene	ND	0.50		µg/L	1	1/16/2017
Dichlorodifluoromethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloroethene	ND	0.50		µg/L	1	1/16/2017
1,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,3-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
2,2-Dichloropropane	ND	0.50		µg/L	1	1/16/2017
1,1-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
Hexachlorobutadiene	ND	0.50		µg/L	1	1/16/2017
2-Hexanone	ND	0.50		µg/L	1	1/16/2017
Isopropylbenzene	ND	0.50		µg/L	1	1/16/2017
Methylene Chloride	ND	2.5		µg/L	1	1/16/2017
n-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
n-Propylbenzene	ND	0.50		µg/L	1	1/16/2017
sec-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
Styrene	ND	0.50		µg/L	1	1/16/2017
tert-Butylbenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	1/16/2017
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	1/16/2017
trans-1,2-DCE	ND	0.50		µg/L	1	1/16/2017

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1701255**
Date Reported: **2/28/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well **Collection Date:** 1/5/2017 3:57:00 PM
Lab ID: 1701255-002 **Matrix:** TRIP BLANK **Received Date:** 1/9/2017 9:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	1/16/2017
1,1,1-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
1,1,2-Trichloroethane	ND	0.50		µg/L	1	1/16/2017
Trichloroethene (TCE)	ND	0.50		µg/L	1	1/16/2017
Trichlorofluoromethane	ND	0.50		µg/L	1	1/16/2017
1,2,3-Trichloropropane	ND	0.50		µg/L	1	1/16/2017
Vinyl chloride	ND	0.50		µg/L	1	1/16/2017
mp-Xylenes	ND	1.0		µg/L	1	1/16/2017
o-Xylene	ND	0.50		µg/L	1	1/16/2017
tert-Amyl methyl ether	ND	2.0		µg/L	1	1/16/2017
tert-Butyl alcohol	ND	10		µg/L	1	1/16/2017
Acrolein	ND	2.5		µg/L	1	1/16/2017
Acrylonitrile	ND	2.5		µg/L	1	1/16/2017
Bromochloromethane	ND	0.50		µg/L	1	1/16/2017
2-Chloroethyl vinyl ether	ND	4.0		µg/L	1	1/16/2017
Iodomethane	ND	0.50		µg/L	1	1/16/2017
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	1/16/2017
Vinyl acetate	ND	0.50		µg/L	1	1/16/2017
1,4-Dioxane	ND	20		µg/L	1	1/16/2017
Surr: 1,2-Dichlorobenzene-d4	101	70-130		%Rec	1	1/16/2017
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	1/16/2017
Surr: Toluene-d8	104	70-130		%Rec	1	1/16/2017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R39919**	RunNo: **39919**
Prep Date:	Analysis Date: **1/9/2017**	SeqNo: **1251098** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R39919**	RunNo: **39919**
Prep Date:	Analysis Date: **1/9/2017**	SeqNo: **1251099** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.8	90	110			
Bromide	2.5	0.10	2.500	0	99.5	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.9	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R39952**	RunNo: **39952**
Prep Date:	Analysis Date: **1/10/2017**	SeqNo: **1251860** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R39952**	RunNo: **39952**
Prep Date:	Analysis Date: **1/10/2017**	SeqNo: **1251861** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.2	90	110			
Sulfate	9.4	0.50	10.00	0	94.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**		TestCode: **EPA Method 8260B: VOLATILES**		
Client ID: **PBW**	Batch ID: **R40852**		RunNo: **40852**		
Prep Date:	Analysis Date: **1/16/2017**		SeqNo: **1279689**	Units: **µg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,1-Dichloropropene	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
2-Butanone	ND	2.5								
2-Hexanone	ND	0.50								
Acetone	ND	2.5								
Acetonitrile	ND	2.5								
Acrolein	ND	2.5								
Acrylonitrile	ND	2.5								
Allyl chloride	ND	0.50								
Benzene	ND	0.50								
Bromochloromethane	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
Chloroprene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
Dichlorodifluoromethane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279689** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Ethyl methacrylate	ND	2.5								
Ethylbenzene	ND	0.50								
Iodomethane	ND	0.50								
Isobutanol	ND	10								
mp-Xylenes	ND	1.0								
Methacrylonitrile	ND	2.5								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	2.5								
Methylene Chloride	ND	2.5								
o-Xylene	ND	0.50								
Propionitrile	ND	2.5								
Styrene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
Toluene	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
Vinyl acetate	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
Vinyl chloride	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dioxane	ND	20								
2-Chloroethyl vinyl ether	ND	4.0								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
Bromobenzene	ND	0.50								
Cyclohexane	ND	2.0								
Diethyl ether	ND	2.0								
Diisopropyl ether	ND	2.0								
Epichlorohydrin	ND	5.0								
Ethyl acetate	ND	2.0								
Ethyl tert-butyl ether	ND	2.0								
Freon-113	ND	2.0								
Hexachlorobutadiene	ND	0.50								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**							
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279689**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Isopropyl acetate	ND	2.0								
Isopropylbenzene	ND	0.50								
Methyl acetate	ND	2.0								
Methylcyclohexane	ND	2.0								
Methyl tert-butyl ether (MTBE)	ND	10								
n-Amyl acetate	ND	2.0								
Naphthalene	ND	0.50								
n-Butylbenzene	ND	0.50								
n-Hexane	ND	2.0								
Nitrobenzene	ND	5.0								
n-Propylbenzene	ND	0.50								
Pentachloroethane	ND	5.0								
p-isopropyltoluene	ND	0.50								
sec-Butylbenzene	ND	0.50								
tert-Amyl methyl ether	ND	2.0								
tert-Butyl alcohol	ND	10								
tert-Butylbenzene	ND	0.50								
Tetrahydrofuran	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
2,2-Dichloropropane	ND	0.50								
2-isopropyltoluene	ND	0.50								

Sample ID **LCS-R40852**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **LCSW**	Batch ID: **R40852**	RunNo: **40852**							
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279690**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	2.1		2.000	0	107	80	120			
Benzene	2.0		2.000	0	102	80	120			
Chlorobenzene	1.9		2.000	0	96.5	80	120			
Ethylbenzene	2.0		2.000	0	99.2	80	120			
o-Xylene	2.0		2.000	0	102	80	120			
Tetrachloroethene (PCE)	1.9		2.000	0	95.0	80	120			
Toluene	2.1		2.000	0	106	80	120			
Trichloroethene (TCE)	2.1		2.000	0	103	80	120			
Cyclohexane	3.9		4.000	0	96.5	70	130			
n-Hexane	3.8		4.000	0	94.0	70	130			
Tetrahydrofuran	1.7		2.000	0	84.4	70	130			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**		TestCode: **EPA 8270C: Semivolatiles/Mod**		
Client ID: **PBW**	Batch ID: **R40852**		RunNo: **40852**		
Prep Date:	Analysis Date: **1/16/2017**		SeqNo: **1279692**	Units: **µg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	0.50								
Atrazine	ND	0.50								
Benzaldehyde	ND	0.50								
Caprolactam	ND	0.50								
N-Nitroso-di-n-butylamine	ND	0.50								
Acetophenone	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2,3,4,6-Tetrachlorophenol	ND	0.50								
2,4,5-Trichlorophenol	ND	0.50								
2,4,6-Trichlorophenol	ND	0.50								
2,4-Dichlorophenol	ND	0.50								
2,4-Dimethylphenol	ND	0.50								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
2-Chloronaphthalene	ND	0.50								
2-Chlorophenol	ND	0.50								
2-Methylnaphthalene	ND	0.50								
2-Methylphenol	ND	0.50								
2-Nitroaniline	ND	0.50								
2-Nitrophenol	ND	0.50								
3,3′-Dichlorobenzidine	ND	0.50								
3-Nitroaniline	ND	0.50								
4,6-Dinitro-2-methylphenol	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.50								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
4-Chlorophenyl phenyl ether	ND	0.50								
4-Nitroaniline	ND	0.50								
4-Nitrophenol	ND	0.50								
Acenaphthene	ND	0.50								
Acenaphthylene	ND	0.50								
Anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								
Benzo(k)fluoranthene	ND	0.50								
Bis(2-chloroethoxy)methane	ND	0.50								

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R40852**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**							
Client ID: **PBW**	Batch ID: **R40852**	RunNo: **40852**							
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279692**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroethyl)ether	ND	0.50								
Bis(2-chloroisopropyl)ether	ND	0.50								
Bis(2-ethylhexyl)phthalate	ND	0.50								
Butyl benzyl phthalate	ND	0.50								
Carbazole	ND	0.50								
Chrysene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Dibenzofuran	ND	0.50								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.50								
Di-n-butyl phthalate	ND	0.50								
Di-n-octyl phthalate	ND	0.50								
Fluoranthene	ND	0.50								
Fluorene	ND	0.50								
Hexachlorobenzene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
Hexachlorocyclopentadiene	ND	0.50								
Hexachloroethane	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Isophorone	ND	0.50								
Naphthalene	ND	0.50								
Nitrobenzene	ND	0.50								
N-Nitrosodi-n-propylamine	ND	0.50								
N-Nitrosodiphenylamine	ND	0.50								
Pentachlorophenol	ND	0.50								
Phenanthrene	ND	0.50								
Phenol	ND	0.50								
Pyrene	ND	0.50								
o-Toluidine	ND	0.50								
Pyridine	ND	0.50								
1,2,4,5-Tetrachlorobenzene	ND	0.50								

Sample ID **LCS-R40852**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**							
Client ID: **LCSW**	Batch ID: **R40852**	RunNo: **40852**							
Prep Date:	Analysis Date: **1/16/2017**	SeqNo: **1279693**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	3.9	0.50	5.000	0	78.8	49	145			
2-Chlorophenol	4.1		5.000	0	81.6	50	131			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R40852**	SampType: **LCS**		TestCode: **EPA 8270C: Semivolatiles/Mod**		
Client ID: **LCSW**	Batch ID: **R40852**		RunNo: **40852**		
Prep Date:	Analysis Date: **1/16/2017**		SeqNo: **1279693**	Units: **µg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chloro-3-methylphenol	4.6		5.000	0	93.0	42	139			
4-Nitrophenol	2.8		5.000	0	55.8	19	137			
Acenaphthene	4.5		5.000	0	89.6	36	131			
Bis(2-ethylhexyl)phthalate	4.6		5.000	0	91.6	43	148			
N-Nitrosodi-n-propylamine	4.8		5.000	0	96.4	46	135			
Pentachlorophenol	4.4		5.000	0	87.2	22	138			
Phenol	3.6		5.000	0	71.0	45	134			
Pyrene	4.8		5.000	0	95.6	45	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-29607**	SampType: **MBLK**			TestCode: **EPA Method 7470: Mercury**						
Client ID: **PBW**	Batch ID: **29607**			RunNo: **39928**						
Prep Date: **1/9/2017**	Analysis Date: **1/10/2017**			SeqNo: **1251289**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-29607**	SampType: **LCS**			TestCode: **EPA Method 7470: Mercury**						
Client ID: **LCSW**	Batch ID: **29607**			RunNo: **39928**						
Prep Date: **1/9/2017**	Analysis Date: **1/10/2017**			SeqNo: **1251290**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**

28-Feb-17

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29638**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252475**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-29638**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252476**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.7	80	120			

Sample ID	**1701255-001CMS**	SampType:	**MS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252485**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.10	0.005000	0	116	75	125			

Sample ID	**1701255-001CMSD**	SampType:	**MSD**	TestCode:	**MERCURY, TCLP**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID:	**29638**	RunNo:	**39965**					
Prep Date:	**1/11/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252486**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.10	0.005000	0	114	75	125	0	20	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29669**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**PBW**	Batch ID:	**29669**	RunNo:	**40172**					
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259320**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID	**LCS-29669**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**LCSW**	Batch ID:	**29669**	RunNo:	**40172**					
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259321**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.6	80	120			
Barium	ND	100	0.5000	0	97.4	80	120			
Cadmium	ND	1.0	0.5000	0	101	80	120			
Chromium	ND	5.0	0.5000	0	97.3	80	120			
Lead	ND	5.0	0.5000	0	98.1	80	120			
Selenium	ND	1.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001BMS** SampType: **MS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258095** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.3	0.020	0.5000	0.6211	130	75	125			S
Antimony	0.53	0.050	0.5000	0	106	75	125			
Arsenic	0.57	0.020	0.5000	0.02614	109	75	125			
Barium	0.53	0.020	0.5000	0.02451	102	75	125			
Beryllium	0.52	0.0030	0.5000	0	104	75	125			
Cadmium	0.53	0.0020	0.5000	0	105	75	125			
Chromium	0.50	0.0060	0.5000	0	99.5	75	125			
Cobalt	0.50	0.0060	0.5000	0.001980	100	75	125			
Copper	0.59	0.0060	0.5000	0.01121	117	75	125			
Iron	1.8	0.050	0.5000	1.346	91.7	75	125			
Lead	0.51	0.0050	0.5000	0	102	75	125			
Magnesium	80	1.0	50.00	30.99	98.8	75	125			
Manganese	0.64	0.0020	0.5000	0.1301	101	75	125			
Nickel	0.51	0.010	0.5000	0.01117	99.1	75	125			
Potassium	80	1.0	50.00	30.50	98.6	75	125			
Selenium	0.52	0.050	0.5000	0	105	75	125			
Silver	0.11	0.0050	0.1000	0	107	75	125			
Thallium	0.56	0.050	0.5000	0.04293	104	75	125			
Vanadium	0.53	0.050	0.5000	0.004290	106	75	125			
Zinc	0.52	0.020	0.5000	0.01969	99.7	75	125			

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.3	0.020	0.5000	0.6211	134	75	125	1.38	20	S
Antimony	0.53	0.050	0.5000	0	105	75	125	0.685	20	
Arsenic	0.57	0.020	0.5000	0.02614	108	75	125	1.24	20	
Barium	0.53	0.020	0.5000	0.02451	102	75	125	0.204	20	
Beryllium	0.52	0.0030	0.5000	0	104	75	125	0.557	20	
Cadmium	0.53	0.0020	0.5000	0	105	75	125	0.243	20	
Chromium	0.50	0.0060	0.5000	0	99.2	75	125	0.346	20	
Cobalt	0.50	0.0060	0.5000	0.001980	99.9	75	125	0.559	20	
Copper	0.59	0.0060	0.5000	0.01121	116	75	125	0.300	20	
Iron	1.8	0.050	0.5000	1.346	98.2	75	125	1.79	20	
Lead	0.51	0.0050	0.5000	0	102	75	125	0.513	20	
Magnesium	80	1.0	50.00	30.99	98.0	75	125	0.479	20	
Manganese	0.64	0.0020	0.5000	0.1301	101	75	125	0.130	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	0.51	0.010	0.5000	0.01117	99.0	75	125	0.142	20	
Potassium	79	1.0	50.00	30.50	97.5	75	125	0.698	20	
Selenium	0.55	0.050	0.5000	0	111	75	125	5.59	20	
Silver	0.11	0.0050	0.1000	0	108	75	125	0.214	20	
Thallium	0.57	0.050	0.5000	0.04293	106	75	125	1.14	20	
Vanadium	0.53	0.050	0.5000	0.004290	105	75	125	0.120	20	
Zinc	0.52	0.020	0.5000	0.01969	99.9	75	125	0.172	20	

Sample ID **1701255-001BPS** SampType: **PS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: Analysis Date: **1/18/2017** SeqNo: **1258097** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.2	0.020	0.5000	0.6211	124	80	120			S

Sample ID **1701255-001BMS** SampType: **MS** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258099** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	150	5.0	50.00	98.98	97.6	75	125			

Sample ID **1701255-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Metals**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **29669** RunNo: **40134**
Prep Date: **1/12/2017** Analysis Date: **1/18/2017** SeqNo: **1258100** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	150	5.0	50.00	98.98	103	75	125	1.92	20	

Sample ID **MB-29669** SampType: **MBLK** TestCode: **EPA 6010B: Metals**
Client ID: **PBW** Batch ID: **29669** RunNo: **40172**
Prep Date: **1/12/2017** Analysis Date: **1/20/2017** SeqNo: **1259232** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-29669**	SampType: **MBLK**	TestCode: **EPA 6010B: Metals**							
Client ID: **PBW**	Batch ID: **29669**	RunNo: **40172**							
Prep Date: **1/12/2017**	Analysis Date: **1/20/2017**	SeqNo: **1259232**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-29669**	SampType: **LCS**	TestCode: **EPA 6010B: Metals**							
Client ID: **LCSW**	Batch ID: **29669**	RunNo: **40172**							
Prep Date: **1/12/2017**	Analysis Date: **1/20/2017**	SeqNo: **1259233**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	111	80	120			
Antimony	0.52	0.050	0.5000	0	104	80	120			
Arsenic	0.50	0.020	0.5000	0	99.6	80	120			
Barium	0.49	0.020	0.5000	0	97.4	80	120			
Beryllium	0.51	0.0030	0.5000	0	102	80	120			
Cadmium	0.50	0.0020	0.5000	0	101	80	120			
Calcium	48	1.0	50.00	0	96.9	80	120			
Chromium	0.49	0.0060	0.5000	0	97.3	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.8	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.49	0.050	0.5000	0	97.1	80	120			
Lead	0.49	0.0050	0.5000	0	98.1	80	120			
Magnesium	49	1.0	50.00	0	98.3	80	120			
Manganese	0.48	0.0020	0.5000	0	96.2	80	120			
Nickel	0.48	0.010	0.5000	0	96.2	80	120			
Potassium	48	1.0	50.00	0	95.5	80	120			
Selenium	0.51	0.050	0.5000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**LCS-29669**	SampType:	**LCS**	TestCode:	**EPA 6010B: Metals**		
Client ID:	**LCSW**	Batch ID:	**29669**	RunNo:	**40172**		
Prep Date:	**1/12/2017**	Analysis Date:	**1/20/2017**	SeqNo:	**1259233**	Units:	**mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.10	0.0050	0.1000	0	101	80	120			
Sodium	49	1.0	50.00	0	97.6	80	120			
Thallium	0.53	0.050	0.5000	0	106	80	120			
Vanadium	0.50	0.050	0.5000	0	100	80	120			
Zinc	0.48	0.020	0.5000	0	95.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-R40852**	SampType:	**MBLK**		TestCode:	**CYANIDE, Reactive**				
Client ID:	**PBW**	Batch ID:	**R40852**		RunNo:	**40852**				
Prep Date:		Analysis Date:	**1/18/2017**		SeqNo:	**1279635**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	0.0100								

Sample ID	**LCS-R40852**	SampType:	**LCS**		TestCode:	**CYANIDE, Reactive**				
Client ID:	**LCSW**	Batch ID:	**R40852**		RunNo:	**40852**				
Prep Date:		Analysis Date:	**1/18/2017**		SeqNo:	**1279636**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.486		0.5000	0	97.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-R40852**	SampType:	**MBLK**	TestCode:	**SULFIDE, Reactive**					
Client ID:	**PBW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/16/2017**	SeqNo:	**1279640**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.50								

Sample ID	**LCS-R40852**	SampType:	**LCS**	TestCode:	**SULFIDE, Reactive**					
Client ID:	**LCSW**	Batch ID:	**R40852**	RunNo:	**40852**					
Prep Date:		Analysis Date:	**1/16/2017**	SeqNo:	**1279641**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**mb-1**	SampType:	**mblk**	TestCode:	**SM2320B: Alkalinity**					
Client ID:	**PBW**	Batch ID:	**R39972**	RunNo:	**39972**					
Prep Date:		Analysis Date:	**1/11/2017**	SeqNo:	**1252683**	Units:	**mg/L CaCO3**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	**lcs-1**	SampType:	**lcs**	TestCode:	**SM2320B: Alkalinity**					
Client ID:	**LCSW**	Batch ID:	**R39972**	RunNo:	**39972**					
Prep Date:		Analysis Date:	**1/11/2017**	SeqNo:	**1252684**	Units:	**mg/L CaCO3**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.84	20.00	80.00	0	97.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1701255-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**
Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R39926** RunNo: **39926**
Prep Date: Analysis Date: **1/10/2017** SeqNo: **1251236** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.0600	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1701255**
28-Feb-17

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-29623**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**29623**	RunNo:	**39966**					
Prep Date:	**1/10/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252489**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-29623**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**29623**	RunNo:	**39966**					
Prep Date:	**1/10/2017**	Analysis Date:	**1/11/2017**	SeqNo:	**1252490**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1060	20.0	1000	0	106	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1701255 RcptNo: 1

Received by/date: RE 01/09/17

Logged By: **Ashley Gallegos** 1/9/2017 9:20:00 AM

Completed By: **Ashley Gallegos** 1/9/2017 10:01:26 AM

Reviewed By: 01/09/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes	No	Not Present ✔
2. Is Chain of Custody complete?	Yes ✔	No	Not Present
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ✔	No	NA
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
6. Sample(s) in proper container(s)?	Yes ✔	No	
7. Sufficient sample volume for indicated test(s)?	Yes ✔	No	
8. Are samples (except VOA and ONG) properly preserved?	Yes ✔	No	
9. Was preservative added to bottles?	Yes	No ✔	NA
10. VOA vials have zero headspace?	Yes ✔	No	No VOA Vials
11. Were any sample containers received broken?	Yes	No ✔	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	# of preserved bottles checked for pH: 2,2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ✔	No	Adjusted? NO
14. Is it clear what analyses were requested?	Yes ✔	No	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes No NA ✔

Person Notified: Date

By Whom: Via: eMail Phone Fax In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standar ☐ Rush

Project Name: Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager: Micki Schultz / Scott Denton / Mike Holder

Sampler: Brady Hubbard

On Ice: ☒ Yes ☐ No

Sample Temperature: 1 - 3

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1701257	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
1/5/17	3:57	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
1/5/17	3:57	Liquid	Trip Blank	2	Neat	-002		X					
1/5/17	xxx	Liquid	Temperature Blank	1	Neat	-002							

Date:	Time:	Relinquished by:	Received by:	Date	Time
1.6.17	1:30	Brady Hubbard		1/9/17	0920
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HOLLYFRONTIER.

July 11, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 5918

RE: 2016 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2016 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1355 psig and the average flows were 131 gpm for WDW-1, 104 gpm for WDW-2 and 152 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2016 to June 30, 2016. We have disposed a total of 1,214,229 barrels of fluid into the three wells during the second quarter of 2016. The volume per well is:

- 417,759 barrels into WDW-1
- 331,533 barrels into WDW-2
- 483,519 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-748-5487.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2016 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	37,950,483
Apr-16	1,361	1,400	1,312	125	134	113	338	511	199	3,171	4,594	3,874	133,178	38,083,661
May-16	1,387	1,400	1,383	135	140	125	362	544	222	3,411	4,800	4,286	143,265	38,226,926
Jun-16	1,343	1,400	1,335	133	146	80	607	857	178	3,365	5,006	2,743	141,316	38,368,242
30-015-20894 WDW-2													**Previous Quarter**	24,863,592
Apr-16	1,360	1,400	1,222	103	113	89	312	432	220	2,598	3,874	3,051	109,111	24,972,703
May-16	1,388	1,400	1,377	112	117	105	301	391	218	2,843	4,011	3,600	119,407	25,092,110
Jun-16	1,315	1,400	1,335	97	121	80	346	455	194	2,453	4,149	2,743	103,015	25,195,125
30-015-26575 WDW-3													**Previous Quarter**	15,259,706
Apr-16	1,355	1,395	1,338	152	161	138	726	900	683	3,856	5,520	4,731	161,973	15,421,679
May-16	1,375	1,390	1,335	160	165	148	625	807	621	4,049	5,657	5,074	170,061	15,591,740
Jun-16	1,313	1,386	1,335	143	168	22	668	907	584	3,607	5,760	754	151,485	15,743,225
													Total Injected fluids:	79,306,592

	Monthly Avg.	Monthly Avg.
WDW-1	1,364	131
WDW-2	1,354	104
WDW-3	1,348	152

	Total BBLS	Beginning Volume	Ending Volume
WDW1	417,759	37,950,483	38,368,242
WDW2	331,533	24,863,592	25,195,125
WDW3	483,519	15,259,706	15,743,225
	1,232,811		79,306,592

HOLLYFRONTIER.

May 12, 2016

Submitted electronically via email to jim.griswold@state.nm.us and carlj.chavez@state.nm.us

Oil Conservation Division
New Mexico Energy, Minerals & Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: Discharge Permit GW-028
Monthly Report – April 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's April 2016 monthly report, for the period of April 1-30, 2016, under the Permit.

Specifically, this report covers the April 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

- Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.
- Analytical results of a discharge sample collected on April 5, 2016.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the two permanent RO units and the temporary RO unit on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. (Note that the temporary RO unit operated through April 2016, and will be replaced in the second quarter of 2016 with the permanent unit, as authorized by OCD on April 1, 2016.)

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the second quarter, samples were collected for the RO reject streams from the permanent units and temporary unit on April 5, 2016. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results are provided in Attachment 2.

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • http://www.hollyfrontier.com

Navajo is committed to proactively meeting the requirements of the Permit and working cooperatively with OCD. If you have any questions or comments, please contact me at 575-746-5487.

Sincerely,

Scott M. Denton
Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates
Attachment 2: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder
OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

	Permanent RO Units				Temporary Unit		Daily Discharge Volume
	Metered Data		Combined RO Reject Discharge (Calculated)		Total RO Reject Discharge (Calculated from Log Data)		
	GPM SOUTH	GPM NORTH	GPM	BBL/DAY	GPM	BBL/DAY	BBL
4/1/2016	68	82	151	5,163	131	4489	9,652
4/2/2016	73	87	160	5,488	133	4557	10,045
4/3/2016	73	85	159	5,443	130	4453	9,896
4/4/2016	72	81	153	5,247	134	4585	9,832
4/5/2016	0	8	8	270	146	4991	5,261
4/6/2016	0	57	57	1,958	132	4509	6,467
4/7/2016	3	8	10	356	136	4646	5,002
4/8/2016	102	36	138	4,730	141	4849	9,579
4/9/2016	111	89	200	6,867	140	4801	11,668
4/10/2016	106	90	195	6,701	134	4596	11,297
4/11/2016	113	94	207	7,090	139	4772	11,862
4/12/2016	113	92	205	7,014	145	4954	11,968
4/13/2016	111	89	200	6,873	148	5091	11,964
4/14/2016	114	102	216	7,392	155	5307	12,699
4/15/2016	109	83	191	6,553	157	5390	11,943
4/16/2016	110	83	194	6,644	149	5110	11,754
4/17/2016	113	86	199	6,824	131	4485	11,309
4/18/2016	109	81	190	6,529	119	4066	10,595
4/19/2016	103	82	186	6,365	148	5081	11,446
4/20/2016	108	85	193	6,611	152	5207	11,818
4/21/2016	108	80	188	6,434	143	4903	11,337
4/22/2016	106	82	188	6,440	137	4688	11,128
4/23/2016	87	77	164	5,616	136	4679	10,295
4/24/2016	84	81	165	5,662	139	4754	10,416
4/25/2016	66	82	149	5,096	134	4593	9,689
4/26/2016	75	88	163	5,603	131	4476	10,079
4/27/2016	82	78	159	5,460	136	4653	10,113
4/28/2016	81	73	154	5,273	139	4768	10,041
4/29/2016	84	82	166	5,708	129	4427	10,135
4/30/2016	82	81	163	5,590	126	4314	9,904

Attachment 2
Analytical Lab Report

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 12, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly R.O. Reject OrderNo.: 1604184

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/6/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**	
Arsenic	ND	0.0050		mg/L	5	4/19/2016 6:19:56 PM	A33644
Lead	ND	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
Selenium	ND	0.020		mg/L	20	4/20/2016 6:29:13 PM	A33677
Uranium	0.0067	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**	
Radium-226	1.02	0.578		pCi/L	1	4/29/2016	R34156
Radium-226 ±	0.608	0.578		pCi/L	1	4/29/2016	R34156
Radium-228	0.143	0.803		pCi/L	1	4/29/2016	R34156
Radium-228 ±	0.361	0.803		pCi/L	1	4/29/2016	R34156
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	4.7	2.0	*	mg/L	20	4/18/2016 10:52:15 PM	R33628
Chloride	390	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	4/7/2016 4:51:08 AM	R33368
Nitrogen, Nitrate (As N)	2.4	0.10		mg/L	1	4/7/2016 4:38:43 AM	R33368
Sulfate	2400	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	5190	20.0	*	mg/L	1	4/7/2016 3:22:00 PM	24656
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**	
Cyanide	ND	0.0100		mg/L	1	4/13/2016	R34156
SM4500-H+B: PH						Analyst: **MRA**	
pH	8.17	1.68	H	pH units	1	4/9/2016 2:23:07 AM	R33424
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Aluminum	ND	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Barium	0.094	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Boron	0.10	0.040		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cadmium	ND	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Chromium	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cobalt	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Copper	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Iron	0.034	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Manganese	ND	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Molybdenum	ND	0.0080		mg/L	1	4/18/2016 5:43:21 PM	A33606
Nickel	ND	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
Silver	ND	0.0050		mg/L	1	4/18/2016 5:43:21 PM	A33606
Zinc	0.027	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	4/15/2016 12:01:33 PM	24817
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:39:53 PM	24682
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1221	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1232	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1242	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1248	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1254	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1260	ND	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Surr: Decachlorobiphenyl	121	26.1-140		%Rec	1	4/19/2016 2:38:24 AM	24708
Surr: Tetrachloro-m-xylene	95.2	15-123		%Rec	1	4/19/2016 2:38:24 AM	24708
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**	
Diesel Range Organics (DRO)	9.4	1.0		mg/L	1	4/8/2016 9:58:45 PM	24652
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/8/2016 9:58:45 PM	24652
Surr: DNOP	114	70-141		%Rec	1	4/8/2016 9:58:45 PM	24652
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 11:55:58 AM	R33412
Surr: BFB	89.0	49.5-130		%Rec	1	4/8/2016 11:55:58 AM	R33412
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
1-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
2-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
Benzo(a)pyrene	ND	0.070		µg/L	1	4/19/2016 11:30:48 AM	24709
Surr: Benzo(e)pyrene	74.7	33.4-129		%Rec	1	4/19/2016 11:30:48 AM	24709
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Toluene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 4/5/2016 8:15:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:30:43 PM	R33550
Surr: 1,2-Dichloroethane-d4	98.3	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Dibromofluoromethane	110	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Toluene-d8	94.9	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/21/2016	24923

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1604184**
Date Reported: **5/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject
Lab ID: 1604184-002
Client Sample ID: Trip Blank
Collection Date:
Matrix: TRIP BLANK
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:54:59 PM	24682
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 12:20:35 PM	R33412
Surr: BFB	85.7	49.5-130		%Rec	1	4/8/2016 12:20:35 PM	R33412
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Toluene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:59:37 PM	R33550
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Dibromofluoromethane	111	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Toluene-d8	96.2	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034060** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034061** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	ND	0.0020	0.002000	0	94.5	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	94.9	50	150			
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	ND	0.0060	0.006000	0	92.7	50	150			
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	ND	0.020	0.02000	0	98.6	50	150			
Manganese	ND	0.0020	0.002000	0	90.5	50	150			
Molybdenum	ND	0.0080	0.008000	0	99.0	50	150			
Nickel	ND	0.010	0.005000	0	86.2	50	150			
Silver	ND	0.0050	0.005000	0	92.6	50	150			
Zinc	ND	0.010	0.005000	0	108	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036133** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.5	85	115			
Lead	0.011	0.00050	0.01250	0	91.9	85	115			
Uranium	0.011	0.00050	0.01250	0	91.8	85	115			

Sample ID **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			
Lead	0.00052	0.00050	0.0005000	0	105	50	150			
Uranium	ND	0.00050	0.0005000	0	99.1	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Uranium	ND	0.00050								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037321** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.024	0.0010	0.02500	0	97.2	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037322** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0011	0.0010	0.001000	0	106	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037323** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24817**	SampType: **MBLK**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **PBW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-24817**	SampType: **LCS**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **LCSW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032805** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R33368**	RunNo: **33368**
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025773** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R33368**	RunNo: **33368**
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025774** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R33628**	RunNo: **33628**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035257** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R33628**	RunNo: **33628**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035258** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Chloride	4.8	0.50	5.000	0	96.7	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24682**	SampType: **MBLK**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **PBW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027492** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID **LCS-24682**	SampType: **LCS**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **LCSW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027494** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	116	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24652**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**							
Client ID: **PBW**	Batch ID: **24652**	RunNo: **33385**							
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026445**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	70	141			

Sample ID **LCS-24652**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**							
Client ID: **LCSW**	Batch ID: **24652**	RunNo: **33385**							
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026634**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	71.3	139			
Surr: DNOP	0.53		0.5000		107	70	141			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027408** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.6	49.5	130			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027409** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.9	80	120			
Surr: BFB	19		20.00		96.6	49.5	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24708**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **PBW**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034347**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			

Sample ID **LCS-24708**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **LCSW**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034348**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5	1.0	5.000	0	130	15	131			
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S

Sample ID **LCSD-24708**	SampType: **LCSD**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **LCSS02**	Batch ID: **24708**	RunNo: **33583**							
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034349**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **LCSW**	Batch ID: **R33550**	RunNo: **33550**							
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032303**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **PBW**	Batch ID: **R33550**	RunNo: **33550**							
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032305**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24709**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034469** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID **LCSD-24709**	SampType: **LCSD**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSS02**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034484**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.30	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	2[illegible].4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	33.4	129	0		

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24923**	SampType: **MBLK**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **PBW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037376**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID **LCS-24923**	SampType: **LCS**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **LCSW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037377**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	89.0	64.4	135			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-R34156**	SampType: **MBLK**	TestCode: **EPA 335.4: Total Cyanide Subbed**							
Client ID: **PBW**	Batch ID: **R34156**	RunNo: **34156**							
Prep Date:	Analysis Date: **4/13/2016**	SeqNo: **1053134**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID **LCS-R34156**	SampType: **LCS**	TestCode: **EPA 335.4: Total Cyanide Subbed**							
Client ID: **LCSW**	Batch ID: **R34156**	RunNo: **34156**							
Prep Date:	Analysis Date: **4/13/2016**	SeqNo: **1053135**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.507		0.5000	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-R34156**	SampType: **MBLK**	TestCode: **EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID: **PBW**	Batch ID: **R34156**	RunNo: **34156**
Prep Date:	Analysis Date: **4/29/2016**	SeqNo: **1053137** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	-2.01	0.933								
Radium-226 ±	0.459	0.933								
Radium-228	0.321	0.795								
Radium-228 ±	0.376	0.795								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID **MB-24656**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025974** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-24656**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1604184 RcptNo: 1

Received by/date: 04/06/16

Logged By: Ashley Gallegos 4/6/2016 9:40:00 AM

Completed By: Ashley Gallegos 4/6/2016 12:24:03 PM

Reviewed By: 04/06/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 6 (1) (<2 or >12 unless noted)

Adjusted? NO

Checked by: AJS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

ent: Navajo Refinery

ailing Address: P.O. Box 159 Artesia,

M 88211-0159

one #: 575-748-3311

ail or Fax#: 575-746-5451

VQC Package:

Standard ☐ Level 4 (Full Validation)

Other

EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Brady Hubbard

On Ice: X Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB	Air Bubbles (Y or N)
4/5/16	8:15	liquid	R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001									X		X	X	X	X		Y
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	HCL		X															
4/5/16	8:15	liquid	R.O. Reject	1-500ml P	HNO3						X											
4/5/16	8:15	liquid	R.O. Reject	1-125ml P	HNO3				X													
4/5/16	8:15	liquid	R.O. Reject	1-500ml P	NaOH					X												
4/5/16	8:15	liquid	R.O. Reject	2- 1L P	HNO3									X								
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	Na2S2O3																X	
4/5/16	8:15	liquid	R.O. Reject	2 - 1L Glass	unpres								X									
4/5/16	8:15	liquid	R.O. Reject	1 - 1L Glass	unpres			X														
4/5/16	8:15	liquid	R.O. Reject	3-40ml VOA	HCl							X										
4/5/16	8:15	liquid	R.O. Reject	1-250mlGlas	unpres							X										
4/5/16	8:15	liquid	R.O. Reject	1 - 1L Glass	H2SO4											X						
4/5/16	8:15	liquid	Trip Blank	2-40ml VOA	HCL	-002																

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/16	12:00	Elizabeth Salsberry			
Date:	Time:	Relinquished by:	Received by:	Date	Time
				04/06/16	0940

Remarks:

Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride

SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene

This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Quarterly RO Reject Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Brady Hubbard
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	4/5/2016 @ 8:05 a.m.
End Date and Time	4/5/2016 @ 8:30 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Parts / Sample Intervals	One
Type of Sampler	Directly to sample jars

Outfall / Sample Location: ☐ North Field R.O. Reject Discarge ☑ South Field R.O. Reject Discarge

Container	Size	Material	Numbers	Preservatives: None	HCl	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
	500ml	Plastic	2	X			X					pH, Cl, F, S04, NO2/NO3, TDS
	40ml	VOA	3		X							8015 GRO
	500ml	Plastic	1			X						6020 total metals, 7470 Hg
	125ml	Plastic	1			X						6020 Dissolved Metals
	500ml	Plastic	2					X				Cyanide
	1L	Plastic	3			X						Radium 226/228
	40ml	VOA	2		X							8260 see attached list
	1L	Glass	1	X								8270 see attached list
	1L	Glass	2	X								8082 PCBs
	40ml	VOA	2	X								8015 DRO
	40ml	VOA	2		X							Radium 226/228

Field Data (Weather, Observations, etc.) and Date and Time: 4/5/2016 Tmp.55.4 °F, Humidity 41%, Wind Dir. SE, Wind Speed 4.6mph, Conditions Clear

Field Temp. 23.6C Field pH 7.05

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

Page 4971 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 10, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly Temporary R.O. Reject OrderNo.: 1604182

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/6/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1604182**
Date Reported: **5/10/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject
Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB						Analyst: **JME**
1,2-Dibromoethane	ND	0.010		µg/L	1	4/8/2016 2:24:54 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1221	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1232	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1242	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1248	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1254	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Aroclor 1260	ND	1.0		µg/L	1	4/19/2016 2:04:17 AM
Surr: Decachlorobiphenyl	106	26.1-140		%Rec	1	4/19/2016 2:04:17 AM
Surr: Tetrachloro-m-xylene	74.4	15-123		%Rec	1	4/19/2016 2:04:17 AM
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**
Diesel Range Organics (DRO)	2.4	1.0		mg/L	1	4/8/2016 9:37:25 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/8/2016 9:37:25 PM
Surr: DNOP	114	70-141		%Rec	1	4/8/2016 9:37:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2016 10:42:12 AM
Surr: BFB	84.7	49.5-130		%Rec	1	4/8/2016 10:42:12 AM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
1-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
2-Methylnaphthalene	ND	2.0		µg/L	1	4/19/2016 11:01:30 AM
Benzo(a)pyrene	ND	0.070		µg/L	1	4/19/2016 11:01:30 AM
Surr: Benzo(e)pyrene	101	33.4-129		%Rec	1	4/19/2016 11:01:30 AM
EPA METHOD 300.0: ANIONS						Analyst: **LGT**
Fluoride	1.9	0.10		mg/L	1	4/18/2016 10:02:35 PM
Chloride	55	10		mg/L	20	4/7/2016 5:15:57 AM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/7/2016 5:03:33 AM
Nitrogen, Nitrate (As N)	1.0	0.10		mg/L	1	4/7/2016 5:03:33 AM
Sulfate	880	25		mg/L	50	4/18/2016 10:15:00 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**
Aluminum	ND	0.020		mg/L	1	4/18/2016 5:39:41 PM
Barium	0.040	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Boron	0.052	0.040		mg/L	1	4/18/2016 5:39:41 PM
Cadmium	ND	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Chromium	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Analytical Report
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Lab ID: 1604182-001 **Matrix:** AQUEOUS

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Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**
Cobalt	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM
Copper	ND	0.0060		mg/L	1	4/18/2016 5:39:41 PM
Iron	0.051	0.020		mg/L	1	4/18/2016 5:39:41 PM
Manganese	ND	0.0020		mg/L	1	4/18/2016 5:39:41 PM
Molybdenum	ND	0.0080		mg/L	1	4/18/2016 5:39:41 PM
Nickel	ND	0.010		mg/L	1	4/18/2016 5:39:41 PM
Silver	ND	0.0050		mg/L	1	4/18/2016 5:39:41 PM
Zinc	0.032	0.010		mg/L	1	4/18/2016 5:39:41 PM
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**
Arsenic	ND	0.0050		mg/L	5	4/19/2016 6:16:53 PM
Lead	ND	0.00050		mg/L	1	4/19/2016 2:29:28 PM
Selenium	ND	0.0050		mg/L	5	4/20/2016 6:26:09 PM
Uranium	0.0029	0.00050		mg/L	1	4/19/2016 2:29:28 PM
EPA METHOD 245.1: MERCURY						Analyst: **pmf**
Mercury	ND	0.00020		mg/L	1	4/15/2016 11:59:33 AM
EPA METHOD 8260B: VOLATILES						Analyst: **AG**
Benzene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Toluene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Ethylbenzene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Chloroform	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Methylene Chloride	ND	3.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/14/2016 6:01:59 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Vinyl chloride	ND	1.0		µg/L	1	4/14/2016 6:01:59 PM
Xylenes, Total	ND	1.5		µg/L	1	4/14/2016 6:01:59 PM
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: Dibromofluoromethane	117	70-130		%Rec	1	4/14/2016 6:01:59 PM
Surr: Toluene-d8	103	70-130		%Rec	1	4/14/2016 6:01:59 PM

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Lab ID: 1604182-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/21/2016
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**
Cyanide	ND	0.0100		mg/L	1	4/8/2016
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**
Radium-226	5.67	0.512		pCi/L	1	4/26/2016 7:54:00 PM
Radium-226 ±	2.13	0.512		pCi/L	1	4/26/2016 7:54:00 PM
Radium-228	0.76	0.949		pCi/L	1	4/26/2016 7:54:00 PM
Radium-228 ±	0.5	0.949		pCi/L	1	4/26/2016 7:54:00 PM
SM4500-H+B: PH						Analyst: **MRA**
pH	8.26	1.68	H	pH units	1	4/9/2016 2:18:47 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	1870	20.0	*	mg/L	1	4/7/2016 3:22:00 PM

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034060** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034061** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	ND	0.0020	0.002000	0	94.5	50	150			

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33606**	RunNo: **33606**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1034062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	94.9	50	150			
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	ND	0.0060	0.006000	0	92.7	50	150			
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	ND	0.020	0.02000	0	98.6	50	150			
Manganese	ND	0.0020	0.002000	0	90.5	50	150			
Molybdenum	ND	0.0080	0.008000	0	99.0	50	150			
Nickel	ND	0.010	0.005000	0	86.2	50	150			
Silver	ND	0.0050	0.005000	0	92.6	50	150			
Zinc	ND	0.010	0.005000	0	108	50	150			

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10-May-16

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Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035657** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.013	0.00050	0.01250	0	100	85	115			
Uranium	0.012	0.00050	0.01250	0	97.5	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035658** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00054	0.00050	0.0005000	0	107	50	150			
Uranium	ND	0.00050	0.0005000	0	97.6	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33635**	RunNo: **33635**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1035659** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Uranium	ND	0.00050								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036133** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.5	85	115			

Sample ID **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33644**	RunNo: **33644**
Prep Date:	Analysis Date: **4/19/2016**	SeqNo: **1036136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

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Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037321** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.024	0.0010	0.02500	0	97.2	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037322** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0011	0.0010	0.001000	0	106	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A33677**	RunNo: **33677**
Prep Date:	Analysis Date: **4/20/2016**	SeqNo: **1037323** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

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10-May-16

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Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24817**	SampType: **MBLK**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **PBW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-24817**	SampType: **LCS**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **LCSW**	Batch ID: **24817**	RunNo: **33567**
Prep Date: **4/14/2016**	Analysis Date: **4/15/2016**	SeqNo: **1032805** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

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Project: Quarterly Temporary R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R33368**	RunNo: **33368**
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025773** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R33368**	RunNo: **33368**
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025774** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R33628**	RunNo: **33628**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035257** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R33628**	RunNo: **33628**
Prep Date:	Analysis Date: **4/18/2016**	SeqNo: **1035258** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24682**	SampType: **MBLK**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **PBW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027492** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID **LCS-24682**	SampType: **LCS**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **LCSW**	Batch ID: **24682**	RunNo: **33411**
Prep Date: **4/7/2016**	Analysis Date: **4/8/2016**	SeqNo: **1027494** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	116	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24652**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	70	141			

Sample ID **LCS-24652**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **24652**	RunNo: **33385**
Prep Date: **4/6/2016**	Analysis Date: **4/8/2016**	SeqNo: **1026634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	71.3	139			
Surr: DNOP	0.53		0.5000		107	70	141			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027408** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.6	49.5	130			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027409** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.9	80	120			
Surr: BFB	19		20.00		96.6	49.5	130			

Sample ID **1604182-001BMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Temporary R.O. Rej**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027412** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.4	70	130			
Surr: BFB	20		20.00		98.2	49.5	130			

Sample ID **1604182-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Temporary R.O. Rej**	Batch ID: **R33412**	RunNo: **33412**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1027413** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.6	70	130	0.884	20	
Surr: BFB	20		20.00		99.5	49.5	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24708**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBW**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034347** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			

Sample ID **LCS-24708**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSW**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034348** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5	1.0	5.000	0	130	15	131			
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S

Sample ID **LCSD-24708**	SampType: **LCSD**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS02**	Batch ID: **24708**	RunNo: **33583**
Prep Date: **4/11/2016**	Analysis Date: **4/18/2016**	SeqNo: **1034349** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R33550**	RunNo: **33550**
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032303** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R33550**	RunNo: **33550**
Prep Date:	Analysis Date: **4/14/2016**	SeqNo: **1032305** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24709**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034469** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **LCS-24709**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSW**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034474**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID **LCSD-24709**	SampType: **LCSD**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSS02**	Batch ID: **24709**	RunNo: **33614**							
Prep Date: **4/11/2016**	Analysis Date: **4/19/2016**	SeqNo: **1034484**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.80	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	21.4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	33.4	129	0		

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24923**	SampType: **MBLK**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **PBW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037376**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID **LCS-24923**	SampType: **LCS**	TestCode: **Total Phenolics by SW-846 9067**							
Client ID: **LCSW**	Batch ID: **24923**	RunNo: **33678**							
Prep Date: **4/21/2016**	Analysis Date: **4/21/2016**	SeqNo: **1037377**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	89.0	64.4	135			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-R34094**	SampType: **MBLK**	TestCode: **EPA 335.4: Total Cyanide Subbed**
Client ID: **PBW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1050918** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID **LCS-R34094**	SampType: **LCS**	TestCode: **EPA 335.4: Total Cyanide Subbed**
Client ID: **LCSW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/8/2016**	SeqNo: **1050919** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.512		0.5000	0	102	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-R34094**	SampType: **MBLK**	TestCode: **EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID: **PBW**	Batch ID: **R34094**	RunNo: **34094**
Prep Date:	Analysis Date: **4/26/2016**	SeqNo: **1050921** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.965	0.799								
Radium-226 ±	0.644	0.799								
Radium-228	0.0941	0.772								
Radium-228 ±	0.341	0.772								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID **MB-24656**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025974** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-24656**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **24656**	RunNo: **33372**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1025975** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1604182 RcptNo: 1

Received by/date: RM 04/06/16

Logged By: Ashley Gallegos 4/6/2016 9:40:00 AM AG

Completed By: Ashley Gallegos 4/6/2016 12:16:42 PM AG

Reviewed By: 04/06/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? AJ ~~Yes ☑~~ No ☑
9. Was preservative added to bottles? Yes ☑ ~~No ☑~~ AJ NA ☐
10. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 6 (<2 or >12 unless noted)

Adjusted? Yes

Checked by: AJ

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks: For metals analysis: added 1 mL HNO_3 to -0016 for acceptable PH 4/7 @ 1150 AJ

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

lient: Navajo Refinery

lailing Address: P.O. Box 159 Artesia,

M 88211-0159

hone #: 575-748-3311

mail or Fax#: 575-746-5451

A/QC Package:

St ndard ☐ Level 4 (Full Validation)

] Other

] EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly Temporary R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Brady Hubbard

On Ice: X Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type		8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB	Air Bubbles (Y or N)
4/5/16	7:45	liquid	Temporary R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001 -002									X		X	X	X	X		Y
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	HCL		X															
4/5/16	7:45	liquid	Temporary R.O. Reject	1-500ml P	HNO3						X											
4/5/16	7:45	liquid	Temporary R.O. Reject	1-125ml P	HNO3				X													
4/5/16	7:45	liquid	Temporary R.O. Reject	1-500ml P	NaOH					X												
4/5/16	7:45	liquid	Temporary R.O. Reject	2- 1L P	HNO3									X								
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	Na2S2O3																X	
4/5/16	7:45	liquid	Temporary R.O. Reject	2 - 1L Glass	unpres								X									
4/5/16	7:45	liquid	Temporary R.O. Reject	1 - 1L Glass	unpres			X														
4/5/16	7:45	liquid	Temporary R.O. Reject	3-40ml VOA	HCl							X										
4/5/16	7:45	liquid	Temporary R.O. Reject	1-250mlGlass	unpres							X										
4/5/16	7:45	liquid	Temporary R.O. Reject	1 - 1L Glass	H2SO4	* Did not receive TB										X						
4/5/16	7:45	liquid	~~Trip Blank~~	2-40ml VOA	HCL	-003																

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/11/16	12:00	Elizabeth Salsbury		04/26/16	0940
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride

SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Quarterly Temporary RO Reject Sample Details

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Brady Hubbard
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	4/5/2016 @ 7:30 a.m.
End Date and Time	4/5/2016 @ 8:00 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall Sample Location: ☐ North Field R.O. Reject Discarge ☑ South Field R.O. Reject Discarge

Container	Size	Container Material	# of Containers	Preservative: Ice	HCl	HNO3	H2SO4	NaOH	ZnAc+NaOH	NaHSO4	Other	Analysis and/or Method Requested
	500ml	Plastic	2	X			X					pH, Cl, F, S04, NO2/NO3, TDS
	40ml	VOA	3		X							8015 GRO
	500ml	Plastic	1			X						6020 total metals, 7470 Hg
	125ml	Plastic	1			X						6020 Dissolved Metals
	500ml	Plastic	2					X				Cyanide
	1L	Plastic	3			X						Radium 226/228
	40ml	VOA	2		X							8260 see attached list
	1L	Glass	1	X								8270 see attached list
	1L	Glass	2	X								8082 PCBs
	40ml	VOA	2	X								8015 DRO
	40ml	VOA	2		X							Radium 226/228

Field Data / Weather Observations (Temp, Humidity, Wind Dir., Wind Speed, Conditions) Date and Time: 4/5/2016 Tmp. 48.2 °F, Humidity 46%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear

Field Temp. 23.6C Field pH 7.05

Storage Method:	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media:	
Ice	☑
Other	☐

HOLLYFRONTIER.

May 13, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 3010 0000 3143 3326

RE: 2016 1st Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2016 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the first quarter, the average injection pressure for all three wells was 1338 psig and the average flows were 132 gpm for WDW-1, 98 gpm for WDW-2 and 155 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from January 1, 2016 to March 31, 2016. We have disposed a total of 1,214,229 barrels of fluid into the three wells during the first quarter of 2016. The volume per well is:

- 415,338 barrels into WDW-1
- 308,949 barrels into WDW-2
- 489,942 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

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Received by OCD: 5/16/2022 2:12:41 PM

Navajo Refining Company, L.L.C.

2016 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1													**Previous Quarter**	37,535,146
Jan-16	1,377	1,400	1,312	135	209	120	411	577	199	4,629	7,166	4,114	143,486	37,678,632
Feb-16	1,399	1,400	1,383	131	142	128	401	637	222	4,491	4,869	4,389	134,743	37,813,375
Mar-16	1,389	1,400	1,335	129	133	119	284	417	178	4,423	4,560	4,080	137,109	37,950,483
30-015-20894 WDW-2													**Previous Quarter**	24,554,643
Jan-16	1,329	1,390	1,222	85	104	52	271	350	220	2,914	3,566	1,783	90,343	24,644,986
Feb-16	1,394	1,400	1,377	103	107	98	300	423	218	3,531	3,669	3,360	105,943	24,750,929
Mar-16	1,385	1,400	1,335	106	111	95	292	437	194	3,634	3,806	3,257	112,663	24,863,592
30-015-26575 WDW-3													**Previous Quarter**	14,769,763
Jan-16	1,377	1,390	1,338	152	158	139	849	965	683	5,211	5,417	4,766	161,554	14,931,317
Feb-16	1,387	1,390	1,335	156	159	143	699	768	621	5,349	5,451	4,903	160,457	15,091,774
Mar-16	1,384	1,400	1,335	158	162	147	675	732	584	5,417	5,554	5,040	167,931	15,259,706
													Total Injected fluids:	78,073,781

Page 4997 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 15, 2016

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1601864

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/22/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	1/29/2016	R32136
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	ND	1.0		mg/L	1	1/29/2016	R32136
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.006	0			1	1/27/2016 3:13:00 PM	R31723
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	20	2.0	*	mg/L	20	1/23/2016 12:57:44 AM	R31638
Chloride	570	25		mg/L	50	1/26/2016 11:44:39 PM	R31714
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	1/23/2016 12:45:19 AM	R31638
Bromide	2.1	2.0		mg/L	20	1/23/2016 12:57:44 AM	R31638
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	1/23/2016 12:45:19 AM	R31638
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	1/23/2016 12:45:19 AM	R31638
Sulfate	2000	25		mg/L	50	1/26/2016 11:44:39 PM	R31714
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5600	0.010		µmhos/cm	1	1/25/2016 8:12:02 PM	R31664
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	220.4	20.00		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
Total Alkalinity (as CaCO3)	220.4	20.00		mg/L CaCO3	1	1/25/2016 8:12:02 PM	R31664
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3780	40.0	*D	mg/L	1	1/28/2016 6:43:00 PM	23428
CORROSIVITY						Analyst: **SUB**	
pH	7.16			pH Units	1	1/28/2016	R32136
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	2/4/2016	R32136
EPA METHOD 7470: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	1/25/2016 4:48:50 PM	23378
MERCURY, TCLP						Analyst: **pmf**	
Mercury	ND	0.020		mg/L	1	1/28/2016 11:50:30 AM	23438
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Barium	ND	100		mg/L	1	1/25/2016 11:17:08 AM	23359
Cadmium	ND	1.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Chromium	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Lead	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Selenium	ND	1.0		mg/L	1	1/25/2016 11:17:08 AM	23359
Silver	ND	5.0		mg/L	1	1/25/2016 11:17:08 AM	23359
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	1.0	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Antimony	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Arsenic	ND	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Barium	ND	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
Beryllium	ND	0.0030		mg/L	1	1/27/2016 10:18:42 AM	23359
Cadmium	ND	0.0020		mg/L	1	1/27/2016 10:18:42 AM	23359
Calcium	39	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Chromium	ND	0.0060		mg/L	1	1/27/2016 10:18:42 AM	23359
Cobalt	ND	0.0060		mg/L	1	1/28/2016 10:29:14 AM	23359
Copper	0.012	0.0060		mg/L	1	1/27/2016 10:18:42 AM	23359
Iron	7.6	0.25		mg/L	5	1/27/2016 10:20:32 AM	23359
Lead	ND	0.0050		mg/L	1	1/27/2016 10:18:42 AM	23359
Magnesium	13	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Manganese	0.15	0.0020		mg/L	1	1/27/2016 10:18:42 AM	23359
Nickel	0.042	0.010		mg/L	1	1/27/2016 10:18:42 AM	23359
Potassium	72	1.0		mg/L	1	1/27/2016 10:18:42 AM	23359
Selenium	0.53	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Silver	ND	0.0050		mg/L	1	1/27/2016 10:18:42 AM	23359
Sodium	1200	50		mg/L	50	1/29/2016 11:10:54 AM	23359
Thallium	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Vanadium	ND	0.050		mg/L	1	1/27/2016 10:18:42 AM	23359
Zinc	0.035	0.020		mg/L	1	1/27/2016 10:18:42 AM	23359
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	12		µg/L	1	2/2/2016	R32136
Allyl chloride	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroprene	ND	2.5		µg/L	1	2/2/2016	R32136
Cyclohexane	ND	2.5		µg/L	1	2/2/2016	R32136
Diethyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Diisopropyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Epichlorohydrin	ND	25		µg/L	1	2/2/2016	R32136
Ethyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Ethyl methacrylate	ND	12		µg/L	1	2/2/2016	R32136
Ethyl tert-butyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Freon-113	ND	2.5		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Isobutanol	ND	25		µg/L	1	2/2/2016	R32136
Isopropyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Methacrylonitrile	ND	12		µg/L	1	2/2/2016	R32136
Methyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl ethyl ketone	ND	12		µg/L	1	2/2/2016	R32136
Methyl isobutyl ketone	ND	12		µg/L	1	2/2/2016	R32136
Methyl methacrylate	ND	12		µg/L	1	2/2/2016	R32136
Methylcyclohexane	ND	5.0		µg/L	1	2/2/2016	R32136
n-Amyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
n-Hexane	ND	2.5		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	25		µg/L	1	2/2/2016	R32136
Pentachloroethane	ND	25		µg/L	1	2/2/2016	R32136
p-isopropyltoluene	ND	2.5		µg/L	1	2/2/2016	R32136
Propionitrile	ND	12		µg/L	1	2/2/2016	R32136
Tetrahydrofuran	ND	2.5		µg/L	1	2/2/2016	R32136
Benzene	ND	2.5		µg/L	1	2/2/2016	R32136
Toluene	ND	2.5		µg/L	1	2/2/2016	R32136
Ethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl tert-butyl ether (MTBE)	3.2	2.5		µg/L	1	2/2/2016	R32136
1,2,4-Trimethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,3,5-Trimethylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	1	2/2/2016	R32136
Naphthalene	ND	2.5		µg/L	1	2/2/2016	R32136
Acetone	100	12		µg/L	1	2/2/2016	R32136
Bromobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Bromodichloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
Bromoform	ND	2.5		µg/L	1	2/2/2016	R32136
Bromomethane	ND	2.5		µg/L	1	2/2/2016	R32136
Carbon disulfide	ND	2.5		µg/L	1	2/2/2016	R32136
Carbon Tetrachloride	ND	2.5		µg/L	1	2/2/2016	R32136
Chlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Chloroform	ND	2.5		µg/L	1	2/2/2016	R32136
Chloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
2-Chlorotoluene	ND	2.5		µg/L	1	2/2/2016	R32136
4-Chlorotoluene	ND	2.5		µg/L	1	2/2/2016	R32136
cis-1,2-DCE	ND	2.5		µg/L	1	2/2/2016	R32136
cis-1,3-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2-Dibromo-3-chloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
Dibromochloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
Dibromomethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,3-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,4-Dichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Dichlorodifluoromethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloroethene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
1,3-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
2,2-Dichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	2.5		µg/L	1	2/2/2016	R32136
2-Hexanone	ND	2.5		µg/L	1	2/2/2016	R32136
Isopropylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Methylene Chloride	ND	12		µg/L	1	2/2/2016	R32136
n-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
n-Propylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
sec-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
Styrene	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Butylbenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Tetrachloroethene (PCE)	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,2-DCE	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,3-Dichloropropene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,3-Trichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,4-Trichlorobenzene	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,1-Trichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,1,2-Trichloroethane	ND	2.5		µg/L	1	2/2/2016	R32136
Trichloroethene (TCE)	ND	2.5		µg/L	1	2/2/2016	R32136
Trichlorofluoromethane	ND	2.5		µg/L	1	2/2/2016	R32136
1,2,3-Trichloropropane	ND	2.5		µg/L	1	2/2/2016	R32136
Vinyl chloride	ND	2.5		µg/L	1	2/2/2016	R32136
mp-Xylenes	ND	5.0		µg/L	1	2/2/2016	R32136
o-Xylene	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Amyl methyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
tert-Butyl alcohol	ND	25		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acrolein	ND	12		µg/L	1	2/2/2016	R32136
Acrylonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Bromochloromethane	ND	2.5		µg/L	1	2/2/2016	R32136
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	2/2/2016	R32136
Iodomethane	ND	2.5		µg/L	1	2/2/2016	R32136
trans-1,4-Dichloro-2-butene	ND	2.5		µg/L	1	2/2/2016	R32136
Vinyl acetate	ND	2.5		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	100		µg/L	1	2/2/2016	R32136
Surr: 1,2-Dichlorobenzene-d4	89.2	70-130		%Rec	1	2/2/2016	R32136
Surr: 4-Bromofluorobenzene	94.0	70-130		%Rec	1	2/2/2016	R32136
Surr: Toluene-d8	99.6	70-130		%Rec	1	2/2/2016	R32136
EPA 8270D: SEMIVOLATILES							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	5.0		µg/L	1	2/2/2016	R32136
Atrazine	ND	5.0		µg/L	1	2/2/2016	R32136
Benzaldehyde	ND	5.0		µg/L	1	2/2/2016	R32136
Caprolactam	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	2/2/2016	R32136
Acetophenone	ND	5.0		µg/L	1	2/2/2016	R32136
1-Methylnaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dichlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dimethylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dinitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2,4-Dinitrotoluene	ND	5.0		µg/L	1	2/2/2016	R32136
2,6-Dinitrotoluene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Chloronaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Chlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
2-Methylnaphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
2-Methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
2-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
2-Nitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	2/2/2016	R32136
3-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	2/2/2016	R32136
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270D: SEMIVOLATILES						Analyst: **SUB**	
4-Chloroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	2/2/2016	R32136
4-Nitroaniline	ND	5.0		µg/L	1	2/2/2016	R32136
4-Nitrophenol	ND	5.0		µg/L	1	2/2/2016	R32136
Acenaphthene	ND	5.0		µg/L	1	2/2/2016	R32136
Acenaphthylene	ND	5.0		µg/L	1	2/2/2016	R32136
Anthracene	ND	5.0		µg/L	1	2/2/2016	R32136
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	2/2/2016	R32136
Benz(a)anthracene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(a)pyrene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(b)fluoranthene	ND	0.50		µg/L	1	2/2/2016	R32136
Benzo(k)fluoranthene	ND	0.50		µg/L	1	2/2/2016	R32136
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	2/2/2016	R32136
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Butyl benzyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Carbazole	ND	5.0		µg/L	1	2/2/2016	R32136
Chrysene	ND	0.50		µg/L	1	2/2/2016	R32136
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	2/2/2016	R32136
Dibenzofuran	ND	5.0		µg/L	1	2/2/2016	R32136
Diethyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Dimethyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Di-n-butyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Di-n-octyl phthalate	ND	5.0		µg/L	1	2/2/2016	R32136
Fluoranthene	ND	5.0		µg/L	1	2/2/2016	R32136
Fluorene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	2/2/2016	R32136
Hexachloroethane	ND	5.0		µg/L	1	2/2/2016	R32136
Indeno(1,2,3-cd)pyrene	ND	0.50		µg/L	1	2/2/2016	R32136
Isophorone	ND	5.0		µg/L	1	2/2/2016	R32136
Naphthalene	ND	5.0		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	2/2/2016	R32136
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	2/2/2016	R32136
Pentachlorophenol	ND	5.0		µg/L	1	2/2/2016	R32136
Phenanthrene	ND	5.0		µg/L	1	2/2/2016	R32136

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 1/21/2016 7:35:00 AM
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270D: SEMIVOLATILES							Analyst: **SUB**
Phenol	ND	5.0		µg/L	1	2/2/2016	R32136
Pyrene	ND	5.0		µg/L	1	2/2/2016	R32136
o-Toluidine	ND	5.0		µg/L	1	2/2/2016	R32136
Pyridine	ND	5.0		µg/L	1	2/2/2016	R32136
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Surr: 2,4,6-Tribromophenol	94.2	10-123		%Rec	1	2/2/2016	R32136
Surr: 2-Fluorobiphenyl	80.4	19-130		%Rec	1	2/2/2016	R32136
Surr: 2-Fluorophenol	82.8	21-120		%Rec	1	2/2/2016	R32136
Surr: Nitrobenzene-d5	89.6	25-130		%Rec	1	2/2/2016	R32136
Surr: Phenol-d5	86.0	10-130		%Rec	1	2/2/2016	R32136
Surr: Terphenyl-d14	32.8	20-137		%Rec	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1601864-002
Matrix: TRIP BLANK
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Allyl chloride	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroprene	ND	0.50		µg/L	1	2/2/2016	R32136
Cyclohexane	ND	0.50		µg/L	1	2/2/2016	R32136
Diethyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Diisopropyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Epichlorohydrin	ND	5.0		µg/L	1	2/2/2016	R32136
Ethyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Ethyl methacrylate	ND	2.5		µg/L	1	2/2/2016	R32136
Ethyl tert-butyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Freon-113	ND	0.50		µg/L	1	2/2/2016	R32136
Isobutanol	ND	5.0		µg/L	1	2/2/2016	R32136
Isopropyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Methacrylonitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
Methyl ethyl ketone	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl isobutyl ketone	ND	2.5		µg/L	1	2/2/2016	R32136
Methyl methacrylate	ND	2.5		µg/L	1	2/2/2016	R32136
Methylcyclohexane	ND	1.0		µg/L	1	2/2/2016	R32136
n-Amyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
n-Hexane	ND	0.50		µg/L	1	2/2/2016	R32136
Nitrobenzene	ND	5.0		µg/L	1	2/2/2016	R32136
Pentachloroethane	ND	5.0		µg/L	1	2/2/2016	R32136
p-isopropyltoluene	ND	0.50		µg/L	1	2/2/2016	R32136
Propionitrile	ND	2.5		µg/L	1	2/2/2016	R32136
Tetrahydrofuran	ND	0.50		µg/L	1	2/2/2016	R32136
Benzene	ND	0.50		µg/L	1	2/2/2016	R32136
Toluene	ND	0.50		µg/L	1	2/2/2016	R32136
Ethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	2/2/2016	R32136
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	2/2/2016	R32136
Naphthalene	ND	0.50		µg/L	1	2/2/2016	R32136
Acetone	ND	2.5		µg/L	1	2/2/2016	R32136
Bromobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Bromodichloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
Bromoform	ND	0.50		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	2/2/2016	R32136
Carbon disulfide	ND	0.50		µg/L	1	2/2/2016	R32136
Carbon Tetrachloride	ND	0.50		µg/L	1	2/2/2016	R32136
Chlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Chloroform	ND	0.50		µg/L	1	2/2/2016	R32136
Chloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
2-Chlorotoluene	ND	0.50		µg/L	1	2/2/2016	R32136
4-Chlorotoluene	ND	0.50		µg/L	1	2/2/2016	R32136
cis-1,2-DCE	ND	0.50		µg/L	1	2/2/2016	R32136
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
Dibromochloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
Dibromomethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,3-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,4-Dichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Dichlorodifluoromethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloroethene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
1,3-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
2,2-Dichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
Hexachlorobutadiene	ND	0.50		µg/L	1	2/2/2016	R32136
2-Hexanone	ND	0.50		µg/L	1	2/2/2016	R32136
Isopropylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Methylene Chloride	ND	2.5		µg/L	1	2/2/2016	R32136
n-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
n-Propylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
sec-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
Styrene	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Butylbenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,2-DCE	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	2/2/2016	R32136
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1601864**
Date Reported: **2/15/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1601864-002 **Matrix:** TRIP BLANK

Client Sample ID: TRIP BLANK
Collection Date:
Received Date: 1/22/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,1-Trichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,1,2-Trichloroethane	ND	0.50		µg/L	1	2/2/2016	R32136
Trichloroethene (TCE)	ND	0.50		µg/L	1	2/2/2016	R32136
Trichlorofluoromethane	ND	0.50		µg/L	1	2/2/2016	R32136
1,2,3-Trichloropropane	ND	0.50		µg/L	1	2/2/2016	R32136
Vinyl chloride	ND	0.50		µg/L	1	2/2/2016	R32136
mp-Xylenes	ND	1.0		µg/L	1	2/2/2016	R32136
o-Xylene	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Amyl methyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
tert-Butyl alcohol	ND	5.0		µg/L	1	2/2/2016	R32136
Acrolein	ND	2.5		µg/L	1	2/2/2016	R32136
Acrylonitrile	ND	0.50		µg/L	1	2/2/2016	R32136
Bromochloromethane	ND	0.50		µg/L	1	2/2/2016	R32136
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	2/2/2016	R32136
Iodomethane	ND	0.50		µg/L	1	2/2/2016	R32136
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	2/2/2016	R32136
Vinyl acetate	ND	0.50		µg/L	1	2/2/2016	R32136
1,4-Dioxane	ND	20		µg/L	1	2/2/2016	R32136
Surr: 1,2-Dichlorobenzene-d4	89.2	70-130		%Rec	1	2/2/2016	R32136
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	1	2/2/2016	R32136
Surr: Toluene-d8	99.6	70-130		%Rec	1	2/2/2016	R32136

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R31638** RunNo: **31638**
Prep Date: Analysis Date: **1/22/2016** SeqNo: **968134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R31638** RunNo: **31638**
Prep Date: Analysis Date: **1/22/2016** SeqNo: **968135** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.4	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.1	90	110			
Bromide	2.5	0.10	2.500	0	98.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.2	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.3	90	110			

Sample ID **MB** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R31714** RunNo: **31714**
Prep Date: Analysis Date: **1/26/2016** SeqNo: **970466** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R31714** RunNo: **31714**
Prep Date: Analysis Date: **1/26/2016** SeqNo: **970467** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.5	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	2.5								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	10								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	2.5								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	2.5								
Methylcyclohexane	ND	0.50								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	0.50								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	2.5								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982421** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	2.5								
Acrylonitrile	ND	2.5								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	0.50								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982422** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.8		10.00	0	97.7	80	120			
Toluene	9.8		10.00	0	98.4	80	120			
Ethylbenzene	10		10.00	0	102	80	120			
Chlorobenzene	9.6		10.00	0	96.0	80	120			
1,1-Dichloroethene	9.6		10.00	0	96.4	80	120			
Tetrachloroethene (PCE)	9.2		10.00	0	92.4	80	120			
Trichloroethene (TCE)	9.8		10.00	0	98.0	80	120			
o-Xylene	10		10.00	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982533** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	5.0								
1,4-Dioxane	ND	5.0								
Atrazine	ND	5.0								
Benzaldehyde	ND	5.0								
Caprolactam	ND	5.0								
N-Nitroso-di-n-butylamine	ND	5.0								
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3'-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982533** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	5.0								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
o-Toluidine	ND	2.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982534** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.6		5.000	0	93.0	49	134			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **EPA 8270D: Semivolatiles**
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**
Prep Date:	Analysis Date: **2/2/2016**	SeqNo: **982534** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Chlorophenol	4.6		5.000	0	91.6	50	131			
4-Chloro-3-methylphenol	4.7		5.000	0	94.4	42	139			
4-Nitrophenol	4.5		5.000	0	90.2	19	137			
Acenaphthene	5.0		5.000	0	100	36	122			
Bis(2-ethylhexyl)phthalate	5.2		5.000	0	105	50	150			
N-Nitrosodi-n-propylamine	4.7		5.000	0	93.6	46	135			
Pentachlorophenol	3.7		5.000	0	73.2	22	138			
Phenol	5.2		5.000	0	103	45	134			
Pyrene	4.7		5.000	0	93.2	45	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-23378**	SampType: **MBLK**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968855**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-23378**	SampType: **LCS**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968856**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	80	120			

Sample ID	**1601864-001BMS**	SampType: **MS**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968858**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0040	0.00020	0.005000	.00006177	79.6	75	125			

Sample ID	**1601864-001BMSD**	SampType: **MSD**		TestCode: **EPA Method 7470: Mercury**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **23378**		RunNo: **31658**					
Prep Date:	**1/25/2016**	Analysis Date: **1/25/2016**		SeqNo: **968859**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0041	0.00020	0.005000	.00006177	80.1	75	125	0.688	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-23438**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**23438**	RunNo:	**31746**					
Prep Date:	**1/27/2016**	Analysis Date:	**1/28/2016**	SeqNo:	**971551**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-23438**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**23438**	RunNo:	**31746**					
Prep Date:	**1/27/2016**	Analysis Date:	**1/28/2016**	SeqNo:	**971552**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968535** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968536** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	96.1	80	120			
Barium	ND	100	0.5000	0	94.0	80	120			
Cadmium	ND	1.0	0.5000	0	92.5	80	120			
Chromium	ND	5.0	0.5000	0	93.7	80	120			
Lead	ND	5.0	0.5000	0	92.9	80	120			
Selenium	ND	1.0	0.5000	0	95.8	80	120			
Silver	ND	5.0	0.1000	0	92.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968316** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968317** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	91.9	80	120			
Antimony	0.48	0.050	0.5000	0	95.5	80	120			
Arsenic	0.48	0.020	0.5000	0	96.1	80	120			
Barium	0.47	0.020	0.5000	0	94.0	80	120			
Beryllium	0.49	0.0030	0.5000	0	99.0	80	120			
Cadmium	0.46	0.0020	0.5000	0	92.5	80	120			
Chromium	0.47	0.0060	0.5000	0	93.7	80	120			
Copper	0.47	0.0060	0.5000	0	94.5	80	120			
Iron	0.48	0.050	0.5000	0	95.5	80	120			
Lead	0.46	0.0050	0.5000	0	92.9	80	120			
Manganese	0.47	0.0020	0.5000	0	93.5	80	120			
Nickel	0.46	0.010	0.5000	0	92.2	80	120			
Potassium	44	1.0	50.00	0	88.6	80	120			
Selenium	0.48	0.050	0.5000	0	95.8	80	120			
Silver	0.092	0.0050	0.1000	0	92.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31646**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968317** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.47	0.050	0.5000	0	93.8	80	120			
Vanadium	0.49	0.050	0.5000	0	98.1	80	120			
Zinc	0.48	0.020	0.5000	0	95.2	80	120			

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31648**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968397** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Sodium	ND	1.0								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31648**
Prep Date: **1/22/2016**	Analysis Date: **1/25/2016**	SeqNo: **968398** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.1	80	120			
Magnesium	49	1.0	50.00	0	98.8	80	120			
Sodium	48	1.0	50.00	0	96.6	80	120			

Sample ID **MB-23359**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **23359**	RunNo: **31737**
Prep Date: **1/22/2016**	Analysis Date: **1/28/2016**	SeqNo: **971326** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	ND	0.0060								

Sample ID **LCS-23359**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **23359**	RunNo: **31737**
Prep Date: **1/22/2016**	Analysis Date: **1/28/2016**	SeqNo: **971327** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	0.46	0.0060	0.5000	0	91.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **2/4/2016**	SeqNo: **982430**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **2/4/2016**	SeqNo: **982431**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.542		0.5000	0	108	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R32136**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **1/29/2016**	SeqNo: **982433**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R32136**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R32136**	RunNo: **32136**							
Prep Date:	Analysis Date: **1/29/2016**	SeqNo: **982434**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R31664**	RunNo: **31664**							
Prep Date:	Analysis Date: **1/25/2016**	SeqNo: **968939**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R31664**	RunNo: **31664**							
Prep Date:	Analysis Date: **1/25/2016**	SeqNo: **968940**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	75.44	20.00	80.00	0	94.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1601864-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R31723** RunNo: **31723**

Prep Date: Analysis Date: **1/27/2016** SeqNo: **970796** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.004	0						0.179	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601864**

15-Feb-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-23428**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971754** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-23428**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971755** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Sample ID **1601864-001AMS**	SampType: **MS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971765** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	5800	40.0	2000	3784	101	80	120			D

Sample ID **1601864-001AMSD**	SampType: **MSD**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **23428**	RunNo: **31755**
Prep Date: **1/27/2016**	Analysis Date: **1/28/2016**	SeqNo: **971766** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	5820	40.0	2000	3784	102	80	120	0.379	5	D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1601864 RcptNo: 1

Received by/date: LM 01/22/16

Logged By: Michelle Garcia 1/22/2016 9:40:00 AM Michelle Garcia

Completed By: Michelle Garcia 1/22/2016 11:23:27 AM Michelle Garcia

Reviewed By: JO 01/27/16

Chain of Custody

1	Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3.	How was the sample delivered?	Courier		

Log In

4	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5.	Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6	Sample(s) in proper container(s)?	Yes ☑	No ☐	
7	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8	Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10.	VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11.	Were any sample containers received broken?	Yes ☐	No ☑	
12.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2,2 (<2 or >12 unless noted)
13.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? No
14.	Is it clear what analyses were requested?	Yes ☑	No ☐	
15.	Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: MG

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.2	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standar ☐ **Rush**

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

490' Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1601864	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH cond, Fl, Cation/anion bal., Br, Fh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136 3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
1/21/16	7 35	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
1/21/16	7 35	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
1/21/16	7:35	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
1/21/16	7:35	Liquid	Trip Blank	2	Neat	-002		X					
1/21/16	7:35	Liquid	Temperature Blank	1	Neat								

Date	Time	Relinquished by	Received by	Date	Time
1/21/2016	1:00	Elizabeth Salsberry			
Date	Time	Relinquished by	Received by	Date	Time
				01/22/16	0740

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	1/21/2016 @ 7:30 a.m.
End Date and Time	1/21/2016 @ 7:40 a.m.

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Parts / Sample Intervals	One

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-356 sample point (third from east)
☐ P-357 sample point (fourth from east)

Container	Size	Material	# of Containers	Preservatives: None	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO2, CO3, Cl, SO4, TDS pH, cond.,Fl. Cation/anion ba., Br. Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R.C.I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc):	1/21/2016 Temp. 37.4 °F Humidity 70% Wind direction NW Wind Speed 11.5 mph Condition Clear
Date and Time	

Field Temp. 40.7C Field pH 7.49

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

February 4, 2016

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 3010 0000 3143 3111

RE: 2015 4th Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1361 psig and the average flows were 123 gpm for WDW-1, 91 gpm for WDW-2 and 140 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from October 1, 2015 to December 31, 2015. We have disposed a total of 1,115,486 barrels of fluid into the three wells during the fourth quarter of 2015. The volume per well is:

- 388,046 barrels into WDW-1
- 287,006 barrels into WDW-2
- 440,434 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.): R Orosco, R Combs, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/4th quarter/2016-02-05 4th QTR Inj. Rpt. for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2015 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	37,147,100
Oct-15	1,379	1,400	1,234	124	129	95	480	837	305	4,251	4,423	3,257	131,794	37,278,894
Nov-15	1,376	1,400	1,252	121	128	94	335	447	91	4,149	4,389	3,223	124,457	37,403,351
Dec-15	1,342	1,400	1,256	124	256	99	398	661	193	4,251	8,777	3,394	131,794	37,535,146
WDW-2													**Previous Quarter**	24,267,637
Oct-15	1,378	1,234	1,252	102	181	59	467	769	248	3,497	6,206	2,023	108,411	24,376,048
Nov-15	1,376	1,400	1,252	92	100	54	341	787	217	3,154	3,429	1,851	94,629	24,470,677
Dec-15	1,326	1,400	1,253	79	99	55	281	345	209	2,709	3,394	1,886	83,966	24,554,643
WDW-3													**Previous Quarter**	14,329,329
Oct-15	1,370	1,390	1,233	141	769	52	855	1,006	708	4,834	26,366	1,783	149,863	14,479,192
Nov-15	1,369	1,390	1,252	143	151	110	857	983	686	4,903	5,177	3,771	147,086	14,626,278
Dec-15	1,334	1,390	1,255	135	151	108	812	965	715	4,629	5,177	3,703	143,486	14,769,763
													Total Injected fluids:	76,859,552

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Navajo Refining Company, L.L.C.

2015 FOURTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/6/15	10/12/15	10/19/15	10/26/15	11/2/15	11/9/15	11/16/15	11/23/15	11/30/15	12/7/15	12/14/16	12/16/15	12/21/15	12/28/15
WDW -1[1]	100	100	155**	150	150	150	145	145	145	145	145		145	Inaccessible
WDW-2[1]	100	100	150**	150	145	145	150	150	150	150	150		150	Inaccessible
WDW-3[1]	255*	170	250	310***	150	250	130****	150	200	245	255	300*****	145	Inaccessible
Comments: * Removed 130 gal. ** Added 55 gal. glycol *** Removed 255 gal. ****Removed 180 gal. *****Removed 200 gal.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 24, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1510908

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/20/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	10/23/2015	R30423
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	ND	1.0		mg/L	1	10/23/2015	R30423
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9991	0			1	10/20/2015 1:22:00 PM	R29675
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	5.5	0.50	*	mg/L	5	10/20/2015 2:08:09 PM	R29684
Chloride	520	50		mg/L	100	10/27/2015 11:24:40 PM	R29842
Bromide	0.72	0.50		mg/L	5	10/20/2015 2:08:09 PM	R29684
Phosphorus, Orthophosphate (As P)	ND	10	H	mg/L	20	11/7/2015 4:57:03 AM	A30103
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	11/3/2015 11:53:29 PM	R29992
Sulfate	2700	50		mg/L	100	10/27/2015 11:24:40 PM	R29842
Nitrate+Nitrite as N	ND	1.0		mg/L	5	10/30/2015 11:15:10 AM	R29930
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	6800	0.010		µmhos/cm	1	10/20/2015 2:13:12 PM	R29677
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	296.6	20.00		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
Total Alkalinity (as CaCO3)	296.6	20.00		mg/L CaCO3	1	10/20/2015 2:13:12 PM	R29677
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4880	100	*D	mg/L	1	10/23/2015 11:44:00 AM	21952
CORROSIVITY						Analyst: **SUB**	
pH	7.63			pH Units	1	10/26/2015	R30423
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	10/28/2015	R30423
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.75	1.68	H	pH units	1	10/20/2015 2:13:12 PM	R29677
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	10/21/2015 3:46:07 PM	21960
MERCURY, TCLP						Analyst: **DBD**	
Mercury	ND	0.020		mg/L	1	11/3/2015 4:41:03 PM	22145
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Barium	ND	100		mg/L	1	10/22/2015 5:15:45 PM	21978
Cadmium	ND	1.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Chromium	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Lead	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Selenium	ND	1.0		mg/L	1	10/22/2015 5:15:45 PM	21978
Silver	ND	5.0		mg/L	1	10/22/2015 5:15:45 PM	21978
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	0.57	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Antimony	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Arsenic	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Barium	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
Beryllium	ND	0.0060		mg/L	2	10/22/2015 4:50:43 PM	21972
Cadmium	ND	0.0040		mg/L	2	10/22/2015 4:50:43 PM	21972
Calcium	65	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Chromium	ND	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Cobalt	ND	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Copper	0.016	0.012		mg/L	2	10/22/2015 4:50:43 PM	21972
Iron	0.45	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Lead	ND	0.010		mg/L	2	10/22/2015 4:50:43 PM	21972
Magnesium	20	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Manganese	0.089	0.0040		mg/L	2	10/22/2015 4:50:43 PM	21972
Nickel	ND	0.020		mg/L	2	10/22/2015 4:50:43 PM	21972
Potassium	28	2.0		mg/L	2	10/22/2015 4:50:43 PM	21972
Selenium	0.27	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Silver	ND	0.010		mg/L	2	10/22/2015 4:50:43 PM	21972
Sodium	1400	50		mg/L	50	10/22/2015 4:46:39 PM	21972
Thallium	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Vanadium	ND	0.10		mg/L	2	10/22/2015 4:50:43 PM	21972
Zinc	ND	0.040		mg/L	2	10/22/2015 4:50:43 PM	21972
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Allyl chloride	ND	2.0		µg/L	1	11/2/2015	R30423
Chloroprene	ND	2.0		µg/L	1	11/2/2015	R30423
Cyclohexane	ND	2.0		µg/L	1	11/2/2015	R30423
Diethyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Diisopropyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Epichlorohydrin	ND	5.0		µg/L	1	11/2/2015	R30423
Ethyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl methacrylate	ND	2.0		µg/L	1	11/2/2015	R30423
Ethyl tert-butyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Freon-113	ND	2.0		µg/L	1	11/2/2015	R30423
Isobutanol	ND	2.0		µg/L	1	11/2/2015	R30423
Isopropyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
Methacrylonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Methyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
Methyl ethyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl isobutyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl methacrylate	ND	2.0		µg/L	1	11/2/2015	R30423
Methylcyclohexane	ND	2.0		µg/L	1	11/2/2015	R30423
n-Amyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
n-Hexane	ND	0.50		µg/L	1	11/2/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	11/2/2015	R30423
Pentachloroethane	ND	5.0		µg/L	1	11/2/2015	R30423
p-isopropyltoluene	ND	0.50		µg/L	1	11/2/2015	R30423
Propionitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Tetrahydrofuran	ND	2.0		µg/L	1	11/2/2015	R30423
Benzene	ND	0.50		µg/L	1	11/2/2015	R30423
Toluene	ND	0.50		µg/L	1	11/2/2015	R30423
Ethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	11/2/2015	R30423
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	11/2/2015	R30423
Naphthalene	ND	0.50		µg/L	1	11/2/2015	R30423
Acetone	ND	2.5		µg/L	1	11/2/2015	R30423
Bromobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Bromodichloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Bromoform	ND	0.50		µg/L	1	11/2/2015	R30423
Bromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon disulfide	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon Tetrachloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroform	ND	0.50		µg/L	1	11/2/2015	R30423
Chloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
4-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Dichlorodifluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
2,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
Hexachlorobutadiene	ND	0.50		µg/L	1	11/2/2015	R30423
2-Hexanone	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methylene Chloride	ND	2.5		µg/L	1	11/2/2015	R30423
n-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
n-Propylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
sec-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Styrene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Trichloroethene (TCE)	ND	0.50		µg/L	1	11/2/2015	R30423
Trichlorofluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
mp-Xylenes	ND	1.0		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
o-Xylene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Amyl methyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
tert-Butyl alcohol	ND	0.50		µg/L	1	11/2/2015	R30423
Acrolein	ND	2.0		µg/L	1	11/2/2015	R30423
Acrylonitrile	ND	2.0		µg/L	1	11/2/2015	R30423
Bromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chloroethyl vinyl ether	ND	2.0		µg/L	1	11/2/2015	R30423
Iodomethane	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl acetate	ND	2.0		µg/L	1	11/2/2015	R30423
1,4-Dioxane	ND	20		µg/L	1	11/2/2015	R30423
Surr: 1,2-Dichlorobenzene-d4	111	70-130		%REC	1	11/2/2015	R30423
Surr: 4-Bromofluorobenzene	106	70-130		%REC	1	11/2/2015	R30423
Surr: Toluene-d8	104	70-130		%REC	1	11/2/2015	R30423
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	2.0		µg/L	1	10/30/2015	R30423
Atrazine	ND	2.0		µg/L	1	10/30/2015	R30423
Benzaldehyde	3.6	2.0		µg/L	1	10/30/2015	R30423
Caprolactam	ND	2.0		µg/L	1	10/30/2015	R30423
N-Nitroso-di-n-butylamine	ND	2.0		µg/L	1	10/30/2015	R30423
Acetophenone	ND	5.0		µg/L	1	10/30/2015	R30423
1-Methylnaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dichlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dimethylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dinitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2,4-Dinitrotoluene	ND	5.0		µg/L	1	10/30/2015	R30423
2,6-Dinitrotoluene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Chloronaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Chlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
2-Methylnaphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
2-Methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
2-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
2-Nitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	10/30/2015	R30423
3-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 10/19/2015 7:40:00 AM
Lab ID: 1510908-001 **Matrix:** AQUEOUS **Received Date:** 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chloroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	10/30/2015	R30423
4-Nitroaniline	ND	5.0		µg/L	1	10/30/2015	R30423
4-Nitrophenol	ND	5.0		µg/L	1	10/30/2015	R30423
Acenaphthene	ND	5.0		µg/L	1	10/30/2015	R30423
Acenaphthylene	ND	5.0		µg/L	1	10/30/2015	R30423
Anthracene	ND	5.0		µg/L	1	10/30/2015	R30423
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	10/30/2015	R30423
Benz(a)anthracene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(a)pyrene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(b)fluoranthene	ND	0.10		µg/L	1	10/30/2015	R30423
Benzo(k)fluoranthene	ND	0.10		µg/L	1	10/30/2015	R30423
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	10/30/2015	R30423
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Butyl benzyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Carbazole	ND	5.0		µg/L	1	10/30/2015	R30423
Chrysene	ND	0.10		µg/L	1	10/30/2015	R30423
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	10/30/2015	R30423
Dibenzofuran	ND	5.0		µg/L	1	10/30/2015	R30423
Diethyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Dimethyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Di-n-butyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Di-n-octyl phthalate	ND	5.0		µg/L	1	10/30/2015	R30423
Fluoranthene	ND	5.0		µg/L	1	10/30/2015	R30423
Fluorene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachlorobenzene	ND	1.0		µg/L	1	10/30/2015	R30423
Hexachlorobutadiene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	10/30/2015	R30423
Hexachloroethane	ND	5.0		µg/L	1	10/30/2015	R30423
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	10/30/2015	R30423
Isophorone	ND	5.0		µg/L	1	10/30/2015	R30423
Naphthalene	ND	5.0		µg/L	1	10/30/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	10/30/2015	R30423
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	10/30/2015	R30423
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	10/30/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1510908-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 10/19/2015 7:40:00 AM
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Pentachlorophenol	ND	5.0		µg/L	1	10/30/2015	R30423
Phenanthrene	ND	5.0		µg/L	1	10/30/2015	R30423
Phenol	ND	5.0		µg/L	1	10/30/2015	R30423
Pyrene	ND	5.0		µg/L	1	10/30/2015	R30423
o-Toluidine	ND	2.0		µg/L	1	10/30/2015	R30423
Pyridine	ND	5.0		µg/L	1	10/30/2015	R30423
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	10/30/2015	R30423
Surr: 2,4,6-Tribromophenol	104	10-123		%REC	1	10/30/2015	R30423
Surr: 2-Fluorobiphenyl	90.8	19-130		%REC	1	10/30/2015	R30423
Surr: 2-Fluorophenol	70.2	21-120		%REC	1	10/30/2015	R30423
Surr: Nitrobenzene-d5	85.6	25-130		%REC	1	10/30/2015	R30423
Surr: Phenol-d5	121	10-130		%REC	1	10/30/2015	R30423
Surr: Terphenyl-d14	44.4	21-141		%REC	1	10/30/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Duc to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1510908-002
Matrix: TRIP BLANK
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Allyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroprene	ND	0.50		µg/L	1	11/2/2015	R30423
Cyclohexane	ND	0.50		µg/L	1	11/2/2015	R30423
Diethyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Diisopropyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Epichlorohydrin	ND	5.0		µg/L	1	11/2/2015	R30423
Ethyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Ethyl methacrylate	ND	0.50		µg/L	1	11/2/2015	R30423
Ethyl tert-butyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Freon-113	ND	0.50		µg/L	1	11/2/2015	R30423
Isobutanol	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Methacrylonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl ethyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl isobutyl ketone	ND	2.5		µg/L	1	11/2/2015	R30423
Methyl methacrylate	ND	0.50		µg/L	1	11/2/2015	R30423
Methylcyclohexane	ND	1.0		µg/L	1	11/2/2015	R30423
n-Amyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
n-Hexane	ND	0.50		µg/L	1	11/2/2015	R30423
Nitrobenzene	ND	5.0		µg/L	1	11/2/2015	R30423
Pentachloroethane	ND	5.0		µg/L	1	11/2/2015	R30423
p-isopropyltoluene	ND	0.50		µg/L	1	11/2/2015	R30423
Propionitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrahydrofuran	ND	0.50		µg/L	1	11/2/2015	R30423
Benzene	ND	0.50		µg/L	1	11/2/2015	R30423
Toluene	ND	0.50		µg/L	1	11/2/2015	R30423
Ethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	11/2/2015	R30423
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	11/2/2015	R30423
Naphthalene	ND	0.50		µg/L	1	11/2/2015	R30423
Acetone	ND	2.5		µg/L	1	11/2/2015	R30423
Bromobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Bromodichloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Bromoform	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1510908-002 **Matrix:** TRIP BLANK **Received Date:** 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon disulfide	ND	0.50		µg/L	1	11/2/2015	R30423
Carbon Tetrachloride	ND	0.50		µg/L	1	11/2/2015	R30423
Chlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Chloroform	ND	0.50		µg/L	1	11/2/2015	R30423
Chloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
4-Chlorotoluene	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
Dibromomethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Dichlorodifluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloroethene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,3-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
2,2-Dichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
Hexachlorobutadiene	ND	0.50		µg/L	1	11/2/2015	R30423
2-Hexanone	ND	0.50		µg/L	1	11/2/2015	R30423
Isopropylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Methylene Chloride	ND	2.5		µg/L	1	11/2/2015	R30423
n-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
n-Propylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
sec-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
Styrene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butylbenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,2-DCE	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1510908**
Date Reported: **11/24/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1510908-002
Matrix: TRIP BLANK
Received Date: 10/20/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,1-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,1,2-Trichloroethane	ND	0.50		µg/L	1	11/2/2015	R30423
Trichloroethene (TCE)	ND	0.50		µg/L	1	11/2/2015	R30423
Trichlorofluoromethane	ND	0.50		µg/L	1	11/2/2015	R30423
1,2,3-Trichloropropane	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl chloride	ND	0.50		µg/L	1	11/2/2015	R30423
mp-Xylenes	ND	1.0		µg/L	1	11/2/2015	R30423
o-Xylene	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Amyl methyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
tert-Butyl alcohol	ND	0.50		µg/L	1	11/2/2015	R30423
Acrolein	ND	0.50		µg/L	1	11/2/2015	R30423
Acrylonitrile	ND	0.50		µg/L	1	11/2/2015	R30423
Bromochloromethane	ND	0.50		µg/L	1	11/2/2015	R30423
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	11/2/2015	R30423
Iodomethane	ND	0.50		µg/L	1	11/2/2015	R30423
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	11/2/2015	R30423
Vinyl acetate	ND	0.50		µg/L	1	11/2/2015	R30423
1,4-Dioxane	ND	20		µg/L	1	11/2/2015	R30423
Surr: 1,2-Dichlorobenzene-d4	108	70-130		%REC	1	11/2/2015	R30423
Surr: 4-Bromofluorobenzene	105	70-130		%REC	1	11/2/2015	R30423
Surr: Toluene-d8	102	70-130		%REC	1	11/2/2015	R30423

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Valuc above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29842**	RunNo: **29842**
Prep Date:	Analysis Date: **10/27/2015**	SeqNo: **908890** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29842**	RunNo: **29842**
Prep Date:	Analysis Date: **10/27/2015**	SeqNo: **908891** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29930**	RunNo: **29930**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **911773** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29930**	RunNo: **29930**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **911774** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	96.6	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29992**	RunNo: **29992**
Prep Date:	Analysis Date: **11/3/2015**	SeqNo: **913762** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29992**	RunNo: **29992**
Prep Date:	Analysis Date: **11/3/2015**	SeqNo: **913763** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A30103**	RunNo: **30103**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916979** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A30103**	RunNo: **30103**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916980** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.3	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928381** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
p-isopropyltoluene	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928381** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	2.5								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	0.50								
o-Xylene	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928382** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.2	0	10.00	0	92.1	80	120			
Toluene	9.6	0	10.00	0	96.5	80	120			
Ethylbenzene	9.7	0	10.00	0	96.9	80	120			
Chlorobenzene	9.5	0	10.00	0	94.7	80	120			
1,1-Dichloroethene	10	0	10.00	0	102	80	120			
Tetrachloroethene (PCE)	9.9	0	10.00	0	99.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **11/2/2015**	SeqNo: **928382** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	10	0	10.00	0	102	80	120			
o-Xylene	10	0	10.00	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928385** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	5.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928385** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
o-Toluidine	ND	2.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928386** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.8	0	5.000	0	95.6	49	134			
2-Chlorophenol	4.7	0	5.000	0	94.4	50	31			S
4-Chloro-3-methylphenol	4.8	0	5.000	0	95.4	42	139			
4-Nitrophenol	3.2	0	5.000	0	65.0	19	137			
Acenaphthene	5.2	0	5.000	0	105	36	122			
Bis(2-ethylhexyl)phthalate	5.9	0	5.000	0	118	43	142			
N-Nitrosodi-n-propylamine	4.7	0	5.000	0	94.4	46	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/30/2015**	SeqNo: **928386** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	4.8	0	5.000	0	95.4	22	138			
Phenol	4.5	0	5.000	0	90.8	45	134			
Pyrene	4.6	0	5.000	0	92.2	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21960**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **21960**	RunNo: **29703**
Prep Date: **10/21/2015**	Analysis Date: **10/21/2015**	SeqNo: **904542** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-21960**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **21960**	RunNo: **29703**
Prep Date: **10/21/2015**	Analysis Date: **10/21/2015**	SeqNo: **904543** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-22145**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **22145**	RunNo: **29977**
Prep Date: **11/3/2015**	Analysis Date: **11/3/2015**	SeqNo: **913123** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-22145**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **22145**	RunNo: **29977**
Prep Date: **11/3/2015**	Analysis Date: **11/3/2015**	SeqNo: **913124** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21978**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **21978**	RunNo: **29736**
Prep Date: **10/22/2015**	Analysis Date: **10/22/2015**	SeqNo: **905688** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-21978**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **21978**	RunNo: **29736**
Prep Date: **10/22/2015**	Analysis Date: **10/22/2015**	SeqNo: **905689** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	107	80	120			
Barium	ND	100	0.5000	0	100	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	100	80	120			
Lead	ND	5.0	0.5000	0	101	80	120			
Selenium	ND	1.0	0.5000	0	107	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21972**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905617** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-21972**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.52	0.020	0.5000	0	103	80	120			
Antimony	0.52	0.050	0.5000	0	103	80	120			
Arsenic	0.51	0.020	0.5000	0	101	80	120			
Barium	0.49	0.020	0.5000	0	97.9	80	120			
Beryllium	0.51	0.0030	0.5000	0	103	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.2	80	120			
Calcium	49	1.0	50.00	0	97.9	80	120			
Chromium	0.49	0.0060	0.5000	0	97.6	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.3	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.49	0.050	0.5000	0	97.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-21972**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.49	0.0050	0.5000	0	97.9	80	120			
Magnesium	50	1.0	50.00	0	99.1	80	120			
Manganese	0.48	0.0020	0.5000	0	96.9	80	120			
Nickel	0.48	0.010	0.5000	0	95.8	80	120			
Potassium	47	1.0	50.00	0	94.3	80	120			
Selenium	0.49	0.050	0.5000	0	98.4	80	120			
Silver	0.099	0.0050	0.1000	0	99.2	80	120			
Sodium	49	1.0	50.00	0	98.4	80	120			
Thallium	0.51	0.050	0.5000	0	103	80	120			
Vanadium	0.51	0.050	0.5000	0	102	80	120			
Zinc	0.48	0.020	0.5000	0	95.3	80	120			

Sample ID **1510908-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **21972**	RunNo: **29736**
Prep Date: **10/21/2015**	Analysis Date: **10/22/2015**	SeqNo: **905634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.2	0.040	0.5000	0.5719	126	75	125			S
Antimony	0.60	0.10	0.5000	0	120	75	125			
Arsenic	0.63	0.040	0.5000	0	126	75	125			S
Barium	0.54	0.040	0.5000	0.01050	106	75	125			
Beryllium	0.55	0.0060	0.5000	0	110	75	125			
Cadmium	0.56	0.0040	0.5000	0	111	75	125			
Calcium	120	2.0	50.00	65.14	113	75	125			
Chromium	0.52	0.012	0.5000	0	105	75	125			
Cobalt	0.53	0.012	0.5000	0	106	75	125			
Copper	0.62	0.012	0.5000	0.01570	121	75	125			
Iron	0.99	0.10	0.5000	0.4468	110	75	125			
Lead	0.55	0.010	0.5000	0	110	75	125			
Magnesium	74	2.0	50.00	19.57	110	75	125			
Manganese	0.62	0.0040	0.5000	0.08908	106	75	125			
Nickel	0.54	0.020	0.5000	0	108	75	125			
Potassium	85	2.0	50.00	27.55	115	75	125			
Selenium	0.86	0.10	0.5000	0.2670	118	75	125			
Silver	0.11	0.010	0.1000	0	112	75	125			
Thallium	0.58	0.10	0.5000	0	115	75	125			
Vanadium	0.57	0.10	0.5000	0.01404	110	75	125			
Zinc	0.59	0.040	0.5000	0.03952	110	75	125			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1510908-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **21972** RunNo: **29736**

Prep Date: **10/21/2015** Analysis Date: **10/22/2015** SeqNo: **905635** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.040	0.5000	0.5719	115	75	125	4.76	20	
Antimony	0.54	0.10	0.5000	0	108	75	125	10.5	20	
Arsenic	0.59	0.040	0.5000	0	118	75	125	6.26	20	
Barium	0.51	0.040	0.5000	0.01050	99.5	75	125	6.53	20	
Beryllium	0.50	0.0060	0.5000	0	101	75	125	8.90	20	
Cadmium	0.52	0.0040	0.5000	0	104	75	125	6.55	20	
Calcium	110	2.0	50.00	65.14	88.0	75	125	11.0	20	
Chromium	0.49	0.012	0.5000	0	98.8	75	125	5.80	20	
Cobalt	0.50	0.012	0.5000	0	99.8	75	125	6.05	20	
Copper	0.58	0.012	0.5000	0.01570	112	75	125	7.19	20	
Iron	0.90	0.10	0.5000	0.4468	91.6	75	125	9.48	20	
Lead	0.51	0.010	0.5000	0	102	75	125	7.39	20	
Magnesium	69	2.0	50.00	19.57	99.3	75	125	7.30	20	
Manganese	0.58	0.0040	0.5000	0.08908	98.6	75	125	6.53	20	
Nickel	0.51	0.020	0.5000	0	101	75	125	6.22	20	
Potassium	77	2.0	50.00	27.55	98.0	75	125	10.6	20	
Selenium	0.80	0.10	0.5000	0.2670	108	75	125	6.07	20	
Silver	0.10	0.010	0.1000	0	102	75	125	8.73	20	
Thallium	0.54	0.10	0.5000	0	107	75	125	7.22	20	
Vanadium	0.53	0.10	0.5000	0.01404	103	75	125	6.69	20	
Zinc	0.55	0.040	0.5000	0.03952	103	75	125	6.44	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/28/2015**	SeqNo: **928390** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/28/2015**	SeqNo: **928391** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.478		0.5000	0	95.6	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R30423**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/23/2015**	SeqNo: **928393** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R30423**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R30423**	RunNo: **30423**
Prep Date:	Analysis Date: **10/23/2015**	SeqNo: **928394** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.20		0.2000	0	100	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R29677**	RunNo: **29677**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904176** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R29677**	RunNo: **29677**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904177** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.04	20.00	80.00	0	96.3	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1510908-001ADUP**	SampType: **DUP**			TestCode: **Specific Gravity**						
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R29675**			RunNo: **29675**						
Prep Date:	Analysis Date: **10/20/2015**			SeqNo: **903627**		Units:				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.000	0						0.0900	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510908**

24-Nov-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-21952**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **21952**	RunNo: **29751**
Prep Date: **10/21/2015**	Analysis Date: **10/23/2015**	SeqNo: **906219** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-21952**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **21952**	RunNo: **29751**
Prep Date: **10/21/2015**	Analysis Date: **10/23/2015**	SeqNo: **906220** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1510908 RcptNo: 1

Received by/date: 10/20/15

Logged By: Lindsay Mangin 10/20/2015 8:55:00 AM

Completed By: Lindsay Mangin 10/20/2015 9:15:21 AM

Reviewed By: 10/20/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? no
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☐ Standar ☐ **Rush**

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☑ Yes ☐ No

Sample Temperature: 2.4

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1510908	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Ehv40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
10/19/15	7:40	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
10/19/15	7:40	Liquid	Trip Blank	2	Neat	-002		X					
10/19/15	7:40	Liquid	Temperature Blank	1	Neat	-							

Date	Time	Relinquished by	Received by	Date	Time
10/19/15	11:30	Elizabeth Salsberry			
				10/20/15	0855
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	10/19/2015 @ 7:30am
End Date and Time	10/19/2015 @ 7:45 am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells

☑ P-846 sample point (first from east) ☐ P-856 sample point (third from east)
☐ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond. Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): 10/19/2015 Temp.55.4 °F Humidity 100% Wind Direction South Wind Speed 8.1 mph Condition Clear
Date and Time

Field Temp. 42.8C Field pH 7.54

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

October 29, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 6577 5100

RE: 2015 3rd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1381 psig and the average flows were 125 gpm for WDW-1, 158 gpm for WDW-2 and 133 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2015 to September 30, 2015. We have disposed a total of 1,317,417 barrels of fluid into the three wells during the third quarter of 2015. The volume per well is:

- 396,103 barrels into WDW-1
- 501,110 barrels into WDW-2
- 420,204 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/3rd quarter/2015-10-29 3rd QTR Inj. Rpt. for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2015 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	36,750,997
Jul-15	1,392	1,400	1,267	128	131	114	622	866	331	4,389	4,491	3,909	136,059	36,887,056
Aug-15	1,389	1,400	1,152	126	128	97	495	858	134	4,320	4,389	3,326	133,695	37,020,751
Sep-15	1,381	1,400	1,100	123	127	84	598	762	59	4,217	4,354	2,880	126,349	37,147,100
WDW-2													**Previous Quarter**	23,766,527
Jul-15	1,391	1,400	1,269	149	278	79	252	314	208	5,109	9,531	2,709	158,379	23,924,906
Aug-15	1,392	1,400	1,156	202	293	146	250	379	217	6,926	10,046	5,006	214,764	24,139,670
Sep-15	1,369	1,400	1,110	124	260	59	263	387	226	4,251	8,914	2,023	127,967	24,267,637
WDW-3													**Previous Quarter**	13,909,125
Jul-15	1,373	1,390	1,265	124	134	75	680	881	500	4,251	4,594	2,571	131,781	14,040,906
Aug-15	1,382	1,390	1,157	119	132	24	849	970	527	4,080	4,526	823	126,544	14,167,450
Sep-15	1,362	1,390	1,113	157	297	86	780	909	539	5,383	10,183	2,949	161,879	14,329,329
													Total Injected fluids:	75,744,066

T:\Injection Wells\Reports C-115 and Quarterly\2015\3rd quarter\
3rd 2015 qtrly rpt data
Injection fluids

10/15/20152:19 PM

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Navajo Refining Company, L.L.C.

2015 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/6/15	7/13/15	7/20/15	7/27/15	8/3/15	8/10/15	8/14/15	8/24/15	9/1/15	9/8/15	9/14/15	9/21/15	9/30/15	
WDW -1[1]	100	100	100	100	100	100	100	100	100	100	100	100	100	
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100	
WDW-3[1]	150	155	235	150*	170	220	253	130**	230	240	254	170***	240	
Comments: * Removed 145 gal. ** Removed 180 gal. *** Removed 100 gal.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
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Website: www.hallenvironmental.com

September 10, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, & 3 Inj Well OrderNo.: 1507D99

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/31/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1507D99**
Date: **9/10/2015**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date: 7/30/2015 8:55:00 AM
Lab ID: 1507D99-001 **Matrix:** AQUEOUS **Received Date:** 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	8/11/2015	R28710
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	1.4	1.0		mg/L	1	8/7/2015	R28710
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	0.9967	0			1	8/5/2015 3:14:00 PM	R27979
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	42	5.0	*	mg/L	50	7/31/2015 2:33:11 PM	R27901
Chloride	330	25		mg/L	50	7/31/2015 2:33:11 PM	R27901
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Bromide	1.2	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	7/31/2015 2:20:46 PM	R27901
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	7/31/2015 2:20:46 PM	R27901
Sulfate	2200	25		mg/L	50	7/31/2015 2:33:11 PM	R27901
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5900	0.010		µmhos/cm	1	8/6/2015 4:51:43 PM	R28029
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	392.7	20.00		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
Total Alkalinity (as CaCO3)	392.7	20.00		mg/L CaCO3	1	8/6/2015 4:51:43 PM	R28029
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3580	20.0	*	mg/L	1	8/5/2015 7:28:00 PM	20581
CORROSIVITY						Analyst: **SUB**	
pH	8.31	0.100		pH Units	1	8/5/2015	R28710
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	8/13/2015	R28710
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.17	1.68	H	pH units	1	8/6/2015 4:51:43 PM	R28029
EPA METHOD 7470: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	8/4/2015 2:15:41 PM	20588
MERCURY, TCLP						Analyst: **JLF**	
Mercury	0.078	0.020		mg/L	20	8/6/2015 1:58:10 PM	20636
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Barium	ND	100		mg/L	1	8/6/2015 9:36:29 AM	20620
Cadmium	ND	1.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Chromium	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Lead	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Selenium	ND	1.0		mg/L	1	8/6/2015 9:36:29 AM	20620
Silver	ND	5.0		mg/L	1	8/6/2015 9:36:29 AM	20620
EPA 6010B: TOTAL METALS						Analyst: **MED**	
Aluminum	1.2	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Antimony	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Arsenic	0.029	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Barium	ND	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
Beryllium	ND	0.0030		mg/L	1	8/6/2015 9:44:36 AM	20620
Cadmium	ND	0.0020		mg/L	1	8/6/2015 9:44:36 AM	20620
Calcium	52	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Chromium	ND	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Cobalt	0.0085	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Copper	0.017	0.0060		mg/L	1	8/6/2015 9:44:36 AM	20620
Iron	0.89	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Lead	ND	0.0050		mg/L	1	8/6/2015 9:44:36 AM	20620
Magnesium	17	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Manganese	0.10	0.0020		mg/L	1	8/6/2015 9:44:36 AM	20620
Nickel	0.021	0.010		mg/L	1	8/6/2015 9:44:36 AM	20620
Potassium	77	1.0		mg/L	1	8/10/2015 1:25:11 PM	20675
Selenium	0.19	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Silver	ND	0.0050		mg/L	1	8/6/2015 9:44:36 AM	20620
Sodium	980	10		mg/L	10	8/10/2015 1:27:17 PM	20675
Thallium	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Vanadium	ND	0.050		mg/L	1	8/6/2015 9:44:36 AM	20620
Zinc	0.31	0.020		mg/L	1	8/6/2015 9:44:36 AM	20620
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Allyl chloride	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroprene	ND	2.5		µg/L	1	8/11/2015	R28710
Cyclohexane	ND	2.5		µg/L	1	8/11/2015	R28710
Diethyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Diisopropyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Epichlorohydrin	ND	25		µg/L	1	8/11/2015	R28710
Ethyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl methacrylate	ND	2.5		µg/L	1	8/11/2015	R28710
Ethyl tert-butyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Freon-113	ND	2.5		µg/L	1	8/11/2015	R28710
Isobutanol	ND	2.5		µg/L	1	8/11/2015	R28710
Isopropyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
Methacrylonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl ethyl ketone	24	12		µg/L	1	8/11/2015	R28710
Methyl isobutyl ketone	ND	12		µg/L	1	8/11/2015	R28710
Methyl methacrylate	ND	2.5		µg/L	1	8/11/2015	R28710
Methylcyclohexane	ND	5.0		µg/L	1	8/11/2015	R28710
n-Amyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
n-Hexane	ND	2.5		µg/L	1	8/11/2015	R28710
Nitrobenzene	ND	25		µg/L	1	8/11/2015	R28710
Pentachloroethane	ND	25		µg/L	1	8/11/2015	R28710
p-isopropyltoluene	ND	2.5		µg/L	1	8/11/2015	R28710
Propionitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Tetrahydrofuran	ND	2.5		µg/L	1	8/11/2015	R28710
Benzene	ND	2.5		µg/L	1	8/11/2015	R28710
Toluene	ND	2.5		µg/L	1	8/11/2015	R28710
Ethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	1	8/11/2015	R28710
1,2,4-Trimethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,3,5-Trimethylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dibromoethane (EDB)	ND	2.5		µg/L	1	8/11/2015	R28710
Naphthalene	3.4	2.5		µg/L	1	8/11/2015	R28710
Acetone	890	12		µg/L	1	8/11/2015	R28710
Bromobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Bromodichloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
Bromoform	ND	2.5		µg/L	1	8/11/2015	R28710
Bromomethane	ND	2.5		µg/L	1	8/11/2015	R28710
Carbon disulfide	ND	2.5		µg/L	1	8/11/2015	R28710
Carbon Tetrachloride	ND	2.5		µg/L	1	8/11/2015	R28710
Chlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Chloroform	ND	2.5		µg/L	1	8/11/2015	R28710
Chloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
2-Chlorotoluene	ND	2.5		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
4-Chlorotoluene	ND	2.5		µg/L	1	8/11/2015	R28710
cis-1,2-DCE	ND	2.5		µg/L	1	8/11/2015	R28710
cis-1,3-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dibromo-3-chloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
Dibromochloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
Dibromomethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,3-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,4-Dichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Dichlorodifluoromethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloroethene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
1,3-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
2,2-Dichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
Hexachlorobutadiene	ND	2.5		µg/L	1	8/11/2015	R28710
2-Hexanone	ND	2.5		µg/L	1	8/11/2015	R28710
Isopropylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Methylene Chloride	ND	12		µg/L	1	8/11/2015	R28710
n-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
n-Propylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
sec-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
Styrene	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Butylbenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Tetrachloroethene (PCE)	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,2-DCE	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,3-Dichloropropene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,3-Trichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,4-Trichlorobenzene	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,1-Trichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,1,2-Trichloroethane	ND	2.5		µg/L	1	8/11/2015	R28710
Trichloroethene (TCE)	ND	2.5		µg/L	1	8/11/2015	R28710
Trichlorofluoromethane	ND	2.5		µg/L	1	8/11/2015	R28710
1,2,3-Trichloropropane	ND	2.5		µg/L	1	8/11/2015	R28710
Vinyl chloride	ND	2.5		µg/L	1	8/11/2015	R28710
mp-Xylenes	ND	5.0		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
o-Xylene	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Amyl methyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
tert-Butyl alcohol	ND	2.5		µg/L	1	8/11/2015	R28710
Acrolein	ND	2.5		µg/L	1	8/11/2015	R28710
Acrylonitrile	ND	2.5		µg/L	1	8/11/2015	R28710
Bromochloromethane	ND	2.5		µg/L	1	8/11/2015	R28710
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	8/11/2015	R28710
Iodomethane	ND	2.5		µg/L	1	8/11/2015	R28710
trans-1,4-Dichloro-2-butene	ND	2.5		µg/L	1	8/11/2015	R28710
Vinyl acetate	ND	2.5		µg/L	1	8/11/2015	R28710
1,4-Dioxane	ND	100		µg/L	1	8/11/2015	R28710
Surr: 1,2-Dichlorobenzene-d4	94.0	70-130		%REC	1	8/11/2015	R28710
Surr: 4-Bromofluorobenzene	96.0	70-130		%REC	1	8/11/2015	R28710
Surr: Toluene-d8	100	70-130		%REC	1	8/11/2015	R28710
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	8/12/2015	R28710
Atrazine	ND	5.0		µg/L	1	8/12/2015	R28710
Benzaldehyde	ND	5.0		µg/L	1	8/12/2015	R28710
Caprolactam	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	8/12/2015	R28710
Acetophenone	ND	5.0		µg/L	1	8/12/2015	R28710
1-Methylnaphthalene	7.1	5.0		µg/L	1	8/12/2015	R28710
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dichlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dimethylphenol	6.7	5.0		µg/L	1	8/12/2015	R28710
2,4-Dinitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2,4-Dinitrotoluene	ND	5.0		µg/L	1	8/12/2015	R28710
2,6-Dinitrotoluene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Chloronaphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Chlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
2-Methylnaphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
2-Methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710
2-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
2-Nitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	8/12/2015	R28710
3-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chloroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	8/12/2015	R28710
4-Nitroaniline	ND	5.0		µg/L	1	8/12/2015	R28710
4-Nitrophenol	ND	5.0		µg/L	1	8/12/2015	R28710
Acenaphthene	ND	5.0		µg/L	1	8/12/2015	R28710
Acenaphthylene	ND	5.0		µg/L	1	8/12/2015	R28710
Anthracene	ND	5.0		µg/L	1	8/12/2015	R28710
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	8/12/2015	R28710
Benz(a)anthracene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(a)pyrene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(b)fluoranthene	ND	1.0		µg/L	1	8/12/2015	R28710
Benzo(k)fluoranthene	ND	1.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	8/12/2015	R28710
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Butyl benzyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Carbazole	ND	5.0		µg/L	1	8/12/2015	R28710
Chrysene	ND	1.0		µg/L	1	8/12/2015	R28710
Dibenz(a,h)anthracene	ND	1.0		µg/L	1	8/12/2015	R28710
Dibenzofuran	5.7	5.0		µg/L	1	8/12/2015	R28710
Diethyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Dimethyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Di-n-butyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Di-n-octyl phthalate	ND	5.0		µg/L	1	8/12/2015	R28710
Fluoranthene	ND	5.0		µg/L	1	8/12/2015	R28710
Fluorene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorobenzene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorobutadiene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	8/12/2015	R28710
Hexachloroethane	ND	5.0		µg/L	1	8/12/2015	R28710
Indeno(1,2,3-cd)pyrene	ND	1.0		µg/L	1	8/12/2015	R28710
Isophorone	ND	5.0		µg/L	1	8/12/2015	R28710
Naphthalene	ND	5.0		µg/L	1	8/12/2015	R28710
Nitrobenzene	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	8/12/2015	R28710
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	8/12/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 7/30/2015 8:55:00 AM
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Pentachlorophenol	ND	5.0		µg/L	1	8/12/2015	R28710
Phenanthrene	ND	5.0		µg/L	1	8/12/2015	R28710
Phenol	5.0	5.0		µg/L	1	8/12/2015	R28710
Pyrene	ND	5.0		µg/L	1	8/12/2015	R28710
o-Toluidine	ND	5.0		µg/L	1	8/12/2015	R28710
Pyridine	ND	5.0		µg/L	1	8/12/2015	R28710
1,2,4,5-Tetrachlorobenzene	ND	0		µg/L	1	8/12/2015	R28710
Surr: 2,4,6-Tribromophenol	111	10-123		%REC	1	8/12/2015	R28710
Surr: 2-Fluorobiphenyl	84.4	19-130		%REC	1	8/12/2015	R28710
Surr: 2-Fluorophenol	85.2	21-120		%REC	1	8/12/2015	R28710
Surr: Nitrobenzene-d5	84.0	25-130		%REC	1	8/12/2015	R28710
Surr: Phenol-d5	66.4	10-130		%REC	1	8/12/2015	R28710
Surr: Terphenyl-d14	51.6	21-141		%REC	1	8/12/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Duc to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, & 3 Inj Well
Lab ID: 1507D99-002
Client Sample ID: TRIP BLANK
Collection Date:
Matrix: TRIP BLANK
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Allyl chloride	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroprene	ND	0.50		µg/L	1	8/11/2015	R28710
Cyclohexane	ND	0.50		µg/L	1	8/11/2015	R28710
Diethyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Diisopropyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Epichlorohydrin	ND	5.0		µg/L	1	8/11/2015	R28710
Ethyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Ethyl methacrylate	ND	0.50		µg/L	1	8/11/2015	R28710
Ethyl tert-butyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Freon-113	ND	0.50		µg/L	1	8/11/2015	R28710
Isobutanol	ND	0.50		µg/L	1	8/11/2015	R28710
Isopropyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Methacrylonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl ethyl ketone	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl isobutyl ketone	ND	2.5		µg/L	1	8/11/2015	R28710
Methyl methacrylate	ND	0.50		µg/L	1	8/11/2015	R28710
Methylcyclohexane	ND	1.0		µg/L	1	8/11/2015	R28710
n-Amyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
n-Hexane	ND	0.50		µg/L	1	8/11/2015	R28710
Nitrobenzene	ND	5.0		µg/L	1	8/11/2015	R28710
Pentachloroethane	ND	5.0		µg/L	1	8/11/2015	R28710
p-isopropyltoluene	ND	0.50		µg/L	1	8/11/2015	R28710
Propionitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Tetrahydrofuran	ND	0.50		µg/L	1	8/11/2015	R28710
Benzene	ND	0.50		µg/L	1	8/11/2015	R28710
Toluene	ND	0.50		µg/L	1	8/11/2015	R28710
Ethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	8/11/2015	R28710
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	8/11/2015	R28710
Naphthalene	ND	0.50		µg/L	1	8/11/2015	R28710
Acetone	ND	2.5		µg/L	1	8/11/2015	R28710
Bromobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Bromodichloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
Bromoform	ND	0.50		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002
Matrix: TRIP BLANK
Received Date: 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Bromomethane	ND	0.50		µg/L	1	8/11/2015	R28710
Carbon disulfide	ND	0.50		µg/L	1	8/11/2015	R28710
Carbon Tetrachloride	ND	0.50		µg/L	1	8/11/2015	R28710
Chlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Chloroform	ND	0.50		µg/L	1	8/11/2015	R28710
Chloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
2-Chlorotoluene	ND	0.50		µg/L	1	8/11/2015	R28710
4-Chlorotoluene	ND	0.50		µg/L	1	8/11/2015	R28710
cis-1,2-DCE	ND	0.50		µg/L	1	8/11/2015	R28710
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
Dibromochloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
Dibromomethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,3-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,4-Dichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Dichlorodifluoromethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloroethene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
1,3-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
2,2-Dichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
Hexachlorobutadiene	ND	0.50		µg/L	1	8/11/2015	R28710
2-Hexanone	ND	0.50		µg/L	1	8/11/2015	R28710
Isopropylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Methylene Chloride	ND	2.5		µg/L	1	8/11/2015	R28710
n-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
n-Propylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
sec-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
Styrene	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Butylbenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,2-DCE	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	8/11/2015	R28710
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **1507D99**
Date Reported: **9/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, & 3 Inj Well
Collection Date:
Lab ID: 1507D99-002 **Matrix:** TRIP BLANK **Received Date:** 7/31/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,1-Trichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,1,2-Trichloroethane	ND	0.50		µg/L	1	8/11/2015	R28710
Trichloroethene (TCE)	ND	0.50		µg/L	1	8/11/2015	R28710
Trichlorofluoromethane	ND	0.50		µg/L	1	8/11/2015	R28710
1,2,3-Trichloropropane	ND	0.50		µg/L	1	8/11/2015	R28710
Vinyl chloride	ND	0.50		µg/L	1	8/11/2015	R28710
mp-Xylenes	ND	1.0		µg/L	1	8/11/2015	R28710
o-Xylene	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Amyl methyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
tert-Butyl alcohol	ND	0.50		µg/L	1	8/11/2015	R28710
Acrolein	ND	0.50		µg/L	1	8/11/2015	R28710
Acrylonitrile	ND	0.50		µg/L	1	8/11/2015	R28710
Bromochloromethane	ND	0.50		µg/L	1	8/11/2015	R28710
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	8/11/2015	R28710
Iodomethane	ND	0.50		µg/L	1	8/11/2015	R28710
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	8/11/2015	R28710
Vinyl acetate	ND	0.50		µg/L	1	8/11/2015	R28710
1,4-Dioxane	ND	20		µg/L	1	8/11/2015	R28710
Surr: 1,2-Dichlorobenzene-d4	95.6	70-130		%REC	1	8/11/2015	R28710
Surr: 4-Bromofluorobenzene	95.2	70-130		%REC	1	8/11/2015	R28710
Surr: Toluene-d8	93.6	70-130		%REC	1	8/11/2015	R28710

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R27901**	RunNo: **27901**
Prep Date:	Analysis Date: **7/31/2015**	SeqNo: **839136** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R27901**	RunNo: **27901**
Prep Date:	Analysis Date: **7/31/2015**	SeqNo: **839137** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.8	0.50	5.000	0	95.8	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	95.9	90	110			
Bromide	2.5	0.10	2.500	0	98.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.3	90	110			
Sulfate	9.8	0.50	10.00	0	97.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	0.50								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	5.0								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Methylcyclohexane	ND	0.50								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	0.50								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	0.50								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870221** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	0.50								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/11/2015**	SeqNo: **870222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.6	0	10.00	0	96.3	80	120			
Toluene	9.7	0	10.00	0	97.3	80	120			
Ethylbenzene	9.7	0	10.00	0	97.3	80	120			
Chlorobenzene	9.5	0	10.00	0	95.2	80	120			
1,1-Dichloroethene	9.6	0	10.00	0	95.5	80	120			
Tetrachloroethene (PCE)	9.0	0	10.00	0	89.9	80	120			
Trichloroethene (TCE)	9.4	0	10.00	0	93.6	80	120			
o-Xylene	10	0	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870225** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	0.50								
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870225** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Carbazole	ND	5.0								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	2.0								
o-Toluidine	ND	5.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870226** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.0	0	5.000	0	99.8	49	134			
2-Chlorophenol	4.8	0	5.000	0	95.4	50	131			
4-Chloro-3-methylphenol	5.4	0	5.000	0	109	42	139			
4-Nitrophenol	5.6	0	5.000	0	111	19	137			
Acenaphthene	5.2	0	5.000	0	103	36	122			
Bis(2-ethylhexyl)phthalate	5.6	0	5.000	0	112	43	142			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **870226** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodi-n-propylamine	5.3	0	5.000	0	106	46	140			
Pentachlorophenol	5.9	0	5.000	0	118	22	138			
Phenol	4.7	0	5.000	0	94.6	45	134			
Pyrene	4.9	0	5.000	0	98.0	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**1507d99-001adup**	SampType: **DUP**		TestCode: **SM2510B: Specific Conductance**					
Client ID:	**WDW-1,2,&3 Effluen**	Batch ID: **R28029**		RunNo: **28029**					
Prep Date:		Analysis Date: **8/6/2015**		SeqNo: **843890**		Units: **µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	5900	0.010						0.354	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20588**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **20588**	RunNo: **27941**
Prep Date: **8/4/2015**	Analysis Date: **8/4/2015**	SeqNo: **840615** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-20588**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **20588**	RunNo: **27941**
Prep Date: **8/4/2015**	Analysis Date: **8/4/2015**	SeqNo: **840616** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID	**MB-20636**	SampType: **MBLK**			TestCode: **MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID: **20636**			RunNo: **28011**					
Prep Date:	**8/6/2015**	Analysis Date: **8/6/2015**			SeqNo: **843195**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-20636**	SampType: **LCS**			TestCode: **MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID: **20636**			RunNo: **28011**					
Prep Date:	**8/6/2015**	Analysis Date: **8/6/2015**			SeqNo: **843196**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	111	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20620**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842847** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-20620**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842848** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	95.8	80	120			
Barium	ND	100	0.5000	0	98.8	80	120			
Cadmium	ND	1.0	0.5000	0	96.2	80	120			
Chromium	ND	5.0	0.5000	0	98.4	80	120			
Lead	ND	5.0	0.5000	0	97.5	80	120			
Selenium	ND	1.0	0.5000	0	97.8	80	120			
Silver	ND	5.0	0.1000	0	97.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20620**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842849** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-20620**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842850** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.47	0.020	0.5000	0	94.7	80	120			
Antimony	0.49	0.050	0.5000	0	98.3	80	120			
Arsenic	0.49	0.020	0.5000	0	98.5	80	120			
Barium	0.50	0.020	0.5000	0	100	80	120			
Beryllium	0.50	0.0030	0.5000	0	101	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.7	80	120			
Chromium	0.50	0.0060	0.5000	0	100	80	120			
Copper	0.51	0.0060	0.5000	0	103	80	120			
Iron	0.51	0.050	0.5000	0	102	80	120			
Lead	0.50	0.0050	0.5000	0	99.7	80	120			
Manganese	0.50	0.0020	0.5000	0	101	80	120			
Nickel	0.51	0.010	0.5000	0	101	80	120			
Selenium	0.49	0.050	0.5000	0	97.5	80	120			
Silver	0.098	0.0050	0.1000	0	98.2	80	120			
Thallium	0.50	0.050	0.5000	0	99.1	80	120			
Vanadium	0.50	0.050	0.5000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **LCS-20620**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842850** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.49	0.020	0.5000	0	97.2	80	120			

Sample ID **1507D99-001BMS**	SampType: **MS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842864** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.7	0.020	0.5000	1.205	107	75	125			
Antimony	0.44	0.050	0.5000	0	88.8	75	125			
Arsenic	0.49	0.020	0.5000	0.02853	92.4	75	125			
Barium	0.43	0.020	0.5000	0.006150	85.7	75	125			
Beryllium	0.44	0.0030	0.5000	0	87.6	75	125			
Cadmium	0.44	0.0020	0.5000	0	87.4	75	125			
Chromium	0.42	0.0060	0.5000	0.003330	84.3	75	125			
Cobalt	0.43	0.0060	0.5000	0.008460	84.7	75	125			
Copper	0.49	0.0060	0.5000	0.01740	93.8	75	125			
Iron	1.3	0.050	0.5000	0.8854	92.2	75	125			
Lead	0.43	0.0050	0.5000	0	85.8	75	125			
Manganese	0.53	0.0020	0.5000	0.1014	84.8	75	125			
Nickel	0.45	0.010	0.5000	0.02121	85.8	75	125			
Selenium	0.66	0.050	0.5000	0.1944	92.2	75	125			
Silver	0.086	0.0050	0.1000	0	85.9	75	125			
Thallium	0.44	0.050	0.5000	0	88.4	75	125			
Vanadium	0.46	0.050	0.5000	0.01240	89.4	75	125			
Zinc	0.77	0.020	0.5000	0.3098	92.1	75	125			

Sample ID **1507D99-001BMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.7	0.020	0.5000	1.205	96.2	75	125	3.27	20	
Antimony	0.42	0.050	0.5000	0	84.7	75	125	4.66	20	
Arsenic	0.47	0.020	0.5000	0.02853	88.6	75	125	4.01	20	
Barium	0.42	0.020	0.5000	0.006150	82.9	75	125	3.32	20	
Beryllium	0.43	0.0030	0.5000	0	85.0	75	125	3.04	20	
Cadmium	0.43	0.0020	0.5000	0	85.0	75	125	2.73	20	
Chromium	0.41	0.0060	0.5000	0.003330	82.1	75	125	2.67	20	
Cobalt	0.42	0.0060	0.5000	0.008460	82.7	75	125	2.33	20	
Copper	0.47	0.0060	0.5000	0.01740	90.7	75	125	3.26	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507D99-001BMSD**	SampType: **MSD**	TestCode: **EPA 6010B: Total Metals**
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **20620**	RunNo: **27997**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **842865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	1.3	0.050	0.5000	0.8854	83.8	75	125	3.16	20	
Lead	0.42	0.0050	0.5000	0	83.6	75	125	2.58	20	
Manganese	0.51	0.0020	0.5000	0.1014	81.7	75	125	2.98	20	
Nickel	0.44	0.010	0.5000	0.02121	82.8	75	125	3.38	20	
Selenium	0.64	0.050	0.5000	0.1944	88.6	75	125	2.79	20	
Silver	0.083	0.0050	0.1000	0	83.2	75	125	3.16	20	
Thallium	0.44	0.050	0.5000	0	88.0	75	125	0.497	20	
Vanadium	0.44	0.050	0.5000	0.01240	86.5	75	125	3.22	20	
Zinc	0.74	0.020	0.5000	0.3098	87.0	75	125	3.34	20	

Sample ID **MB-20675**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **20675**	RunNo: **28076**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **845664** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID **LCS-20675**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **20675**	RunNo: **28076**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **845665** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	50	1.0	50.00	0	100	80	120			
Potassium	48	1.0	50.00	0	95.7	80	120			
Sodium	49	1.0	50.00	0	98.7	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507d99-001adup**	SampType: **DUP**			TestCode: **SM4500-H+B: pH**						
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R28029**			RunNo: **28029**						
Prep Date:	Analysis Date: **8/6/2015**			SeqNo: **843901**		Units: **pH units**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.15	1.68								H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/13/2015**	SeqNo: **870230**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/13/2015**	SeqNo: **870231**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.478		0.5000	0	95.6	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-R28710**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **870233**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R28710**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R28710**	RunNo: **28710**							
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **870234**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.22		0.2000	0	110	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843850**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843851**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.64	20.00	80.00	0	98.3	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843874**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R28029**	RunNo: **28029**							
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843875**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.72	20.00	80.00	0	99.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **1507D99-001ADUP**	SampType: **DUP**			TestCode: **Specific Gravity**					
Client ID: **WDW-1,2,&3 Effluen**	Batch ID: **R27979**			RunNo: **27979**					
Prep Date:	Analysis Date: **8/5/2015**			SeqNo: **841885**		Units:			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9985	0						0.180	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507D99**

10-Sep-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, & 3 Inj Well

Sample ID **MB-20581**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **20581**	RunNo: **27984**
Prep Date: **8/4/2015**	Analysis Date: **8/5/2015**	SeqNo: **842184** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-20581**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **20581**	RunNo: **27984**
Prep Date: **8/4/2015**	Analysis Date: **8/5/2015**	SeqNo: **842185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1507D99 RcptNo: 1

Received by/date: SA 07/31/15

Logged By: Lindsay Mangin 7/31/2015 8:00:00 AM

Completed By: Lindsay Mangin 7/31/2015 9:58:04 AM

Reviewed By: IO 07/31/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2, 2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? no
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☐ Standar ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1507D99	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attachec list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-845 Method 1311
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
7/30/15	0855	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
7/30/15	0855	Liquid	Trip Blank	2	Neat	-002		X					
7/30/15	0855	Liquid	Temperature Blank	1	Neat	—							

Date	Time	Relinquished by	Received by	Date	Time
7/30/2015	10:30	Elizabeth Salsberry	[illegible]	07/31/15	0800
Date:	Time:	Relinquished by:	Received by	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Comb and Andrew Contreras.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	7/30/2015 @ 8:50 am
End Date and Time	7/30/2015 @ 9:01 am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp:75.2 °F Humidity: 69% Wind Direction: North Wind Speed: 10.0 mi Over all Condition:Partly Cloudy

Date and Time:

Field Temp. 111.4 F Field pH 7.90

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, July 21, 2015 10:52 AM
To: Denton, Scott (Scott.Denton@HollyFrontier.com)
Cc: Griswold, Jim, EMNRD
Subject: 2015 2nd Quarter Injection Report for WDW-1, WDW-2 and WDW-3 July 15, 2015

Mr. Denton:

The New Mexico Oil Conservation Division (OCD) received the above subject environmental laboratory analytical data report(s) for the quarter of April through June 2015.

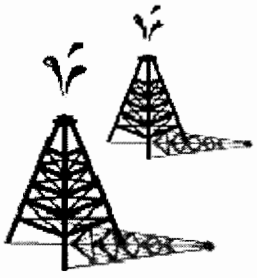
Carl noticed the following:

1) During Data Quality Objective evaluation of received samples from the refinery the lab detected bubbles in all 3 VOC sample containers.
2) There was a metals preservative issue.
3) The sample containment temperature upon delivery was 6.9 °C instead of 4 °C.

OCD requires that the operator comply with USEPA Quality Assurance/Quality Control and Data Quality Objectives when sampling, handling, and shipping environmental samples to the laboratory for analyses.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
O: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US
Web: http://www.emnrd.state.nm.us/ocd/
"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental



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HOLLYFRONTIER

RECEIVED OCD
2015 JUL 17 P 2:59

July 15, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7015 0640 0006 9944 5666

RE: 2015 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2015 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1377 psig and the average flows were 127 gpm for WDW-1, 116 gpm for WDW-2 and 125 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2015 to June 30, 2015. We have disposed a total of 1,150,921 barrels of fluid into the three wells during the second quarter of 2015. The volume per well is:

- 397,034 barrels into WDW-1
- 364,011 barrels into WDW-2
- 389,876 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, S Denton
Environmental File: Injection Wells/Reports C-115 & Quarterly/2015/2nd quarter/2015-7-15 2nd QTR Inj. Rpt. for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2015 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	36,354,894
Apr-15	1,350	1,400	1,075	121	132	85	426	845	225	4,149	4,526	2,914	124,457	36,479,351
May-15	1,393	1,400	1,273	130	132	116	298	793	173	4,457	4,526	3,977	138,167	36,617,518
Jun-15	1,398	1,400	1,375	130	132	127	446	864	230	4,457	4,526	4,354	133,710	36,751,228
WDW-2													**Previous Quarter**	23,265,417
Apr-15	1,365	1,400	1,245	112	122	76	280	717	241	3,840	4,183	2,606	115,200	23,380,617
May-15	1,389	1,400	1,194	117	121	61	248	274	225	4,011	4,149	2,091	124,341	23,504,958
Jun-15	1,400	1,400	1,391	121	183	105	249	266	239	4,149	6,274	3,600	124,470	23,629,428
WDW-3													**Previous Quarter**	13,488,921
Apr-15	1,364	1,390	1,300	126	138	106	593	1,026	464	4,320	4,731	3,634	129,600	13,618,521
May-15	1,359	1,390	1,098	121	137	4	526	919	259	4,149	4,697	137	128,619	13,747,140
Jun-15	1,379	1,390	1,149	128	137	20	685	931	307	4,389	4,697	686	131,657	13,878,797
													Total Injected fluids:	74,259,453

T:\Injection Wells\Reports C-115 and Quarterly\2015\2nd quarter\
2nd 2015 qtrly rpt data
Injection fluids

7/13/20152:56 PM

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Navajo Refining Company, L.L.C.

2015 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/1/15	4/7/15	4/14/15	4/22/15	4/30/15	5/4/15	5/11/15	5/19/15	5/29/15	6/1/15	6/8/15	6/15/15	6/22/15	6/29/15
WDW -1[1]	145	145	145	145	145	145	100**	75**	100	100	100	100	100	100
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	255	225*	225	225	225	255	290	150***	160	160	160	245	260	285
					Comments:									

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

T:\Injection Wells\Reports C-115 and Quarterly\2015\2nd quarter\
2nd 2015 qtrly rpt data
WAMS Tanks

7/13/20152:56 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 16, 2015

Micki Schultz
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 746-5281
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1505504

Dear Micki Schultz:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/12/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1505504**
Date: **6/16/2015**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	11	0.15	1.0	*	mg/L	10	5/12/2015 9:30:50 PM	R26148
Chloride	550	2.2	50		mg/L	100	5/12/2015 9:43:14 PM	R26148
Nitrogen, Nitrite (As N)	0.32	0.10	1.0	J	mg/L	10	5/12/2015 9:30:50 PM	R26148
Bromide	2.2	0.26	1.0		mg/L	10	5/12/2015 9:30:50 PM	R26148
Nitrogen, Nitrate (As N)	0.80	0.064	1.0	J	mg/L	10	5/12/2015 9:30:50 PM	R26148
Phosphorus, Orthophosphate (As P)	ND	0.75	5.0		mg/L	10	5/12/2015 9:30:50 PM	R26148
Sulfate	2600	8.2	50		mg/L	100	5/12/2015 9:43:14 PM	R26148
EPA METHOD 7470: MERCURY							Analyst: **MED**	
Mercury	ND	0.000059	0.00020		mg/L	1	5/14/2015 2:31:19 PM	19224
MERCURY, TCLP							Analyst: **MED**	
Mercury	0.0012	0.00075	0.020	J	mg/L	1	5/27/2015 3:12:30 PM	19406
EPA METHOD 6010B: TCLP METALS							Analyst: **ELS**	
Arsenic	0.049	0.011	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Barium	0.051	0.00060	100	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Cadmium	ND	0.00090	1.0		mg/L	1	5/27/2015 10:03:57 AM	19377
Chromium	0.016	0.0014	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Lead	0.0015	0.0013	5.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Selenium	0.13	0.019	1.0	J	mg/L	1	5/27/2015 10:03:57 AM	19377
Silver	ND	0.0013	5.0		mg/L	1	5/27/2015 10:03:57 AM	19377
EPA 6010B: TOTAL METALS							Analyst: **ELS**	
Aluminum	0.48	0.0038	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
Antimony	ND	0.015	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Arsenic	0.042	0.018	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
Barium	0.010	0.00098	0.020	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Beryllium	ND	0.00046	0.0030		mg/L	1	5/27/2015 9:51:20 AM	19377
Cadmium	ND	0.00071	0.0020		mg/L	1	5/27/2015 9:51:20 AM	19377
Calcium	51	0.063	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Chromium	ND	0.0015	0.0060		mg/L	1	5/27/2015 9:51:20 AM	19377
Cobalt	0.0026	0.0021	0.0060	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Copper	0.0051	0.0039	0.0060	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Iron	0.33	0.0079	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Lead	ND	0.0023	0.0050		mg/L	1	5/27/2015 9:51:20 AM	19377
Magnesium	19	0.062	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Manganese	0.10	0.0012	0.0020		mg/L	1	5/27/2015 9:51:20 AM	19377
Nickel	0.011	0.0060	0.010		mg/L	1	5/27/2015 9:51:20 AM	19377
Potassium	62	0.13	1.0		mg/L	1	5/27/2015 9:51:20 AM	19377
Selenium	0.13	0.017	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 6010B: TOTAL METALS							Analyst: **ELS**	
Silver	ND	0.0013	0.0050		mg/L	1	5/27/2015 9:51:20 AM	19377
Sodium	1400	10	20		mg/L	20	5/27/2015 10:17:24 AM	19377
Thallium	ND	0.010	0.050		mg/L	1	5/27/2015 9:51:20 AM	19377
Vanadium	0.0078	0.0018	0.050	J	mg/L	1	5/27/2015 9:51:20 AM	19377
Zinc	0.030	0.0020	0.020		mg/L	1	5/27/2015 9:51:20 AM	19377
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Acetonitrile	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Allyl chloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroprene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Cyclohexane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Diethyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Diisopropyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Epichlorohydrin	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Ethyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Ethyl methacrylate	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Ethyl tert-butyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Freon-113	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Isobutanol	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Isopropyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methacrylonitrile	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methyl ethyl ketone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl isobutyl ketone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methyl methacrylate	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Methylcyclohexane	ND	1.0	1.0		µg/L	1	5/22/2015	R26752
n-Amyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
n-Hexane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Nitrobenzene	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Pentachloroethane	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
p-isopropyltoluene	0.83	0.50	0.50		µg/L	1	5/22/2015	R26752
Propionitrile	7.3	2.5	2.5		µg/L	1	5/22/2015	R26752
Tetrahydrofuran	1.3	0.50	0.50		µg/L	1	5/22/2015	R26752
Benzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Toluene	0.66	0.50	0.50		µg/L	1	5/22/2015	R26752
Ethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methyl tert-butyl ether (MTBE)	ND	10	10		µg/L	1	5/22/2015	R26752
1,2,4-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3,5-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichloroethane (EDC)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,2-Dibromoethane (EDB)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Naphthalene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Acetone	10	2.5	2.5		µg/L	1	5/22/2015	R26752
Bromobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromodichloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromoform	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Carbon disulfide	1.0	0.50	0.50		µg/L	1	5/22/2015	R26752
Carbon Tetrachloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloroform	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Chloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
4-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
cis-1,2-DCE	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
cis-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dibromo-3-chloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dibromochloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dibromomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,4-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Dichlorodifluoromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloroethene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,3-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Hexachlorobutadiene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Hexanone	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Isopropylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Methylene Chloride	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
n-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
n-Propylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
sec-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Styrene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Butylbenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752

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Qualifiers:

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Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,1,1,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,2,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Tetrachloroethene (PCE)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,2-DCE	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,3-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,4-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,1-Trichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,1,2-Trichloroethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Trichloroethene (TCE)	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Trichlorofluoromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,2,3-Trichloropropane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Vinyl chloride	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
mp-Xylenes	ND	1.0	1.0		µg/L	1	5/22/2015	R26752
o-Xylene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Amyl methyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
tert-Butyl alcohol	ND	5.0	5.0		µg/L	1	5/22/2015	R26752
Acrolein	ND	2.5	2.5		µg/L	1	5/22/2015	R26752
Acrylonitrile	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Bromochloromethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
2-Chloroethyl vinyl ether	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Iodomethane	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
trans-1,4-Dichloro-2-butene	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
Vinyl acetate	ND	0.50	0.50		µg/L	1	5/22/2015	R26752
1,4-Dioxane	ND	20	20		µg/L	1	5/22/2015	R26752
Surr: 1,2-Dichlorobenzene-d4	111		70-130		%REC	1	5/22/2015	R26752
Surr: 4-Bromofluorobenzene	106	0	70-130		%REC	1	5/22/2015	R26752
Surr: Toluene-d8	104	0	70-130		%REC	1	5/22/2015	R26752
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
1,1-Biphenyl	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Atrazine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Benzaldehyde	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Caprolactam	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
N-Nitroso-di-n-butylamine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Acetophenone	ND	10	10		µg/L	1	5/21/2015	R26752
1-Methylnaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2,3,4,6-Tetrachlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4,5-Trichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4,6-Trichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752

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Qualifiers:

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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
2,4-Dichlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dimethylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dinitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2,4-Dinitrotoluene	ND	10	10		µg/L	1	5/21/2015	R26752
2,6-Dinitrotoluene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Chloronaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Chlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
2-Methylnaphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
2-Methylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
2-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
2-Nitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
3,3´-Dichlorobenzidine	ND	10	10		µg/L	1	5/21/2015	R26752
3-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4,6-Dinitro-2-methylphenol	ND	10	10		µg/L	1	5/21/2015	R26752
4-Bromophenyl phenyl ether	ND	10	10		µg/L	1	5/21/2015	R26752
4-Chloro-3-methylphenol	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
4-Chloroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4-Chlorophenyl phenyl ether	ND	10	10		µg/L	1	5/21/2015	R26752
4-Nitroaniline	ND	10	10		µg/L	1	5/21/2015	R26752
4-Nitrophenol	ND	10	10		µg/L	1	5/21/2015	R26752
Acenaphthene	ND	10	10		µg/L	1	5/21/2015	R26752
Acenaphthylene	ND	10	10		µg/L	1	5/21/2015	R26752
Anthracene	ND	10	10		µg/L	1	5/21/2015	R26752
Benzo(g,h,i)perylene	ND	10	10		µg/L	1	5/21/2015	R26752
Benz(a)anthracene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(a)pyrene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(b)fluoranthene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Benzo(k)fluoranthene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Bis(2-chloroethoxy)methane	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-chloroethyl)ether	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-chloroisopropyl)ether	ND	10	10		µg/L	1	5/21/2015	R26752
Bis(2-ethylhexyl)phthalate	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Butyl benzyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Carbazole	ND	10	10		µg/L	1	5/21/2015	R26752
Chrysene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Dibenz(a,h)anthracene	ND	0.10	0.10		µg/L	1	5/21/2015	R26752
Dibenzofuran	ND	10	10		µg/L	1	5/21/2015	R26752
Diethyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Dimethyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752

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Qualifiers:

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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**	
Di-n-butyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Di-n-octyl phthalate	ND	10	10		µg/L	1	5/21/2015	R26752
Fluoranthene	ND	10	10		µg/L	1	5/21/2015	R26752
Fluorene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachlorobenzene	ND	1.0	1.0		µg/L	1	5/21/2015	R26752
Hexachlorobutadiene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachlorocyclopentadiene	ND	10	10		µg/L	1	5/21/2015	R26752
Hexachloroethane	ND	10	10		µg/L	1	5/21/2015	R26752
Indeno(1,2,3-cd)pyrene	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Isophorone	ND	10	10		µg/L	1	5/21/2015	R26752
Naphthalene	ND	10	10		µg/L	1	5/21/2015	R26752
Nitrobenzene	ND	10	10		µg/L	1	5/21/2015	R26752
N-Nitrosodi-n-propylamine	ND	10	10		µg/L	1	5/21/2015	R26752
N-Nitrosodiphenylamine	ND	2.0	2.0		µg/L	1	5/21/2015	R26752
Pentachlorophenol	ND	10	10		µg/L	1	5/21/2015	R26752
Phenanthrene	ND	10	10		µg/L	1	5/21/2015	R26752
Phenol	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pyrene	ND	10	10		µg/L	1	5/21/2015	R26752
o-Toluidine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pyridine	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
1,2,4,5-Tetrachlorobenzene	ND	10	10		µg/L	1	5/21/2015	R26752
Surr: 2,4,6-Tribromophenol	111	0	10-123		%REC	1	5/21/2015	R26752
Surr: 2-Fluorobiphenyl	90.0	0	19-130		%REC	1	5/21/2015	R26752
Surr: 2-Fluorophenol	74.4	0	21-120		%REC	1	5/21/2015	R26752
Surr: Nitrobenzene-d5	80.4	0	25-130		%REC	1	5/21/2015	R26752
Surr: Phenol-d5	64.0	0	10-130		%REC	1	5/21/2015	R26752
Surr: Terphenyl-d14	74.8	0	21-141		%REC	1	5/21/2015	R26752
CORROSIVITY							Analyst: **SUB**	
pH	7.99				pH Units	1	5/19/2015	R26752
IGNITABILITY METHOD 1010							Analyst: **SUB**	
Ignitability	>200	0	0		°F	1	5/22/2015	R26752
CYANIDE, REACTIVE							Analyst: **SUB**	
Cyanide, Reactive	ND	1.00	1.00		mg/L	1	5/22/2015	R26752
SULFIDE, REACTIVE							Analyst: **SUB**	
Reactive Sulfide	ND	1.0	1.0		mg/L	1	5/21/2015	R26752
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	6600	0.010	0.010		µmhos/c	1	5/12/2015 4:15:42 PM	R26154

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Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1505504-001 **Matrix:** AQUEOUS

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Collection Date: 5/11/2015 8:20:00 AM
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM4500-H+B: PH							Analyst: **JRR**	
pH	7.95	0.100	1.68	H	pH units	1	5/12/2015 4:15:42 PM	R26154
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	313.4	0.9399	20.00		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
Total Alkalinity (as CaCO3)	313.4	0.9399	20.00		mg/L CaC	1	5/12/2015 4:15:42 PM	R26154
SPECIFIC GRAVITY							Analyst: **JRR**	
Specific Gravity	0.9990	0	0			1	5/18/2015 11:44:00 AM	R26252
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JML**	
Total Dissolved Solids	4260	145	200	*	mg/L	1	5/15/2015 5:40:00 PM	19225

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company **Client Sample ID:** TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well **Collection Date:**
Lab ID: 1505504-002 **Matrix:** TRIP BLANK **Received Date:** 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Acetonitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Allyl chloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroprene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Cyclohexane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Diethyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Diisopropyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Epichlorohydrin	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Ethyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Ethyl methacrylate	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Ethyl tert-butyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Freon-113	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Isobutanol	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Isopropyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methacrylonitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Methyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methyl ethyl ketone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Methyl isobutyl ketone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Methyl methacrylate	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Methylcyclohexane	ND	1.0	1.0		µg/L	1	5/21/2015	R26752
n-Amyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
n-Hexane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Nitrobenzene	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
Pentachloroethane	ND	5.0	5.0		µg/L	1	5/21/2015	R26752
p-isopropyltoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Propionitrile	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Tetrahydrofuran	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Benzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Toluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Ethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methyl tert-butyl ether (MTBE)	ND	10	0.50		µg/L	1	5/21/2015	R26752
1,2,4-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3,5-Trimethylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichloroethane (EDC)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dibromoethane (EDB)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Naphthalene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Acetone	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Bromobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Bromodichloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Bromoform	ND	0.50	0.50		µg/L	1	5/21/2015	R26752

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Rccovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1505504-002
Matrix: TRIP BLANK
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
Bromomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Carbon disulfide	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Carbon Tetrachloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloroform	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Chloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
4-Chlorotoluene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
cis-1,2-DCE	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
cis-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dibromo-3-chloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dibromochloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dibromomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,4-Dichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Dichlorodifluoromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloroethene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,3-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2,2-Dichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Hexachlorobutadiene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Hexanone	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
Isopropylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Methylene Chloride	ND	2.5	0.50		µg/L	1	5/21/2015	R26752
n-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
n-Propylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
sec-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Styrene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Butylbenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,1,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,2,2-Tetrachloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Tetrachloroethene (PCE)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,2-DCE	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,3-Dichloropropene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2,3-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1505504**
Date Reported: **6/16/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1505504-002
Matrix: TRIP BLANK
Received Date: 5/12/2015 8:56:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**	
1,2,4-Trichlorobenzene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,1-Trichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,1,2-Trichloroethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Trichloroethene (TCE)	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Trichlorofluoromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,2,3-Trichloropropane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Vinyl chloride	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
mp-Xylenes	ND	1.0	0.50		µg/L	1	5/21/2015	R26752
o-Xylene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Amyl methyl ether	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
tert-Butyl alcohol	ND	2.5	2.5		µg/L	1	5/21/2015	R26752
Acrolein	ND	2.5	10		µg/L	1	5/21/2015	R26752
Acrylonitrile	ND	2.5	10		µg/L	1	5/21/2015	R26752
Bromochloromethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
2-Chloroethyl vinyl ether	ND	0.50	1.0		µg/L	1	5/21/2015	R26752
Iodomethane	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
trans-1,4-Dichloro-2-butene	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
Vinyl acetate	ND	0.50	0.50		µg/L	1	5/21/2015	R26752
1,4-Dioxane	ND	20	20		µg/L	1	5/21/2015	R26752
Surr: 1,2-Dichlorobenzene-d4	105		70-130		%REC	1	5/21/2015	R26752
Surr: 4-Bromofluorobenzene	101	0	70-130		%REC	1	5/21/2015	R26752
Surr: Toluene-d8	102	0	70-130		%REC	1	5/21/2015	R26752

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R26148**	RunNo: **26148**
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775809** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R26148**	RunNo: **26148**
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775815** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.55	0.10	0.5000	0	110	90	110			
Chloride	4.8	0.50	5.000	0	96.6	90	110			
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	102	90	110			
Bromide	2.5	0.10	2.500	0	99.3	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	102	90	110			
Phosphorus, Orthophosphate (As P	5.1	0.50	5.000	0	102	90	110			
Sulfate	10	0.50	10.00	0	99.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797217** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Ethyl methacrylate	ND	0.50								
Isobutanol	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Propionitrile	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797217** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50								
2-Hexanone	ND	0.50								
Methylene Chloride	ND	2.5								
Styrene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	0.50								
Bromochloromethane	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797218** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.4		10.00	0	93.8	80	120			
Toluene	9.9		10.00	0	99.0	80	120			
Ethylbenzene	10		10.00	0	99.9	80	120			
Chlorobenzene	9.8		10.00	0	97.9	80	120			
1,1-Dichloroethene	9.7		10.00	0	96.9	80	120			
Tetrachloroethene (PCE)	11		10.00	0	106	80	120			
Trichloroethene (TCE)	10		10.00	0	101	80	120			
o-Xylene	10		10.00	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2,3,4,6-Tetrachlorophenol	ND	0.50								
2,4,5-Trichlorophenol	ND	0.50								
2,4,6-Trichlorophenol	ND	0.50								
2,4-Dichlorophenol	ND	0.50								
2,4-Dimethylphenol	ND	0.50								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
2-Chloronaphthalene	ND	0.50								
2-Chlorophenol	ND	0.50								
2-Methylnaphthalene	ND	0.50								
2-Methylphenol	ND	0.50								
2-Nitroaniline	ND	0.50								
2-Nitrophenol	ND	0.50								
3,3´-Dichlorobenzidine	ND	0.50								
3-Nitroaniline	ND	0.50								
4,6-Dinitro-2-methylphenol	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.50								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
4-Chlorophenyl phenyl ether	ND	0.50								
4-Nitroaniline	ND	0.50								
4-Nitrophenol	ND	0.50								
Acenaphthene	ND	0.50								
Acenaphthylene	ND	0.50								
Anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								
Benzo(k)fluoranthene	ND	0.50								
Bis(2-chloroethoxy)methane	ND	0.50								
Bis(2-chloroethyl)ether	ND	0.50								
Bis(2-chloroisopropyl)ether	ND	0.50								
Bis(2-ethylhexyl)phthalate	ND	0.50								
Butyl benzyl phthalate	ND	0.50								
Carbazole	ND	0.50								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797222** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Dibenzofuran	ND	0.50								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.50								
Di-n-butyl phthalate	ND	0.50								
Di-n-octyl phthalate	ND	0.50								
Fluoranthene	ND	0.50								
Fluorene	ND	0.50								
Hexachlorobenzene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
Hexachlorocyclopentadiene	ND	0.50								
Hexachloroethane	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Isophorone	ND	0.50								
Naphthalene	ND	0.50								
Nitrobenzene	ND	0.50								
N-Nitrosodi-n-propylamine	ND	0.50								
N-Nitrosodiphenylamine	ND	0.50								
Pentachlorophenol	ND	0.50								
Phenanthrene	ND	0.50								
Phenol	ND	0.50								
Pyrene	ND	0.50								
Pyridine	ND	0.50								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797223** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	4.6		5.000	0	93.0	49	145			
2-Chlorophenol	4.8		5.000	0	96.2	50	131			
4-Chloro-3-methylphenol	5.4		5.000	0	108	42	139			
4-Nitrophenol	5.3		5.000	0	106	19	137			
Acenaphthene	4.8		5.000	0	96.6	36	131			
Bis(2-ethylhexyl)phthalate	5.6		5.000	0	113	43	148			
N-Nitrosodi-n-propylamine	6.1		5.000	0	122	46	135			
Pentachlorophenol	5.1		5.000	0	101	22	138			
Phenol	4.4		5.000	0	88.8	45	134			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**LCS-R26752**	SampType:	**LCS**	TestCode:	**EPA 8270C: Semivolatiles/Mod**					
Client ID:	**LCSW**	Batch ID:	**R26752**	RunNo:	**26752**					
Prep Date:		Analysis Date:	**5/21/2015**	SeqNo:	**797223**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pyrene	5.4		5.000	0	109	45	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19224**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777328** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-19224**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

Sample ID **LCSD-19224**	SampType: **LCSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSS02**	Batch ID: **19224**	RunNo: **26197**
Prep Date: **5/14/2015**	Analysis Date: **5/14/2015**	SeqNo: **777330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	101	80	120	0.438	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19406**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**							
Client ID: **PBW**	Batch ID: **19406**	RunNo: **26436**							
Prep Date: **5/27/2015**	Analysis Date: **5/27/2015**	SeqNo: **785575**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-19406**	SampType: **LCS**	TestCode: **MERCURY, TCLP**							
Client ID: **LCSW**	Batch ID: **19406**	RunNo: **26436**							
Prep Date: **5/27/2015**	Analysis Date: **5/27/2015**	SeqNo: **785576**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.020	0.005000	0	95.3	80	120			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19377**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785370** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-19377**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785371** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	5.0	0.5000	0	98.7	80	120			J
Barium	0.47	100	0.5000	0	94.3	80	120			J
Cadmium	0.48	1.0	0.5000	0	96.3	80	120			J
Chromium	0.47	5.0	0.5000	0	94.2	80	120			J
Lead	0.46	5.0	0.5000	0	92.7	80	120			J
Selenium	0.48	1.0	0.5000	0	95.9	80	120			J
Silver	0.099	5.0	0.1000	0	98.7	80	120			J

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19377**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785351** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	0.031	0.050								J
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	0.0083	0.050								J
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-19377**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **19377**	RunNo: **26426**
Prep Date: **5/26/2015**	Analysis Date: **5/27/2015**	SeqNo: **785352** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	101	80	120			
Antimony	0.49	0.050	0.5000	0	97.9	80	120			
Arsenic	0.49	0.020	0.5000	0	98.7	80	120			
Barium	0.47	0.020	0.5000	0	94.3	80	120			
Beryllium	0.49	0.0030	0.5000	0	97.9	80	120			
Cadmium	0.48	0.0020	0.5000	0	96.3	80	120			
Calcium	48	1.0	50.00	0	96.6	80	120			
Chromium	0.47	0.0060	0.5000	0	94.2	80	120			
Cobalt	0.46	0.0060	0.5000	0	92.4	80	120			
Copper	0.48	0.0060	0.5000	0	95.6	80	120			
Iron	0.47	0.050	0.5000	0	94.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-19377** SampType: **LCS** TestCode: **EPA 6010B: Total Metals**

Client ID: **LCSW** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785352** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.46	0.0050	0.5000	0	92.7	80	120			
Magnesium	48	1.0	50.00	0	96.9	80	120			
Manganese	0.47	0.0020	0.5000	0	93.6	80	120			
Nickel	0.47	0.010	0.5000	0	93.1	80	120			
Potassium	46	1.0	50.00	0	93.0	80	120			
Selenium	0.48	0.050	0.5000	0	95.9	80	120			
Silver	0.099	0.0050	0.1000	0	98.7	80	120			
Sodium	48	1.0	50.00	0	96.1	80	120			
Thallium	0.49	0.050	0.5000	0	97.0	80	120			
Vanadium	0.49	0.050	0.5000	0	98.0	80	120			
Zinc	0.47	0.020	0.5000	0	93.5	80	120			

Sample ID **1505504-001BMS** SampType: **MS** TestCode: **EPA 6010B: Total Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785354** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.020	0.5000	0.4834	114	75	125			
Antimony	0.51	0.050	0.5000	0	103	75	125			
Arsenic	0.57	0.020	0.5000	0.04239	105	75	125			
Barium	0.50	0.020	0.5000	0.01049	97.1	75	125			
Beryllium	0.49	0.0030	0.5000	0	98.5	75	125			
Cadmium	0.51	0.0020	0.5000	0	102	75	125			
Calcium	100	1.0	50.00	51.14	97.3	75	125			
Chromium	0.48	0.0060	0.5000	0	95.4	75	125			
Cobalt	0.48	0.0060	0.5000	0.002620	96.1	75	125			
Copper	0.55	0.0060	0.5000	0.005100	110	75	125			
Iron	0.80	0.050	0.5000	0.3329	92.5	75	125			
Lead	0.48	0.0050	0.5000	0	95.9	75	125			
Magnesium	70	1.0	50.00	19.14	101	75	125			
Manganese	0.58	0.0020	0.5000	0.1030	96.0	75	125			
Nickel	0.49	0.010	0.5000	0.01120	95.5	75	125			
Selenium	0.66	0.050	0.5000	0.1334	105	75	125			
Silver	0.10	0.0050	0.1000	0	104	75	125			
Thallium	0.51	0.050	0.5000	0	101	75	125			
Vanadium	0.51	0.050	0.5000	0.007830	101	75	125			
Zinc	0.52	0.020	0.5000	0.03044	98.1	75	125			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **1505504-001BMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Metals**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **19377** RunNo: **26426**

Prep Date: **5/26/2015** Analysis Date: **5/27/2015** SeqNo: **785355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.1	0.020	0.5000	0.4834	123	75	125	4.31	20	
Antimony	0.53	0.050	0.5000	0	106	75	125	3.03	20	
Arsenic	0.58	0.020	0.5000	0.04239	108	75	125	2.76	20	
Barium	0.51	0.020	0.5000	0.01049	100	75	125	3.03	20	
Beryllium	0.50	0.0030	0.5000	0	101	75	125	2.04	20	
Cadmium	0.52	0.0020	0.5000	0	105	75	125	2.76	20	
Chromium	0.49	0.0060	0.5000	0	97.8	75	125	2.49	20	
Cobalt	0.50	0.0060	0.5000	0.002620	98.6	75	125	2.48	20	
Copper	0.57	0.0060	0.5000	0.005100	113	75	125	3.29	20	
Iron	0.83	0.050	0.5000	0.3329	99.1	75	125	4.06	20	
Lead	0.49	0.0050	0.5000	0	98.1	75	125	2.26	20	
Magnesium	71	1.0	50.00	19.14	104	75	125	1.82	20	
Manganese	0.60	0.0020	0.5000	0.1030	99.9	75	125	3.33	20	
Nickel	0.50	0.010	0.5000	0.01120	98.0	75	125	2.50	20	
Selenium	0.67	0.050	0.5000	0.1334	106	75	125	1.30	20	
Silver	0.11	0.0050	0.1000	0	108	75	125	3.31	20	
Thallium	0.53	0.050	0.5000	0	107	75	125	4.89	20	
Vanadium	0.53	0.050	0.5000	0.007830	104	75	125	3.13	20	
Zinc	0.53	0.020	0.5000	0.03044	101	75	125	2.60	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797254**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/22/2015**	SeqNo: **797255**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.486		0.5000	0	97.2	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R26752**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797257**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	0.10								

Sample ID **LCS-R26752**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R26752**	RunNo: **26752**							
Prep Date:	Analysis Date: **5/21/2015**	SeqNo: **797258**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R26154**	RunNo: **26154**							
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775904**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	4.120	20.00								J

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R26154**	RunNo: **26154**							
Prep Date:	Analysis Date: **5/12/2015**	SeqNo: **775905**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	87.40	20.00	80.00	0	109	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505504**

16-Jun-15

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-19225**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **19225**	RunNo: **26231**
Prep Date: **5/14/2015**	Analysis Date: **5/15/2015**	SeqNo: **778508** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-19225**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **19225**	RunNo: **26231**
Prep Date: **5/14/2015**	Analysis Date: **5/15/2015**	SeqNo: **778509** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1505504 RcptNo: 1

Received by/date: CS 05/12/15

Logged By: Ashley Gallegos 5/12/2015 8:56:00 AM

Completed By: Ashley Gallegos 5/12/2015 12:36:44 PM

Reviewed By: 05/12/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☑	NA ☐
	Approved by client.		
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☑ CS 05/12/15	
9. Was preservative added to bottles?	Yes ☑	No ☑	NA ☐
For metals analysis, added 1ml HNO3 to -001B for acceptable pH. Held in Login for 24 hours. CS 05/12			
10. VOA vials have zero headspace?	Yes ☑	No ☑	No VOA Vials ☐
11. Were any sample containers received broken? CS 05/12/15	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2 2 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? yes
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks: Sample -001D (all 3 vials) and -002A (2 of 2) have bubbles. CS 05/12,

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	6.9	Good	Not Present			

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Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☒ Standar ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Elizabeth Salsberry

On Ice: ☒ Yes ☐ No

Sample Temperature: 6.9°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1505604	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond. Fl, Cation/anion bal., Br, Eh/4D	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
5-11-15	0820	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
5-11-15	0820	Liquid	Trip Blank	2	Neat	-002		X					
5-11-15	0820	Liquid	Temperature Blank	1	Neat								

Date:	Time:	Relinquished by:	Received by:	Date	Time
5-11-15	1000	Elizabeth Salsberry	Celina Sanchez	05/12/15	0856
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras

Client approved temp. Spoke with Micki. CS 05/12/15

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	7/9/2015 @ 08:57am
End Date and Time	7/9/2015 @ 09:08am

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

Container	Size	Material	# of Containers	Preservatives: Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp:78.8 °F Humidity: 47% Wind Direction: NNE Wind Speed: 10.4 mph Overall Condition: clear

Date and Time:

Field Temp. 45.3 Field pH : 7.62

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER

January 22, 2015

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 1200 0000 1832 3280

RE: 2014 4th Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for all three wells was 1345 psig and the average flows were 111 gpm for WDW-1, 113 gpm for WDW-2 and 128 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from October 1, 2014 to December 31, 2014. We have disposed a total of 1,088,093 barrels of fluid into the three wells during the fourth quarter of 2014. The volume per well is:

- 350,826 barrels into WDW-1
- 360,020 barrels into WDW-2
- 377,247 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Robert O'Brien
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/4th quarter/2015-1-22 4th QTR Inj Rpt for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2014 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	35,589,080
Oct-14	1,341	1,350	1,310	93	125	67	360	569	203	3,189	4,286	2,297	99,503	35,688,583
Nov-14	1,356	1,375	1,300	122	128	112	305	380	193	4,183	4,389	3,840	125,348	35,813,931
Dec-14	1,346	1,380	1,244	118	269	94	285	402	156	4,046	9,223	3,223	125,975	35,939,906
WDW-2													**Previous Quarter**	22,558,499
Oct-14	1,341	1,350	1,306	119	126	110	298	366	256	4,080	4,320	3,771	127,175	22,685,674
Nov-14	1,353	1,375	1,300	115	123	105	515	1,617	253	3,943	4,217	3,600	118,739	22,804,413
Dec-14	1,347	1,380	1,255	107	117	83	808	1,492	256	3,669	4,011	2,846	114,106	22,918,519
WDW-3													**Previous Quarter**	12,735,189
Oct-14	1,341	1,350	1,063	122	144	0	784	938	331	4,183	4,937	0	129,877	12,865,066
Nov-14	1,342	1,375	1,205	124	139	54	847	1,002	676	4,251	4,766	1,851	127,146	12,992,212
Dec-14	1,340	1,373	1,258	138	127	82	706	799	616	4,731	4,354	2,811	120,224	13,112,436
													Total Injected fluids:	71,970,861

Page 5139 of 5828

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Navajo Refining Company, L.L.C.

2014 FOURTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/8/14	10/13/14	10/21/14	10/27/02	11/4/14	11/10/14	11/17/14	11/24/14	12/1/14	12/9/14	12/15/14	12/22/14	12/29/14	
WDW -1[1]	145	145	145	145	145	145	145	145	145	145	145	145	145	
WDW-2[1]	100	100	100	100	100	100	100	100	100	100	100	100	100	
WDW-3[1]	145	145	145	145	145	145	145	200	200	200	200	200	200	
				Comments:										

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 09, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1411288

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/7/2014 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued December 08, 2014

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1411288**
Date: **12/9/2014**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Fluoride	5.3	0.50	*	mg/L	5	11/7/2014 11:52:12 PM	R22427
Chloride	330	25		mg/L	50	11/19/2014 12:14:33 AM	R22629
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Bromide	0.68	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Nitrogen, Nitrate (As N)	1.3	0.50		mg/L	5	11/7/2014 11:52:12 PM	R22427
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	11/7/2014 11:52:12 PM	R22427
Sulfate	1300	25		mg/L	50	11/19/2014 12:14:33 AM	R22629
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	11/13/2014 11:05:18 AM	16357
MERCURY, TCLP						Analyst: **MMD**	
Mercury	ND	0.020		mg/L	1	11/13/2014 2:54:22 PM	16358
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	0.20		mg/L	1	11/12/2014 11:08:39 AM	16345
Barium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Cadmium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Chromium	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Lead	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
Selenium	ND	0.20		mg/L	1	11/12/2014 11:08:39 AM	16345
Silver	ND	0.10		mg/L	1	11/12/2014 11:08:39 AM	16345
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	0.48	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Antimony	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Arsenic	0.050	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Barium	ND	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
Beryllium	ND	0.0030		mg/L	1	11/12/2014 11:06:42 AM	16345
Cadmium	ND	0.0020		mg/L	1	11/12/2014 11:06:42 AM	16345
Calcium	50	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Chromium	ND	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Cobalt	ND	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Copper	0.0092	0.0060		mg/L	1	11/12/2014 11:06:42 AM	16345
Iron	0.86	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Lead	ND	0.0050		mg/L	1	11/12/2014 11:06:42 AM	16345
Magnesium	17	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Manganese	0.10	0.0020		mg/L	1	11/12/2014 11:06:42 AM	16345
Nickel	0.010	0.010		mg/L	1	11/12/2014 11:06:42 AM	16345
Potassium	22	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Selenium	0.058	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	11/12/2014 11:06:42 AM	16345
Sodium	ND	1.0		mg/L	1	11/12/2014 11:06:42 AM	16345
Thallium	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Vanadium	ND	0.050		mg/L	1	11/12/2014 11:06:42 AM	16345
Zinc	0.049	0.020		mg/L	1	11/12/2014 11:06:42 AM	16345
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Allyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroprene	ND	0.500		µg/L	1	11/13/2014	R22819
Cyclohexane	ND	0.500		µg/L	1	11/13/2014	R22819
Diethyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Diisopropyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Epichlorohydrin	ND	5.00		µg/L	1	11/13/2014	R22819
Ethyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl tert-butyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Freon-113	ND	0.500		µg/L	1	11/13/2014	R22819
Isobutanol	ND	50.0		µg/L	1	11/13/2014	R22819
Isopropyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methacrylonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl ethyl ketone	2.82	2.50		µg/L	1	11/13/2014	R22819
Methyl isobutyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Methylcyclohexane	ND	1.00		µg/L	1	11/13/2014	R22819
n-Amyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
n-Hexane	ND	0.500		µg/L	1	11/13/2014	R22819
Nitrobenzene	ND	5.00		µg/L	1	11/13/2014	R22819
Pentachloroethane	ND	5.00		µg/L	1	11/13/2014	R22819
p-isopropyltoluene	ND	0.500		µg/L	1	11/13/2014	R22819
Propionitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrahydrofuran	ND	0.500		µg/L	1	11/13/2014	R22819
Benzene	ND	0.500		µg/L	1	11/13/2014	R22819
Toluene	ND	0.500		µg/L	1	11/13/2014	R22819
Ethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl tert-butyl ether (MTBE)	ND	10.0		µg/L	1	11/13/2014	R22819
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3,5-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloroethane (EDC)	ND	0.500		µg/L	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.500		µg/L	1	11/13/2014	R22819
Naphthalene	ND	0.500		µg/L	1	11/13/2014	R22819
Acetone	47.2	2.50		µg/L	1	11/13/2014	R22819
Bromobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Bromodichloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Bromoform	ND	0.500		µg/L	1	11/13/2014	R22819
Bromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon disulfide	0.930	0.500		µg/L	1	11/13/2014	R22819
Carbon Tetrachloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroform	ND	0.500		µg/L	1	11/13/2014	R22819
Chloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
4-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromo-3-chloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Dichlorodifluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
2,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
Hexachlorobutadiene	ND	0.500		µg/L	1	11/13/2014	R22819
2-Hexanone	ND	0.500		µg/L	1	11/13/2014	R22819
Isopropylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methylene Chloride	ND	2.50		µg/L	1	11/13/2014	R22819
n-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
n-Propylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
sec-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Styrene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,1,1,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrachloroethene (PCE)	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,4-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Trichloroethene (TCE)	ND	0.500		µg/L	1	11/13/2014	R22819
Trichlorofluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Xylenes, Total	ND	1.00		µg/L	1	11/13/2014	R22819
mp-Xylenes	ND	1.00		µg/L	1	11/13/2014	R22819
o-Xylene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Amyl methyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butyl alcohol	46.8	0.500		µg/L	1	11/13/2014	R22819
Acrolein	ND	0.500		µg/L	1	11/13/2014	R22819
Acrylonitrile	ND	10.0		µg/L	1	11/13/2014	R22819
Bromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chloroethyl vinyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Iodomethane	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,4-Dichloro-2-butene	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dioxane	ND	20.0		µg/L	1	11/13/2014	R22819
Surr: 1,2-Dichlorobenzene-d4	108	70-130		%REC	1	11/13/2014	R22819
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	11/13/2014	R22819
Surr: Toluene-d8	99.2	70-130		%REC	1	11/13/2014	R22819
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	11/14/2014	R22918
Atrazine	ND	5.0		µg/L	1	11/14/2014	R22918
Benzaldehyde	ND	5.0		µg/L	1	11/14/2014	R22918
Caprolactam	ND	5.0		µg/L	1	11/14/2014	R22918
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	11/14/2014	R22918
Acetophenone	ND	10		µg/L	1	11/14/2014	R22918
1-Methylnaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4,5-Trichlorophenol	ND	10		µg/L	1	11/14/2014	R22918

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
2,4,6-Trichlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dichlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dimethylphenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dinitrophenol	ND	10		µg/L	1	11/14/2014	R22918
2,4-Dinitrotoluene	ND	10		µg/L	1	11/14/2014	R22918
2,6-Dinitrotoluene	ND	10		µg/L	1	11/14/2014	R22918
2-Chloronaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2-Chlorophenol	ND	10		µg/L	1	11/14/2014	R22918
2-Methylnaphthalene	ND	10		µg/L	1	11/14/2014	R22918
2-Methylphenol	ND	10		µg/L	1	11/14/2014	R22918
2-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
2-Nitrophenol	ND	10		µg/L	1	11/14/2014	R22918
3,3'-Dichlorobenzidine	ND	10		µg/L	1	11/14/2014	R22918
3-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	11/14/2014	R22918
4-Bromophenyl phenyl ether	ND	10		µg/L	1	11/14/2014	R22918
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	11/14/2014	R22918
4-Chloroaniline	ND	10		µg/L	1	11/14/2014	R22918
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	11/14/2014	R22918
4-Nitroaniline	ND	10		µg/L	1	11/14/2014	R22918
4-Nitrophenol	ND	10		µg/L	1	11/14/2014	R22918
Acenaphthene	ND	10		µg/L	1	11/14/2014	R22918
Acenaphthylene	ND	10		µg/L	1	11/14/2014	R22918
Anthracene	ND	10		µg/L	1	11/14/2014	R22918
Benzo(g,h,i)perylene	ND	10		µg/L	1	11/14/2014	R22918
Benz(a)anthracene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(a)pyrene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(b)fluoranthene	ND	0.10		µg/L	1	11/14/2014	R22918
Benzo(k)fluoranthene	ND	0.10		µg/L	1	11/14/2014	R22918
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-chloroethyl)ether	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	11/14/2014	R22918
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	11/14/2014	R22918
Butyl benzyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Carbazole	ND	10		µg/L	1	11/14/2014	R22918
Chrysene	ND	0.10		µg/L	1	11/14/2014	R22918
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	11/14/2014	R22918
Dibenzofuran	ND	10		µg/L	1	11/14/2014	R22918
Diethyl phthalate	ND	10		µg/L	1	11/14/2014	R22918

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1411288-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 11/6/2014 10:30:00 AM
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Dimethyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Di-n-butyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Di-n-octyl phthalate	ND	10		µg/L	1	11/14/2014	R22918
Fluoranthene	ND	10		µg/L	1	11/14/2014	R22918
Fluorene	ND	10		µg/L	1	11/14/2014	R22918
Hexachlorobenzene	ND	1.0		µg/L	1	11/14/2014	R22918
Hexachlorobutadiene	ND	10		µg/L	1	11/14/2014	R22918
Hexachlorocyclopentadiene	ND	10		µg/L	1	11/14/2014	R22918
Hexachloroethane	ND	10		µg/L	1	11/14/2014	R22918
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	11/14/2014	R22918
Isophorone	ND	10		µg/L	1	11/14/2014	R22918
Naphthalene	ND	10		µg/L	1	11/14/2014	R22918
Nitrobenzene	ND	10		µg/L	1	11/14/2014	R22918
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	11/14/2014	R22918
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	11/14/2014	R22918
Pentachlorophenol	ND	10		µg/L	1	11/14/2014	R22918
Phenanthrene	ND	10		µg/L	1	11/14/2014	R22918
Phenol	ND	5.0		µg/L	1	11/14/2014	R22918
Pyrene	ND	10		µg/L	1	11/14/2014	R22918
o-Toluidine	ND	5.0		µg/L	1	11/14/2014	R22918
Pyridine	ND	5.0		µg/L	1	11/14/2014	R22918
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	11/14/2014	R22918
Surr: 2,4,6-Tribromophenol	131	10-123	S	%REC	1	11/14/2014	R22918
Surr: 2-Fluorobiphenyl	88.8	19-130		%REC	1	11/14/2014	R22918
Surr: 2-Fluorophenol	82.4	21-110		%REC	1	11/14/2014	R22918
Surr: Nitrobenzene-d5	86.4	25-130		%REC	1	11/14/2014	R22918
Surr: Phenol-d5	90.8	10-125		%REC	1	11/14/2014	R22918
Surr: Terphenyl-d14	35.6	33-141		%REC	1	11/14/2014	R22918
CORROSIVITY							Analyst: **SUB**
pH	7.51			pH Units	1	11/13/2014	R22918
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	11/18/2014	R22918
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	11/18/2014	R22918
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	11/21/2014	R22918
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WDW-1,2,&3 Effluent
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date: 11/6/2014 10:30:00 AM
Lab ID: 1411288-001 **Matrix:** AQUEOUS **Received Date:** 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3500	0.010		µmhos/cm	1	11/11/2014 1:35:05 PM	R22485
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	320	20		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
Total Alkalinity (as CaCO3)	320	20		mg/L CaCO3	1	11/11/2014 1:35:05 PM	R22485
SPECIFIC GRAVITY						Analyst: **JRR**	
Specific Gravity	1.001	0			1	11/20/2014 2:11:00 PM	R22669
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2380	100	*	mg/L	1	11/12/2014 1:18:00 PM	16340

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002
Matrix: TRIP BLANK
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Acetonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Allyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroprene	ND	0.500		µg/L	1	11/13/2014	R22819
Cyclohexane	ND	0.500		µg/L	1	11/13/2014	R22819
Diethyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Diisopropyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Epichlorohydrin	ND	5.00		µg/L	1	11/13/2014	R22819
Ethyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Ethyl tert-butyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Freon-113	ND	0.500		µg/L	1	11/13/2014	R22819
Isobutanol	ND	50.0		µg/L	1	11/13/2014	R22819
Isopropyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methacrylonitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl ethyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl isobutyl ketone	ND	2.50		µg/L	1	11/13/2014	R22819
Methyl methacrylate	ND	0.500		µg/L	1	11/13/2014	R22819
Methylcyclohexane	ND	1.00		µg/L	1	11/13/2014	R22819
n-Amyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
n-Hexane	ND	0.500		µg/L	1	11/13/2014	R22819
Nitrobenzene	ND	5.00		µg/L	1	11/13/2014	R22819
Pentachloroethane	ND	5.00		µg/L	1	11/13/2014	R22819
p-isopropyltoluene	ND	0.500		µg/L	1	11/13/2014	R22819
Propionitrile	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrahydrofuran	ND	0.500		µg/L	1	11/13/2014	R22819
Benzene	ND	0.500		µg/L	1	11/13/2014	R22819
Toluene	ND	0.500		µg/L	1	11/13/2014	R22819
Ethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methyl tert-butyl ether (MTBE)	ND	10.0		µg/L	1	11/13/2014	R22819
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3,5-Trimethylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloroethane (EDC)	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromoethane (EDB)	ND	0.500		µg/L	1	11/13/2014	R22819
Naphthalene	ND	0.500		µg/L	1	11/13/2014	R22819
Acetone	5.30	2.50		µg/L	1	11/13/2014	R22819
Bromobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Bromodichloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Bromoform	ND	0.500		µg/L	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002
Matrix: TRIP BLANK
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Bromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon disulfide	ND	0.500		µg/L	1	11/13/2014	R22819
Carbon Tetrachloride	ND	0.500		µg/L	1	11/13/2014	R22819
Chlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Chloroform	ND	0.500		µg/L	1	11/13/2014	R22819
Chloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
4-Chlorotoluene	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dibromo-3-chloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
Dibromomethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Dichlorodifluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloroethene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,3-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
2,2-Dichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
Hexachlorobutadiene	ND	0.500		µg/L	1	11/13/2014	R22819
2-Hexanone	ND	0.500		µg/L	1	11/13/2014	R22819
Isopropylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Methylene Chloride	ND	2.50		µg/L	1	11/13/2014	R22819
n-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
n-Propylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
sec-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
Styrene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butylbenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2,2-Tetrachloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Tetrachloroethene (PCE)	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,2-DCE	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,3-Dichloropropene	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1411288**
Date Reported: **12/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: Quarterly WDW-1, 2, &3 Inj Well
Collection Date:
Lab ID: 1411288-002
Matrix: TRIP BLANK
Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,1-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,1,2-Trichloroethane	ND	0.500		µg/L	1	11/13/2014	R22819
Trichloroethene (TCE)	ND	0.500		µg/L	1	11/13/2014	R22819
Trichlorofluoromethane	ND	0.500		µg/L	1	11/13/2014	R22819
1,2,3-Trichloropropane	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl chloride	ND	0.500		µg/L	1	11/13/2014	R22819
Xylenes, Total	ND	1.00		µg/L	1	11/13/2014	R22819
mp-Xylenes	ND	1.00		µg/L	1	11/13/2014	R22819
o-Xylene	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Amyl methyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
tert-Butyl alcohol	ND	0.500		µg/L	1	11/13/2014	R22819
Acrolein	ND	0.500		µg/L	1	11/13/2014	R22819
Acrylonitrile	ND	10.0		µg/L	1	11/13/2014	R22819
Bromochloromethane	ND	0.500		µg/L	1	11/13/2014	R22819
2-Chloroethyl vinyl ether	ND	0.500		µg/L	1	11/13/2014	R22819
Iodomethane	ND	0.500		µg/L	1	11/13/2014	R22819
trans-1,4-Dichloro-2-butene	ND	0.500		µg/L	1	11/13/2014	R22819
Vinyl acetate	ND	0.500		µg/L	1	11/13/2014	R22819
1,4-Dioxane	ND	20.0		µg/L	1	11/13/2014	R22819
Surr: 1,2-Dichlorobenzene-d4	102	70-130		%REC	1	11/13/2014	R22819
Surr: 4-Bromofluorobenzene	94.4	70-130		%REC	1	11/13/2014	R22819
Surr: Toluene-d8	96.4	70-130		%REC	1	11/13/2014	R22819

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661019** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661020** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	93.8	66.6	112			
Nitrogen, Nitrite (As N)	0.90	0.10	1.000	0	90.2	67.5	109			
Bromide	2.3	0.10	2.500	0	92.8	82.8	103			
Nitrogen, Nitrate (As N)	2.3	0.10	2.500	0	93.3	84	109			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	91.7	68.8	109			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661041** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R22427**	RunNo: **22427**
Prep Date:	Analysis Date: **11/7/2014**	SeqNo: **661042** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	96.6	66.6	112			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.0	67.5	109			
Bromide	2.4	0.10	2.500	0	96.4	82.8	103			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.1	84	109			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.8	68.8	109			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R22629**	RunNo: **22629**							
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **667493**	Units: **mg/L**						

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R22629**	RunNo: **22629**							
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **667494**	Units: **mg/L**						

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.7	90	110			
Sulfate	9.5	0.50	10.00	0	95.2	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.500								
Allyl chloride	ND	0.500								
Chloroprene	ND	0.500								
Cyclohexane	ND	0.500								
Diethyl ether	ND	0.500								
Diisopropyl ether	ND	0.500								
Epichlorohydrin	ND	0.500								
Ethyl acetate	ND	0.500								
Ethyl methacrylate	ND	0.500								
Ethyl tert-butyl ether	ND	0.500								
Freon-113	ND	0.500								
Isobutanol	ND	0.500								
Isopropyl acetate	ND	0.500								
Methacrylonitrile	ND	0.500								
Methyl acetate	ND	0.500								
Methyl ethyl ketone	ND	2.50								
Methyl isobutyl ketone	ND	2.50								
Methyl methacrylate	ND	0.500								
Methylcyclohexane	ND	0.500								
n-Amyl acetate	ND	0.500								
n-Hexane	ND	0.500								
Nitrobenzene	ND	0.500								
Pentachloroethane	ND	0.500								
p-isopropyltoluene	ND	0.500								
Propionitrile	ND	0.500								
Tetrahydrofuran	ND	0.500								
Benzene	ND	0.500								
Toluene	ND	0.500								
Ethylbenzene	ND	0.500								
Methyl tert-butyl ether (MTBE)	ND	0.500								
1,2,4-Trimethylbenzene	ND	0.500								
1,3,5-Trimethylbenzene	ND	0.500								
1,2-Dichloroethane (EDC)	ND	0.500								
1,2-Dibromoethane (EDB)	ND	0.500								
Naphthalene	ND	0.500								
Acetone	ND	2.50								
Bromobenzene	ND	0.500								
Bromodichloromethane	ND	0.500								
Bromoform	ND	0.500								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.500								
Carbon disulfide	ND	0.500								
Carbon Tetrachloride	ND	0.500								
Chlorobenzene	ND	0.500								
Chloroethane	ND	0.500								
Chloroform	ND	0.500								
Chloromethane	ND	0.500								
2-Chlorotoluene	ND	0.500								
4-Chlorotoluene	ND	0.500								
cis-1,2-DCE	ND	0.500								
cis-1,3-Dichloropropene	ND	0.500								
1,2-Dibromo-3-chloropropane	ND	0.500								
Dibromochloromethane	ND	0.500								
Dibromomethane	ND	0.500								
1,2-Dichlorobenzene	ND	0.500								
1,3-Dichlorobenzene	ND	0.500								
1,4-Dichlorobenzene	ND	0.500								
Dichlorodifluoromethane	ND	0.500								
1,1-Dichloroethane	ND	0.500								
1,1-Dichloroethene	ND	0.500								
1,2-Dichloropropane	ND	0.500								
1,3-Dichloropropane	ND	0.500								
2,2-Dichloropropane	ND	0.500								
1,1-Dichloropropene	ND	0.500								
Hexachlorobutadiene	ND	0.500								
2-Hexanone	ND	0.500								
Isopropylbenzene	ND	0.500								
Methylene Chloride	ND	2.50								
n-Butylbenzene	ND	0.500								
n-Propylbenzene	ND	0.500								
sec-Butylbenzene	ND	0.500								
Styrene	ND	0.500								
tert-Butylbenzene	ND	0.500								
1,1,1,2-Tetrachloroethane	ND	0.500								
1,1,2,2-Tetrachloroethane	ND	0.500								
Tetrachloroethene (PCE)	ND	0.500								
trans-1,2-DCE	ND	0.500								
trans-1,3-Dichloropropene	ND	0.500								
1,2,3-Trichlorobenzene	ND	0.500								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22819**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673562** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.500								
1,1,1-Trichloroethane	ND	0.500								
1,1,2-Trichloroethane	ND	0.500								
Trichloroethene (TCE)	ND	0.500								
Trichlorofluoromethane	ND	0.500								
1,2,3-Trichloropropane	ND	0.500								
Vinyl chloride	ND	0.500								
Xylenes, Total	ND	1.00								
mp-Xylenes	ND	1.00								
o-Xylene	ND	0.500								
tert-Amyl methyl ether	ND	0.500								
tert-Butyl alcohol	ND	0.500								
Acrolein	ND	0.500								
Acrylonitrile	ND	0.500								
Bromochloromethane	ND	0.500								
2-Chloroethyl vinyl ether	ND	0.500								
Iodomethane	ND	0.500								
trans-1,4-Dichloro-2-butene	ND	0.500								
Vinyl acetate	ND	0.500								
1,4-Dioxane	ND	0.500								
Surr: 1,2-Dichloroethane-d4	0		10.00		0	70	130			S
Surr: 4-Bromofluorobenzene	0		10.00		0	70	130			S
Surr: Toluene-d8	0		10.00		0	70	130			S

Sample ID **LCS-R22819**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R22819**	RunNo: **22819**
Prep Date:	Analysis Date: **11/13/2014**	SeqNo: **673563** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.77		10.00	0	97.7	80	120			
Toluene	10.0		10.00	0	100	80	120			
Ethylbenzene	10.0		10.00	0	100	80	120			
Chlorobenzene	9.99		10.00	0	99.9	80	120			
1,1-Dichloroethene	9.57		10.00	0	95.7	80	120			
Trichloroethene (TCE)	9.91		10.00	0	99.1	80	120			
o-Xylene	10.6		10.00	0	106	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/14/2014**	SeqNo: **676667** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetophenone	ND	10								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/14/2014**	SeqNo: **676667** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	10								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	10								
1,2,4,5-Tetrachlorobenzene	ND	10								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/14/2014**	SeqNo: **676668** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.4		5.000	0	108	49	134			
2-Chlorophenol	4.8		5.000	0	96.4	50	131			
4-Chloro-3-methylphenol	5.8		5.000	0	115	42	139			
4-Nitrophenol	3.9		5.000	0	78.4	19	137			
Acenaphthene	5.3		5.000	0	105	36	122			
Bis(2-ethylhexyl)phthalate	6.0		5.000	0	120	43	142			
N-Nitrosodi-n-propylamine	5.1		5.000	0	102	46	135			
Pentachlorophenol	4.8		5.000	0	95.2	22	138			
Phenol	4.4		5.000	0	88.0	45	134			
Pyrene	5.9		5.000	0	117	45	138			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**MB-16357**	SampType:	**MBLK**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**PBW**	Batch ID:	**16357**	RunNo:	**22512**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664165**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-16357**	SampType:	**LCS**	TestCode:	**EPA Method 7470: Mercury**					
Client ID:	**LCSW**	Batch ID:	**16357**	RunNo:	**22512**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664166**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.5	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	**MB-16358**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**16358**	RunNo:	**22521**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664178**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-16358**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**16358**	RunNo:	**22521**					
Prep Date:	**11/12/2014**	Analysis Date:	**11/13/2014**	SeqNo:	**664179**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	97.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16345**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663247** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-16345**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663248** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	103	80	120			
Barium	ND	100	0.5000	0	98.9	80	120			
Cadmium	ND	1.0	0.5000	0	99.2	80	120			
Chromium	ND	5.0	0.5000	0	98.1	80	120			
Lead	ND	5.0	0.5000	0	95.2	80	120			
Selenium	ND	1.0	0.5000	0	97.9	80	120			
Silver	ND	5.0	0.1000	0	99.9	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16345**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663203** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-16345**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **16345**	RunNo: **22489**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663204** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	103	80	120			
Antimony	0.50	0.050	0.5000	0	99.3	80	120			
Arsenic	0.52	0.020	0.5000	0	103	80	120			
Barium	0.49	0.020	0.5000	0	98.9	80	120			
Beryllium	0.52	0.0030	0.5000	0	104	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.2	80	120			
Calcium	51	1.0	50.00	0	102	80	120			
Chromium	0.49	0.0060	0.5000	0	98.1	80	120			
Cobalt	0.48	0.0060	0.5000	0	95.9	80	120			
Copper	0.50	0.0060	0.5000	0	100	80	120			
Iron	0.49	0.050	0.5000	0	98.8	80	120			
Lead	0.48	0.0050	0.5000	0	95.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	LCS-16345	SampType:	LCS	TestCode:	EPA 6010B: Total Metals					
Client ID:	LCSW	Batch ID:	16345	RunNo:	22489					
Prep Date:	11/11/2014	Analysis Date:	11/12/2014	SeqNo:	663204	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	50	1.0	50.00	0	100	80	120			
Manganese	0.49	0.0020	0.5000	0	97.2	80	120			
Nickel	0.48	0.010	0.5000	0	95.5	80	120			
Potassium	47	1.0	50.00	0	94.6	80	120			
Selenium	0.49	0.050	0.5000	0	97.9	80	120			
Silver	0.10	0.0050	0.1000	0	99.9	80	120			
Thallium	0.48	0.050	0.5000	0	96.1	80	120			
Vanadium	0.52	0.050	0.5000	0	104	80	120			
Zinc	0.49	0.020	0.5000	0	98.0	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **677093** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/18/2014**	SeqNo: **677094** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.532		0.5000	0	106	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R22918**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/21/2014**	SeqNo: **677096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R22918**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R22918**	RunNo: **22918**
Prep Date:	Analysis Date: **11/21/2014**	SeqNo: **677097** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.18		0.2000	0	90.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663098**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663099**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	99.3	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663121**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R22485**	RunNo: **22485**							
Prep Date:	Analysis Date: **11/11/2014**	SeqNo: **663122**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	99.5	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **1411288-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R22669** RunNo: **22669**

Prep Date: Analysis Date: **11/20/2014** SeqNo: **668670** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.0500	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1411288**

09-Dec-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-16340**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **16340**	RunNo: **22490**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663255** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-16340**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **16340**	RunNo: **22490**
Prep Date: **11/11/2014**	Analysis Date: **11/12/2014**	SeqNo: **663256** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1411288 RcptNo: 1

Received by/date: 11/07/14
Logged By: Ashley Gallegos 11/7/2014 9:20:00 AM
Completed By: Ashley Gallegos 11/7/2014 11:25:06 AM
Reviewed By: CS 11/07/14

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☑ mg 11/07/14 No ☑ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 3 2 (<2 or >12 unless noted)
Adjusted? No
Checked by: mg

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks: All VOA's including trip blank have bubbles. mg 11/07/14

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

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Chain of Custody Record

Client: Navajo Refining Co.	☐ Standar ☐ Rush
	Project Name: Quarterly WDW-1, 2, & 3 Inj Well
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Dan Crawford
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler:
	On Ice: X Yes ☐ No
	Sample Temperature: 1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1411283	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
11/6/14	~~9:00~~ 10:30am	Liquid	Trip Blank	2	Neat	-002		X					
11/6/14	~~9:00~~ 10:30am	Liquid	Temperature Blank	1	Neat								

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/6/14	10:30am	Elizabeth Salsberry		11/07/14	0920
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.
pH: 7.30
temp of sample: 44.4°C
Temp: 54°F windspeed 8.1mp
humidity: 43% conditi
wind direction: NNE cl

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Sampler's Name	Aaron Strange
Sampler's Affiliation	Navajo Refining Co. LLC
Start Date and Time	11/6/2014 @ 10:30
End Date and Time	11/6/2014 @ 10:30

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sample:	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☐ P-854 sample point (second from east)
☑ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

Container	Size	Material	# of Containers	Preservatives: None	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): Temp: 54 humidity:43% wind direction:NNE Wind speed: 8.1 mph condition: clear

Date and Time:

Field Temp. 44.4 C Field pH 7.30

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

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Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standar ☐ **Rush**

Project Name:
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:
Dan Crawford

Sampler:

On Ice: ☐ Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond., Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4		X						X
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3						X	X	
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
11/6/14	~~9:00~~ 10:30am	Liquid	WDW-1, 2, & 3 Effluent	2	Neat					X			
11/6/14	~~9:00~~ 10:30am	Liquid	Trip Blank	2	Neat			X					
11/6/14	~~9:00~~ 10:30am	Liquid	Temperature Blank	1	Neat								

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/6/14	10:30am	Elizabeth Salsberry			
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.
pH: 7.30
temp of sample: 44.4°C

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HOLLYFRONTIER

October 27, 2014

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7007 3020 0000 3028 9359

RE: 2014 3rd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the third quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the third quarter, the average injection pressure for all three wells was 1260 psig and the average flows were 105 gpm for WDW-1, 98 gpm for WDW-2 and 106 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from July 1, 2014 to September 30, 2014. We have disposed a total of 976,643 barrels of fluid into the three wells during the third quarter of 2014. The volume per well is:

- 423,882 barrels into WDW-1
- 143,954 barrels into WDW-2
- 408,807 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/3rd quarter/2014-10-27 3rd QTR Inj Rpt for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2014 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	35,238,254
Jul-14	1,241	1,275	970	153	393	140	722	819	179	5,246	13,474	4,800	163,199	35,401,453
Aug-14	1,235	1,275	996	138	144	112	550	769	79	4,731	4,937	3,840	146,646	35,548,099
Sep-14	1,305	1,350	1,273	111	143	76	110	361	0	3,806	4,903	2,606	114,037	35,662,136
WDW-2													**Previous Quarter**	22,198,479
Jul-14	1,241	1,275	983	35	37	11	573	943	265	1,200	1,269	377	37,182	22,235,661
Aug-14	1,235	1,275	1,011	33	37	10	320	402	271	1,131	1,269	343	34,872	22,270,533
Sep-14	1,303	1,350	1,265	70	129	33	285	304	268	2,400	4,423	1,131	71,900	22,342,432
WDW-3													**Previous Quarter**	12,357,942
Jul-14	1,238	1,275	987	128	140	15	914	1,023	260	4,389	4,800	514	136,278	12,494,220
Aug-14	1,239	1,275	1,012	123	137	13	811	935	308	4,217	4,697	446	130,920	12,625,140
Sep-14	1,301	1,350	1,143	138	150	80	782	976	560	4,731	5,143	2,743	141,609	12,766,749
													Total Injected fluids:	70,771,318

T:\Injection Wells\Reports C-115 and Quarterly\2014\3rd quarter\
3rd 2014 qtrly rpt data
Injection fluids

10/24/20142:11 PM

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Navajo Refining Company, L.L.C.

2014 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/1/14	7/7/14	7/14/14	7/22/14	7/28/14	8/4/14	8/11/14	8/18/14	8/26/14	9/3/14	9/8/14	9/15/14	9/22/14	9/29/14
WDW -1[1]	150	145	145	145	145	145	145	145	145	145	145	145	145	145
WDW-2[1]	130	100	100	100	100	100	100	100	100	100	100	100	100	100
WDW-3[1]	145	145	145	145	145	145	145	145	145	145	145	145	145	145
Comments: WDW-2 Minor surface tubing leak identified and repaired week of 7/7.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

Page 5176 of 5828

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 09, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: Quarterly WDW-1, 2, &3 Inj Well OrderNo.: 1409594

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/12/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1409594**
Date: **10/9/2014**

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Fluoride	7.0	2.0	*	mg/L	20	9/13/2014 4:23:10 AM	R21201
Chloride	350	10		mg/L	20	9/13/2014 4:23:10 AM	R21201
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Bromide	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	9/13/2014 4:10:46 AM	R21201
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	9/13/2014 4:23:10 AM	R21201
Sulfate	2500	50		mg/L	100	9/19/2014 12:23:58 AM	R21321
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	9/18/2014 1:55:03 PM	15362
MERCURY, TCLP						Analyst: **JLF**	
Mercury	ND	0.020		mg/L	1	9/23/2014 11:17:20 AM	15428
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Barium	ND	100		mg/L	1	9/20/2014 10:20:57 AM	15405
Cadmium	ND	1.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Chromium	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Lead	ND	5.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Selenium	ND	1.0		mg/L	1	9/20/2014 10:20:57 AM	15405
Silver	ND	5.0		mg/L	1	9/25/2014 12:34:33 PM	15405
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	0.18	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Antimony	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Arsenic	0.061	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Barium	0.022	0.020		mg/L	1	9/20/2014 9:40:32 AM	15405
Beryllium	ND	0.0030		mg/L	1	9/20/2014 9:40:32 AM	15405
Cadmium	ND	0.0020		mg/L	1	9/20/2014 9:40:32 AM	15405
Calcium	80	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Chromium	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Cobalt	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Copper	ND	0.0060		mg/L	1	9/20/2014 9:40:32 AM	15405
Iron	0.50	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Lead	ND	0.0050		mg/L	1	9/20/2014 9:40:32 AM	15405
Magnesium	28	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Manganese	0.21	0.0020		mg/L	1	9/20/2014 9:40:32 AM	15405
Nickel	0.012	0.010		mg/L	1	9/20/2014 9:40:32 AM	15405
Potassium	58	1.0		mg/L	1	9/20/2014 9:40:32 AM	15405
Selenium	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	9/23/2014 1:35:48 PM	15405
Thallium	ND	0.050		mg/L	1	9/20/2014 9:40:32 AM	15405
Titanium	ND	0.0050		mg/L	1	9/20/2014 9:40:32 AM	15405
Silica	9.8	1.1		mg/L	1	9/20/2014 9:40:32 AM	15405
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Acetonitrile	73	0.50		µg/L	1	9/24/2014	R21755
Allyl chloride	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroprene	ND	0.50		µg/L	1	9/24/2014	R21755
Cyclohexane	ND	0.50		µg/L	1	9/24/2014	R21755
Diethyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Diisopropyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Epichlorohydrin	ND	5.0		µg/L	1	9/24/2014	R21755
Ethyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Ethyl methacrylate	ND	0.50		µg/L	1	9/24/2014	R21755
Ethyl tert-butyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Freon-113	ND	0.50		µg/L	1	9/24/2014	R21755
Isobutanol	ND	50		µg/L	1	9/24/2014	R21755
Isopropyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Methacrylonitrile	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl ethyl ketone	ND	2.5		µg/L	1	9/24/2014	R21755
Methyl isobutyl ketone	ND	2.5		µg/L	1	9/24/2014	R21755
Methyl methacrylate	ND	0.50		µg/L	1	9/24/2014	R21755
Methylcyclohexane	ND	1.0		µg/L	1	9/24/2014	R21755
n-Amyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
n-Hexane	ND	0.50		µg/L	1	9/24/2014	R21755
Nitrobenzene	ND	5.0		µg/L	1	9/24/2014	R21755
Pentachloroethane	ND	5.0		µg/L	1	9/24/2014	R21755
p-isopropyltoluene	ND	0.50		µg/L	1	9/24/2014	R21755
Propionitrile	0.97	0.50		µg/L	1	9/24/2014	R21755
Tetrahydrofuran	ND	0.50		µg/L	1	9/24/2014	R21755
Benzene	ND	0.50		µg/L	1	9/24/2014	R21755
Toluene	ND	0.50		µg/L	1	9/24/2014	R21755
Ethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	9/24/2014	R21755
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	9/24/2014	R21755

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Naphthalene	ND	0.50		µg/L	1	9/24/2014	R21755
Acetone	18	2.5		µg/L	1	9/24/2014	R21755
Bromobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Bromodichloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
Bromoform	ND	0.50		µg/L	1	9/24/2014	R21755
Bromomethane	ND	0.50		µg/L	1	9/24/2014	R21755
Carbon disulfide	0.56	0.50		µg/L	1	9/24/2014	R21755
Carbon Tetrachloride	ND	0.50		µg/L	1	9/24/2014	R21755
Chlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Chloroform	ND	0.50		µg/L	1	9/24/2014	R21755
Chloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
2-Chlorotoluene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Chlorotoluene	ND	0.50		µg/L	1	9/24/2014	R21755
cis-1,2-DCE	ND	0.50		µg/L	1	9/24/2014	R21755
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
Dibromochloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
Dibromomethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,3-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,4-Dichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Dichlorodifluoromethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloroethene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
1,3-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
2,2-Dichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
Hexachlorobutadiene	ND	0.50		µg/L	1	9/24/2014	R21755
2-Hexanone	ND	0.50		µg/L	1	9/24/2014	R21755
Isopropylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Isopropyltoluene	ND	0.50		µg/L	1	9/24/2014	R21755
4-Methyl-2-pentanone	ND	0.50		µg/L	1	9/24/2014	R21755
Methylene Chloride	ND	2.5		µg/L	1	9/24/2014	R21755
n-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
n-Propylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
sec-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
Styrene	ND	0.50		µg/L	1	9/24/2014	R21755

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
tert-Butylbenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,2-DCE	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,1-Trichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,1,2-Trichloroethane	ND	0.50		µg/L	1	9/24/2014	R21755
Trichloroethene (TCE)	ND	0.50		µg/L	1	9/24/2014	R21755
Trichlorofluoromethane	ND	0.50		µg/L	1	9/24/2014	R21755
1,2,3-Trichloropropane	ND	0.50		µg/L	1	9/24/2014	R21755
Vinyl chloride	ND	0.50		µg/L	1	9/24/2014	R21755
Xylenes, Total	ND	1.0		µg/L	1	9/24/2014	R21755
mp-Xylenes	ND	1.0		µg/L	1	9/24/2014	R21755
o-Xylene	ND	0.50		µg/L	1	9/24/2014	R21755
tert-Amyl methyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
tert-Butyl alcohol	23	0.50		µg/L	1	9/24/2014	R21755
Acrolein	ND	0.50		µg/L	1	9/24/2014	R21755
Acrylonitrile	ND	10		µg/L	1	9/24/2014	R21755
Bromochloromethane	ND	0.50		µg/L	1	9/24/2014	R21755
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	9/24/2014	R21755
Iodomethane	ND	0.50		µg/L	1	9/24/2014	R21755
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	9/24/2014	R21755
Vinyl acetate	ND	0.50		µg/L	1	9/24/2014	R21755
1,4-Dioxane	ND	20		µg/L	1	9/24/2014	R21755
Surr: 1,2-Dichloroethane-d4	110	70-130		%REC	1	9/24/2014	R21755
Surr: 4-Bromofluorobenzene	99.6	70-130		%REC	1	9/24/2014	R21755
Surr: Toluene-d8	104	70-130		%REC	1	9/24/2014	R21755
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	5.0		µg/L	1	9/23/2014	R21755
Atrazine	ND	5.0		µg/L	1	9/23/2014	R21755
Benzaldehyde	ND	5.0		µg/L	1	9/23/2014	R21755
Caprolactam	ND	5.0		µg/L	1	9/23/2014	R21755
N-Nitroso-di-n-butylamine	ND	5.0		µg/L	1	9/23/2014	R21755
Acetophenone	ND	10		µg/L	1	9/23/2014	R21755
1-Methylnaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	9/23/2014	R21755

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
2,4,5-Trichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4,6-Trichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dichlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dimethylphenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dinitrophenol	ND	10		µg/L	1	9/23/2014	R21755
2,4-Dinitrotoluene	ND	10		µg/L	1	9/23/2014	R21755
2,6-Dinitrotoluene	ND	10		µg/L	1	9/23/2014	R21755
2-Chloronaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2-Chlorophenol	ND	10		µg/L	1	9/23/2014	R21755
2-Methylnaphthalene	ND	10		µg/L	1	9/23/2014	R21755
2-Methylphenol	ND	10		µg/L	1	9/23/2014	R21755
2-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
2-Nitrophenol	ND	10		µg/L	1	9/23/2014	R21755
3,3'-Dichlorobenzidine	ND	10		µg/L	1	9/23/2014	R21755
3-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	9/23/2014	R21755
4-Bromophenyl phenyl ether	ND	10		µg/L	1	9/23/2014	R21755
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/23/2014	R21755
4-Chloroaniline	ND	10		µg/L	1	9/23/2014	R21755
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	9/23/2014	R21755
4-Nitroaniline	ND	10		µg/L	1	9/23/2014	R21755
4-Nitrophenol	ND	10		µg/L	1	9/23/2014	R21755
Acenaphthene	ND	10		µg/L	1	9/23/2014	R21755
Acenaphthylene	ND	10		µg/L	1	9/23/2014	R21755
Anthracene	ND	10		µg/L	1	9/23/2014	R21755
Benzo(g,h,i)perylene	ND	10		µg/L	1	9/23/2014	R21755
Benz(a)anthracene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(a)pyrene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(b)fluoranthene	ND	0.10		µg/L	1	9/23/2014	R21755
Benzo(k)fluoranthene	ND	0.10		µg/L	1	9/23/2014	R21755
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-chloroethyl)ether	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	9/23/2014	R21755
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/23/2014	R21755
Butyl benzyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Carbazole	ND	10		µg/L	1	9/23/2014	R21755
Chrysene	ND	0.10		µg/L	1	9/23/2014	R21755
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	9/23/2014	R21755
Dibenzofuran	ND	10		µg/L	1	9/23/2014	R21755

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Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD						Analyst: **SUB**	
Diethyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Dimethyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Di-n-butyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Di-n-octyl phthalate	ND	10		µg/L	1	9/23/2014	R21755
Fluoranthene	ND	10		µg/L	1	9/23/2014	R21755
Fluorene	ND	10		µg/L	1	9/23/2014	R21755
Hexachlorobenzene	ND	1.0		µg/L	1	9/23/2014	R21755
Hexachlorobutadiene	ND	10		µg/L	1	9/23/2014	R21755
Hexachlorocyclopentadiene	ND	10		µg/L	1	9/23/2014	R21755
Hexachloroethane	ND	10		µg/L	1	9/23/2014	R21755
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	9/23/2014	R21755
Isophorone	ND	10		µg/L	1	9/23/2014	R21755
Naphthalene	ND	10		µg/L	1	9/23/2014	R21755
Nitrobenzene	ND	10		µg/L	1	9/23/2014	R21755
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	9/23/2014	R21755
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	9/23/2014	R21755
Pentachlorophenol	ND	10		µg/L	1	9/23/2014	R21755
Phenanthrene	ND	10		µg/L	1	9/23/2014	R21755
Phenol	ND	5.0		µg/L	1	9/23/2014	R21755
Pyrene	ND	10		µg/L	1	9/23/2014	R21755
o-Toluidine	ND	5.0		µg/L	1	9/23/2014	R21755
Pyridine	ND	5.0		µg/L	1	9/23/2014	R21755
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	9/23/2014	R21755
Surr: 2,4,6-Tribromophenol	80.2	10-123		%REC	1	9/23/2014	R21755
Surr: 2-Fluorobiphenyl	100	19-130		%REC	1	9/23/2014	R21755
Surr: 2-Fluorophenol	77.0	21-110		%REC	1	9/23/2014	R21755
Surr: Nitrobenzene-d5	91.2	25-130		%REC	1	9/23/2014	R21755
Surr: Phenol-d5	94.4	10-125		%REC	1	9/23/2014	R21755
Surr: Terphenyl-d14	39.9	33-141		%REC	1	9/23/2014	R21755
CORROSIVITY						Analyst: **SUB**	
pH	6.61			pH Units	1	9/18/2014	R21755
IGNITABILITY METHOD 1010						Analyst: **SUB**	
Ignitability	>200	0		°F	1	9/24/2014	R21755
CYANIDE, REACTIVE						Analyst: **SUB**	
Cyanide, Reactive	ND	1.00		mg/L	1	9/25/2014	R21755
SULFIDE, REACTIVE						Analyst: **SUB**	
Reactive Sulfide	ND	1.0		mg/L	1	9/30/2014	R21755

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Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1409594**
Date Reported: **10/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well
Lab ID: 1409594-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1,2,&3 Effluent
Collection Date: 9/11/2014 9:30:00 AM
Received Date: 9/12/2014 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	5400	0.010		µmhos/cm	1	9/19/2014 8:48:13 PM	R21338
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	120	20		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
Total Alkalinity (as CaCO3)	120	20		mg/L CaCO3	1	9/19/2014 8:48:13 PM	R21338
SPECIFIC GRAVITY						Analyst: **SRM**	
Specific Gravity	1.001	0			1	9/23/2014 4:39:00 PM	R21384
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4700	20.0	*	mg/L	1	9/17/2014 10:23:00 AM	15289

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617354** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.9	0.50	5.000	0	97.9	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	97.0	90	110			
Bromide	2.4	0.10	2.500	0	96.4	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	103	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617410** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617411** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	103	90	110			
Chloride	4.7	0.50	5.000	0	94.7	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.9	90	110			
Bromide	2.4	0.10	2.500	0	96.7	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21201**	RunNo: **21201**
Prep Date:	Analysis Date: **9/12/2014**	SeqNo: **617411** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.1	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.5	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R21321**	RunNo: **21321**
Prep Date:	Analysis Date: **9/18/2014**	SeqNo: **622134** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R21321**	RunNo: **21321**
Prep Date:	Analysis Date: **9/18/2014**	SeqNo: **622135** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.6	0.50	10.00	0	96.2	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**	
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**	
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768**	Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Cyclohexane	ND	0.50								
Diethyl ether	ND	0.50								
Diisopropyl ether	ND	0.50								
Epichlorohydrin	ND	0.50								
Ethyl acetate	ND	0.50								
Ethyl methacrylate	ND	0.50								
Ethyl tert-butyl ether	ND	0.50								
Freon-113	ND	0.50								
Isobutanol	ND	50								
Isopropyl acetate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl acetate	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Methylcyclohexane	ND	1.0								
n-Amyl acetate	ND	0.50								
n-Hexane	ND	0.50								
Nitrobenzene	ND	0.50								
Pentachloroethane	ND	5.0								
p-isopropyltoluene	ND	0.50								
Propionitrile	ND	0.50								
Tetrahydrofuran	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	10								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromobenzene	ND	0.50								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
2-Chlorotoluene	ND	0.50								
4-Chlorotoluene	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,3-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
Hexachlorobutadiene	ND	0.50								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.50								
4-Isopropyltoluene	ND	0.50								
4-Methyl-2-pentanone	ND	0.50								
Methylene Chloride	ND	2.5								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
tert-Butylbenzene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638768** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.50								
1,2,3-Trichlorobenzene	ND	0.50								
1,2,4-Trichlorobenzene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
Xylenes, Total	ND	1.0								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
tert-Amyl methyl ether	ND	0.50								
tert-Butyl alcohol	ND	0.50								
Acrolein	ND	0.50								
Acrylonitrile	ND	10								
Bromochloromethane	ND	0.50								
2-Chloroethyl vinyl ether	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								
1,4-Dioxane	ND	20								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/24/2014**	SeqNo: **638769** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.9		10.00	0	99.2	80	120			
Toluene	10		10.00	0	102	80	120			
Ethylbenzene	10		10.00	0	99.6	80	120			
Chlorobenzene	9.9		10.00	0	99.3	80	120			
1,1-Dichloroethene	9.2		10.00	0	91.9	80	120			
Tetrachloroethene (PCE)	9.8		10.00	0	98.4	80	120			
Trichloroethene (TCE)	9.5		10.00	0	95.2	80	120			
o-Xylene	10		10.00	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638842** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	10								
Atrazine	ND	10								
Caprolactam	ND	10								
N-Nitroso-di-n-butylamine	ND	10								
Acetophenone	ND	10								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638842** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	10								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	10								
o-Toluidine	ND	10								
Pyridine	ND	10								
1,2,4,5-Tetrachlorobenzene	ND	10								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638843** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	3.1		5.000	0	61.2	49	134			
2-Chlorophenol	3.4		5.000	0	67.6	50	131			
4-Chloro-3-methylphenol	3.3		5.000	0	66.4	42	139			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/23/2014**	SeqNo: **638843** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Nitrophenol	2.6		5.000	0	53.0	19	137			
Acenaphthene	4.0		5.000	0	79.6	36	122			
Bis(2-ethylhexyl)phthalate	3.9		5.000	0	78.2	43	142			
N-Nitrosodi-n-propylamine	4.1		5.000	0	82.0	46	135			
Pentachlorophenol	2.5		5.000	0	49.6	22	138			
Phenol	3.7		5.000	0	73.4	45	134			
Pyrene	3.6		5.000	0	73.0	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-15362	SampType:	MBLK		TestCode:	EPA Method 7470: Mercury				
Client ID:	PBW	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621116	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-15362	SampType:	LCS		TestCode:	EPA Method 7470: Mercury				
Client ID:	LCSW	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621117	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	105	80	120			

Sample ID	1409594-001BMS	SampType:	MS		TestCode:	EPA Method 7470: Mercury				
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621119	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	100	75	125			

Sample ID	1409594-001BMSD	SampType:	MSD		TestCode:	EPA Method 7470: Mercury				
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	15362		RunNo:	21286				
Prep Date:	9/18/2014	Analysis Date:	9/18/2014		SeqNo:	621120	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	101	75	125	0.392	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company
Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15428**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **15428**	RunNo: **21367**
Prep Date: **9/22/2014**	Analysis Date: **9/23/2014**	SeqNo: **623963** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-15428**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **15428**	RunNo: **21367**
Prep Date: **9/22/2014**	Analysis Date: **9/23/2014**	SeqNo: **623964** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.4	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **626611** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **626612** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	106	80	120			
Barium	ND	100	0.5000	0	101	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	100	80	120			
Lead	ND	5.0	0.5000	0	98.6	80	120			
Selenium	ND	1.0	0.5000	0	104	80	120			

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **626633** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	5.0								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **626634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	5.0	0.1000	0	104	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409594

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622303** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Thallium	ND	0.050								
Titanium	ND	0.0050								
Silica	ND	1.1								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.57	0.020	0.5000	0	114	80	120			
Antimony	0.50	0.050	0.5000	0	100	80	120			
Arsenic	0.53	0.020	0.5000	0	106	80	120			
Barium	0.50	0.020	0.5000	0	101	80	120			
Beryllium	0.53	0.0030	0.5000	0	106	80	120			
Cadmium	0.51	0.0020	0.5000	0	102	80	120			
Calcium	52	1.0	50.00	0	105	80	120			
Chromium	0.50	0.0060	0.5000	0	100	80	120			
Cobalt	0.49	0.0060	0.5000	0	97.9	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.51	0.050	0.5000	0	101	80	120			
Lead	0.49	0.0050	0.5000	0	98.6	80	120			
Magnesium	52	1.0	50.00	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21324**
Prep Date: **9/19/2014**	Analysis Date: **9/20/2014**	SeqNo: **622304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.50	0.0020	0.5000	0	100	80	120			
Nickel	0.49	0.010	0.5000	0	98.7	80	120			
Potassium	49	1.0	50.00	0	98.1	80	120			
Selenium	0.52	0.050	0.5000	0	104	80	120			
Thallium	0.49	0.050	0.5000	0	97.7	80	120			
Titanium	0.52	0.0050	0.5000	0	104	80	120			
Silica	5.6	1.1	5.350	0	104	80	120			

Sample ID **MB-15405**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **624518** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.0050								

Sample ID **LCS-15405**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **15405**	RunNo: **21385**
Prep Date: **9/19/2014**	Analysis Date: **9/23/2014**	SeqNo: **624519** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.10	0.0050	0.1000	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/25/2014**	SeqNo: **639462** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/25/2014**	SeqNo: **639463** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.487		0.5000	0	97.4	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-R21755**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**
Client ID: **PBW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/30/2014**	SeqNo: **639465** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R21755**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R21755**	RunNo: **21755**
Prep Date:	Analysis Date: **9/30/2014**	SeqNo: **639466** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.16		0.2000	0	80.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622910**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622911**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	99.6	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622914**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R21338**	RunNo: **21338**							
Prep Date:	Analysis Date: **9/19/2014**	SeqNo: **622915**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	81	20	80.00	0	102	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **1409594-001ADUP** SampType: **DUP** TestCode: **Specific Gravity**

Client ID: **WDW-1,2,&3 Effluen** Batch ID: **R21384** RunNo: **21384**

Prep Date: Analysis Date: **9/23/2014** SeqNo: **624495** Units:

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.000	0						0.110	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1409594**

09-Oct-14

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID **MB-15289**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **15289**	RunNo: **21253**
Prep Date: **9/15/2014**	Analysis Date: **9/17/2014**	SeqNo: **619558** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-15289**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **15289**	RunNo: **21253**
Prep Date: **9/15/2014**	Analysis Date: **9/17/2014**	SeqNo: **619559** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM Work Order Number: 1409594 RcptNo: 1

Received by/date: 09/12/14

Logged By: Lindsay Mangin 9/12/2014 9:45:00 AM

Completed By: Lindsay Mangin 9/12/2014 10:09:46 AM

Reviewed By: 09/12/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 2 (2) (<2 or >12 unless noted)

Adjusted? no

Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good	Yes			

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Received by OCD: 5/16/2022 2:12:41 PM

Chain of Custody Record

Client: Navajo Refining Co.	☐ Standar ☐ Rush
	Project Name:
Mailing Address: P.O. Box 159 Artesia,	Quarterly WDW-1, 2, & 3 Inj Well
NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager:
QA/QC Package:	Dan Crawford
☐ Standard ☐ Level 4 (Full Validation)	Sampler: Steven URBAN
☐ Other _____	On Ice: ☑ Yes ☐ No
☐ EDD (Type) _____	Sample Temperature: 2.5 + 0.2 = 2.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1409592	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
9/11/14	9:30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
~~9/11/14~~	~~9:30~~	Liquid	Trip Blank	~~2~~	~~Neat~~	-002	CS 09/12/14	X					
9/11/14	9:30	Liquid	Temperature Blank	1	Neat	-							

Date: 9-11-14	Time: 10:08	Relinquished by: Steven URBAN	Received by:	Date: 09/12/14	Time: 0945
Date:	Time:	Relinquished by:	Received by:	Date:	Time:

Remarks: Report these results separately from all other Chain of Custody kits provided.

The trip blank sample was not recieved.
—CS 09/12/14

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Page 5205 of 5828

Page 5206 of 5828

Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Steven Urban
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	9/11/2014 @ 9:58
End Date and Time	9/11/2014 @ 10:08

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east) ☐ P-856 sample point (third from east)
☐ P-854 sample point (second from east) ☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): 6/11/2014 08:51 Tmp. 72.0, Humidity 68%, Wind Dir. SE, Wind Speed 8.1 mph, Conditions Overcast
Date and Time:

Field Temp. 113 °F Field pH 6.48

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

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HOLLYFRONTIER.

July 30, 2014

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7007 3020 0000 3028 8413

RE: 2014 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1180 psig and the average flows were 134 gpm for WDW-1, 132 gpm for WDW-2 and 111 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS) although minor above ground tubing leaks at two of the wells were identified and repaired. The quarterly effluent analyses indicated parameters are within limits.

This report covers the period from April 1, 2014 to June 30, 2014. We have disposed a total of 1,179,825 barrels of fluid into the three wells during the second quarter of 2014. The volume per well is:

- 421,136 barrels into WDW-1
- 412,743 barrels into WDW-2
- 345,946 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President & Refinery Manager
Navajo Refining Company, L.L.C.

Enc.

Electronic cc (w/enc.): D Crawford, R Combs, M Schultz, A Strange
Environmental File: Injection Wells/Reports C-115 & Quarterly/2014/2nd quarter/2014-07-31 2nd QTR Inj Rpt for Wells WDW-1,2,3

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Navajo Refining Company, L.L.C.

2014 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	34,814,372
Apr-14	1,198	1,226	1,138	136	140	129	335	483	202	4,663	4,800	4,423	140,351	34,954,723
May-14	1,173	1,250	947	133	147	115	508	874	189	4,560	5,040	3,943	141,827	35,096,550
Jun-14	1,194	1,261	972	135	144	121	746	993	232	4,629	4,937	4,149	138,958	35,235,507
WDW-2													**Previous Quarter**	22,054,526
Apr-14	1,192	1,226	1,109	211	347	109	477	630	241	7,234	11,897	3,737	216,878	22,271,404
May-14	1,163	1,248	958	98	121	34	662	1,251	198	3,360	4,149	1,166	103,840	22,375,244
Jun-14	1,206	1,265	1,155	89	116	32	537	1,018	146	3,051	3,977	1,097	92,025	22,467,269
WDW-3													**Previous Quarter**	11,949,135
Apr-14	1,176	1,225	1,100	119	133	96	462	698	268	4,080	4,560	3,291	122,621	12,071,756
May-14	1,139	1,250	961	100	140	11	519	999	226	3,429	4,800	377	106,412	12,178,167
Jun-14	1,184	1,248	989	114	133	27	572	876	267	3,909	4,560	926	116,913	12,295,081
													Total Injected fluids:	69,997,857

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Navajo Refining Company, L.L.C.

2014 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/7/14	4/14/14	4/22/14	4/28/14	5/5/14	5/16/14	5/23/14	5/29/14	6/2/14	6/9/14	6/17/14	6/25/14		
WDW -1[1]	145	145	145	145	145	140	140	135	130	125	100	100		
WDW-2[1]	150	150	150	150	150	145	145	145	145	145	145	130		
WDW-3[1]	145	145	145	145	145	145	145	145	145	145	145	145		
Comments: 6/9/14 small tubing leak at WDW-1 reported and repaired. 6/17/14 a second tubing leak at WDW-1 was reported and repaired. 6/25/14 small tubing leak at WDW-2 reported and repaired.														

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

WDW-1 is Mewbourne
WDW-2 is Chukka
WDW-3 is Gaines

N:\Injection Wells\Reports C-115 and Quarterly\2014\2nd quarter\
2nd 2014 qtrly rpt data
WAMS Tanks

7/30/20148:43 AM

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	WDW-1,2, & 3 Qrtly Inj Well
Samplers Name	Aaron Strange
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	6/19/2014 @ 09:25
End Date and Time	6/19/2014 @ 09:35

Sample Type	
Grab	☑
Time Weighted Composite	☐
Flow Weighted Composite	☐

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Parts / Sample Intervals	One

Type of Sampler	Directly to sample jars

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)
☑ P-854 sample point (second from east)
☐ P-856 sample point (third from east)
☐ P-857 sample point (fourth from east)

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1			3	X			X					Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R,C,I/40 CFR part 261
5			2	X								Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): 6/19/2014 09:35 Tmp. 77.0, Humidity 61%, Wind Dir. N, Wind Speed 10.4 mph, Conditions Clear
Date and Time:

Field Temp. 116.6°F Field pH 7.37

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 17, 2014

Dan Crawford
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: WDW-1, 2, & 3 Qtrly Inj Well OrderNo.: 1406935

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/19/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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Case Narrative

WO#: **1406935**
Date: **7/17/2014**

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:
Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	28	2.0	*	mg/L	20	6/19/2014 5:43:17 PM	R19410
Chloride	290	10		mg/L	20	6/19/2014 5:43:17 PM	R19410
Nitrogen, Nitrite (As N)	1.5	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Bromide	0.72	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	6/19/2014 5:30:53 PM	R19410
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	6/19/2014 5:30:53 PM	R19410
Sulfate	2600	50		mg/L	100	7/7/2014 4:18:15 PM	R19725
EPA METHOD 7470: MERCURY						Analyst: **MMD**	
Mercury	ND	0.00020		mg/L	1	6/26/2014 9:07:50 AM	13883
MERCURY, TCLP						Analyst: **MMD**	
Mercury	ND	0.020		mg/L	1	7/8/2014 12:50:03 PM	14082
EPA METHOD 6010B: TCLP METALS						Analyst: **ELS**	
Arsenic	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Barium	ND	100		mg/L	1	7/8/2014 12:02:28 PM	14080
Cadmium	ND	1.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Chromium	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Lead	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Selenium	ND	1.0		mg/L	1	7/8/2014 12:02:28 PM	14080
Silver	ND	5.0		mg/L	1	7/8/2014 12:02:28 PM	14080
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Aluminum	1.2	0.020		mg/L	1	7/11/2014 10:29:51 AM	14172
Antimony	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Arsenic	0.027	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
Barium	ND	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
Beryllium	ND	0.0030		mg/L	1	7/7/2014 12:25:17 PM	14075
Cadmium	ND	0.0020		mg/L	1	7/7/2014 12:25:17 PM	14075
Calcium	27	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Chromium	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Cobalt	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Copper	ND	0.0060		mg/L	1	7/7/2014 12:25:17 PM	14075
Iron	0.21	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Lead	ND	0.0050		mg/L	1	7/7/2014 12:25:17 PM	14075
Magnesium	9.2	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Manganese	0.032	0.0020		mg/L	1	7/7/2014 12:25:17 PM	14075
Nickel	ND	0.010		mg/L	1	7/7/2014 12:25:17 PM	14075
Potassium	69	1.0		mg/L	1	7/7/2014 12:25:17 PM	14075
Selenium	0.069	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS						Analyst: **ELS**	
Silver	ND	0.0050		mg/L	1	7/7/2014 12:25:17 PM	14075
Sodium	1200	20		mg/L	20	7/7/2014 12:31:46 PM	14075
Thallium	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Vanadium	ND	0.050		mg/L	1	7/7/2014 12:25:17 PM	14075
Zinc	ND	0.020		mg/L	1	7/7/2014 12:25:17 PM	14075
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Ethyl tert-butyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Acetonitrile	ND	0.50		µg/L	1	6/26/2014	R19890
Allyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroprene	ND	0.50		µg/L	1	6/26/2014	R19890
Cyclohexane	ND	2.5		µg/L	1	6/26/2014	R19890
Diethyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Diisopropyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Epichlorohydrin	ND	5.0		µg/L	1	6/26/2014	R19890
Ethyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Ethyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Freon-113	ND	0.50		µg/L	1	6/26/2014	R19890
Isobutanol	ND	50		µg/L	1	6/26/2014	R19890
Isopropyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methacrylonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl ethyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl isobutyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Methylcyclohexane	ND	1.0		µg/L	1	6/26/2014	R19890
n-Amyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
n-Hexane	ND	0.50		µg/L	1	6/26/2014	R19890
Nitrobenzene	ND	5.0		µg/L	1	6/26/2014	R19890
Pentachloroethane	ND	5.0		µg/L	1	6/26/2014	R19890
p-isopropyltoluene	ND	0.50		µg/L	1	6/26/2014	R19890
Propionitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Tetrahydrofuran	ND	0.50		µg/L	1	6/26/2014	R19890
Benzene	0.64	0.50		µg/L	1	6/26/2014	R19890
Toluene	ND	0.50		µg/L	1	6/26/2014	R19890
Ethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	6/26/2014	R19890
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	6/26/2014	R19890
Naphthalene	ND	0.50		µg/L	1	6/26/2014	R19890
Acetone	15	2.5		µg/L	1	6/26/2014	R19890
Bromobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Bromodichloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Bromoform	ND	0.50		µg/L	1	6/26/2014	R19890
Bromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon disulfide	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon Tetrachloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroform	ND	0.50		µg/L	1	6/26/2014	R19890
Chloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
4-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Dichlorodifluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
2,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
Hexachlorobutadiene	ND	0.50		µg/L	1	6/26/2014	R19890
2-Hexanone	ND	0.50		µg/L	1	6/26/2014	R19890
Isopropylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methylene Chloride	ND	2.5		µg/L	1	6/26/2014	R19890
n-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
n-Propylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
sec-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Styrene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/26/2014	R19890
Trichlorofluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
mp-Xylenes	ND	1.0		µg/L	1	6/26/2014	R19890
o-Xylene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Amyl methyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butyl alcohol	ND	10		µg/L	1	6/26/2014	R19890
Acrolein	ND	2.5		µg/L	1	6/26/2014	R19890
Acrylonitrile	ND	10		µg/L	1	6/26/2014	R19890
Bromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chloroethyl vinyl ether	ND	2.5		µg/L	1	6/26/2014	R19890
Iodomethane	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dioxane	ND	20		µg/L	1	6/26/2014	R19890
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	6/26/2014	R19890
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	6/26/2014	R19890
Surr: Toluene-d8	101	70-130		%REC	1	6/26/2014	R19890
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
1,1-Biphenyl	ND	0.10		µg/L	1	6/26/2014	R19935
Atrazine	ND	0.10		µg/L	1	6/26/2014	R19935
Benzaldehyde	ND	0.10		µg/L	1	6/26/2014	R19935
Caprolactam	ND	0.10		µg/L	1	6/26/2014	R19935
N-Nitroso-di-n-butylamine	ND	0.10		µg/L	1	6/26/2014	R19935
Acetophenone	ND	10		µg/L	1	6/26/2014	R19935
1-Methylnaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4,5-Trichlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4,6-Trichlorophenol	ND	10		µg/L	1	6/26/2014	R19935

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
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Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
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Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
2,4-Dichlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dimethylphenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dinitrophenol	ND	10		µg/L	1	6/26/2014	R19935
2,4-Dinitrotoluene	ND	10		µg/L	1	6/26/2014	R19935
2,6-Dinitrotoluene	ND	10		µg/L	1	6/26/2014	R19935
2-Chloronaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2-Chlorophenol	ND	10		µg/L	1	6/26/2014	R19935
2-Methylnaphthalene	ND	10		µg/L	1	6/26/2014	R19935
2-Methylphenol	ND	10		µg/L	1	6/26/2014	R19935
2-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
2-Nitrophenol	ND	10		µg/L	1	6/26/2014	R19935
3,3'-Dichlorobenzidine	ND	10		µg/L	1	6/26/2014	R19935
3-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	6/26/2014	R19935
4-Bromophenyl phenyl ether	ND	10		µg/L	1	6/26/2014	R19935
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/26/2014	R19935
4-Chloroaniline	ND	10		µg/L	1	6/26/2014	R19935
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	6/26/2014	R19935
4-Nitroaniline	ND	10		µg/L	1	6/26/2014	R19935
4-Nitrophenol	ND	10		µg/L	1	6/26/2014	R19935
Acenaphthene	ND	10		µg/L	1	6/26/2014	R19935
Acenaphthylene	ND	10		µg/L	1	6/26/2014	R19935
Anthracene	ND	10		µg/L	1	6/26/2014	R19935
Benzo(g,h,i)perylene	ND	10		µg/L	1	6/26/2014	R19935
Benz(a)anthracene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(a)pyrene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(b)fluoranthene	ND	0.10		µg/L	1	6/26/2014	R19935
Benzo(k)fluoranthene	ND	0.10		µg/L	1	6/26/2014	R19935
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-chloroethyl)ether	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	6/26/2014	R19935
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/26/2014	R19935
Butyl benzyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Carbazole	ND	10		µg/L	1	6/26/2014	R19935
Chrysene	ND	0.10		µg/L	1	6/26/2014	R19935
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	6/26/2014	R19935
Dibenzofuran	ND	10		µg/L	1	6/26/2014	R19935
Diethyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Dimethyl phthalate	ND	10		µg/L	1	6/26/2014	R19935

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: **SUB**
Di-n-butyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Di-n-octyl phthalate	ND	10		µg/L	1	6/26/2014	R19935
Fluoranthene	ND	10		µg/L	1	6/26/2014	R19935
Fluorene	ND	10		µg/L	1	6/26/2014	R19935
Hexachlorobenzene	ND	1.0		µg/L	1	6/26/2014	R19935
Hexachlorobutadiene	ND	10		µg/L	1	6/26/2014	R19935
Hexachlorocyclopentadiene	ND	10		µg/L	1	6/26/2014	R19935
Hexachloroethane	ND	10		µg/L	1	6/26/2014	R19935
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	6/26/2014	R19935
Isophorone	ND	10		µg/L	1	6/26/2014	R19935
Naphthalene	ND	10		µg/L	1	6/26/2014	R19935
Nitrobenzene	ND	10		µg/L	1	6/26/2014	R19935
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	6/26/2014	R19935
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	6/26/2014	R19935
Pentachlorophenol	ND	10		µg/L	1	6/26/2014	R19935
Phenanthrene	ND	10		µg/L	1	6/26/2014	R19935
Phenol	ND	5.0		µg/L	1	6/26/2014	R19935
Pyrene	ND	10		µg/L	1	6/26/2014	R19935
o-Toluidine	ND	0.10		µg/L	1	6/26/2014	R19935
Pyridine	ND	0.10		µg/L	1	6/26/2014	R19935
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	6/26/2014	R19935
Surr: 2,4,6-Tribromophenol	101	10-123		%REC	1	6/26/2014	R19935
Surr: 2-Fluorobiphenyl	102	19-130		%REC	1	6/26/2014	R19935
Surr: 2-Fluorophenol	76.2	21-110		%REC	1	6/26/2014	R19935
Surr: Nitrobenzene-d5	91.1	25-130		%REC	1	6/26/2014	R19935
Surr: Phenol-d5	79.3	10-125		%REC	1	6/26/2014	R19935
Surr: Terphenyl-d14	92.2	33-141		%REC	1	6/26/2014	R19935
CORROSIVITY							Analyst: **SUB**
pH	7.90		H	pH Units	1	7/2/2014	R19940
IGNITABILITY METHOD 1010							Analyst: **SUB**
Ignitability	>200	0		°F	1	7/7/2014	R19940
CYANIDE, REACTIVE							Analyst: **SUB**
Cyanide, Reactive	ND	1.00		mg/L	1	7/2/2014	R19940
SULFIDE, REACTIVE							Analyst: **SUB**
Reactive Sulfide	ND	1.0		mg/L	1	6/26/2014	R19940
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**
Conductivity	6000	0.010		µmhos/cm	1	6/23/2014 3:26:39 PM	R19484

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-001 **Matrix:** AQUEOUS

Client Sample ID: WDW-1, 2, & 3 Effluent
Collection Date: 6/19/2014 9:30:00 AM
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.91	1.68	H	pH units	1	6/23/2014 3:26:39 PM	R19484
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	290	20		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
Total Alkalinity (as CaCO3)	290	20		mg/L CaCO3	1	6/23/2014 3:26:39 PM	R19484
SPECIFIC GRAVITY						Analyst: **SRM**	
Specific Gravity	1.003	0			1	6/30/2014 10:37:00 AM	R19574
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4440	40.0	*	mg/L	1	6/23/2014 11:26:00 AM	13798

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Qualifiers:

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J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2.
RL	Reporting Detection Limit

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: WDW-1, 2, & 3 Qtrly Inj Well
Collection Date:
Lab ID: 1406935-002 **Matrix:** TRIP BLANK **Received Date:** 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
Ethyl tert-butyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Acetonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Allyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroprene	ND	0.50		µg/L	1	6/26/2014	R19890
Cyclohexane	ND	0.50		µg/L	1	6/26/2014	R19890
Diethyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Diisopropyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Epichlorohydrin	ND	5.0		µg/L	1	6/26/2014	R19890
Ethyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Ethyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Freon-113	ND	0.50		µg/L	1	6/26/2014	R19890
Isobutanol	ND	50		µg/L	1	6/26/2014	R19890
Isopropyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methacrylonitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl ethyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl isobutyl ketone	ND	2.5		µg/L	1	6/26/2014	R19890
Methyl methacrylate	ND	2.5		µg/L	1	6/26/2014	R19890
Methylcyclohexane	ND	1.0		µg/L	1	6/26/2014	R19890
n-Amyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
n-Hexane	ND	0.50		µg/L	1	6/26/2014	R19890
Nitrobenzene	ND	5.0		µg/L	1	6/26/2014	R19890
Pentachloroethane	ND	5.0		µg/L	1	6/26/2014	R19890
p-isopropyltoluene	ND	0.50		µg/L	1	6/26/2014	R19890
Propionitrile	ND	2.5		µg/L	1	6/26/2014	R19890
Tetrahydrofuran	ND	0.50		µg/L	1	6/26/2014	R19890
Benzene	ND	0.50		µg/L	1	6/26/2014	R19890
Toluene	ND	0.50		µg/L	1	6/26/2014	R19890
Ethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	6/26/2014	R19890
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	6/26/2014	R19890
Naphthalene	ND	0.50		µg/L	1	6/26/2014	R19890
Acetone	ND	2.5		µg/L	1	6/26/2014	R19890
Bromobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Bromodichloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Bromoform	ND	0.50		µg/L	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well
Lab ID: 1406935-002 **Matrix:** TRIP BLANK

Client Sample ID: Trip Blank
Collection Date:
Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **SUB**	
Bromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon disulfide	ND	0.50		µg/L	1	6/26/2014	R19890
Carbon Tetrachloride	ND	0.50		µg/L	1	6/26/2014	R19890
Chlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Chloroform	ND	0.50		µg/L	1	6/26/2014	R19890
Chloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
4-Chlorotoluene	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
Dibromomethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Dichlorodifluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloroethene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,3-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
2,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
Hexachlorobutadiene	ND	0.50		µg/L	1	6/26/2014	R19890
2-Hexanone	ND	0.50		µg/L	1	6/26/2014	R19890
Isopropylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Methylene Chloride	ND	2.5		µg/L	1	6/26/2014	R19890
n-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
n-Propylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
sec-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
Styrene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890

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Qualifiers:

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J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1406935**
Date Reported: **7/17/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: WDW-1, 2, & 3 Qtrly Inj Well
Collection Date:
Lab ID: 1406935-002 **Matrix:** TRIP BLANK **Received Date:** 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: **SUB**
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,1-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,1,2-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19890
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/26/2014	R19890
Trichlorofluoromethane	ND	0.50		µg/L	1	6/26/2014	R19890
1,2,3-Trichloropropane	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl chloride	ND	0.50		µg/L	1	6/26/2014	R19890
mp-Xylenes	ND	1.0		µg/L	1	6/26/2014	R19890
o-Xylene	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Amyl methyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
tert-Butyl alcohol	ND	0.50		µg/L	1	6/26/2014	R19890
Acrolein	ND	0.50		µg/L	1	6/26/2014	R19890
Acrylonitrile	ND	10		µg/L	1	6/26/2014	R19890
Bromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19890
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	6/26/2014	R19890
Iodomethane	ND	0.50		µg/L	1	6/26/2014	R19890
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	6/26/2014	R19890
Vinyl acetate	ND	0.50		µg/L	1	6/26/2014	R19890
1,4-Dioxane	ND	20		µg/L	1	6/26/2014	R19890
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	6/26/2014	R19890
Surr: 4-Bromofluorobenzene	102	70-130		%REC	1	6/26/2014	R19890
Surr: Toluene-d8	99.6	70-130		%REC	1	6/26/2014	R19890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561477** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.4	0.10	1.600	0	90.3	90	110			
Chloride	7.8	0.50	8.000	0	96.9	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	99.5	90	110			
Bromide	7.9	0.10	8.000	0	98.4	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	97.4	90	110			

Sample ID **MB** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561479** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561480** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	94.3	90	110			
Chloride	4.7	0.50	5.000	0	94.8	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.7	90	110			
Bromide	2.4	0.10	2.500	0	96.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.8	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.6	90	110			

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R19410** RunNo: **19410**
Prep Date: Analysis Date: **6/19/2014** SeqNo: **561489** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	95.4	90	110			
Chloride	12	0.50	12.00	0	102	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	90	110			
Bromide	12	0.10	12.00	0	100	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561489**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561501**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.94	0.10	1.000	0	93.7	90	110			
Chloride	4.6	0.50	5.000	0	92.9	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	97.9	90	110			
Bromide	4.8	0.10	5.000	0	96.0	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.7	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.8	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561513**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.10	1.600	0	96.1	90	110			
Chloride	7.8	0.50	8.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)	3.1	0.10	3.200	0	98.3	90	110			
Bromide	7.6	0.10	8.000	0	95.3	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.7	0.50	8.000	0	96.6	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561525**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	97.8	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.8	0.10	4.800	0	101	90	110			
Bromide	12	0.10	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	107	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561529** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/19/2014**	SeqNo: **561530** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	101	90	110			
Chloride	4.8	0.50	5.000	0	96.1	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	97.0	90	110			
Bromide	2.5	0.10	2.500	0	99.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.0	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561537** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.96	0.10	1.000	0	95.6	90	110			
Chloride	4.7	0.50	5.000	0	93.1	90	110			
Nitrogen, Nitrite (As N)	2.0	0.10	2.000	0	98.8	90	110			
Bromide	4.8	0.10	5.000	0	96.5	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.9	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.0	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561549** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.10	1.600	0	96.4	90	110			
Chloride	7.8	0.50	8.000	0	97.5	90	110			
Nitrogen, Nitrite (As N)	3.2	0.10	3.200	0	100	90	110			
Bromide	7.8	0.10	8.000	0	98.0	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561549**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			
Phosphorus, Orthophosphate (As P	7.9	0.50	8.000	0	98.2	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19410**	RunNo: **19410**							
Prep Date:	Analysis Date: **6/20/2014**	SeqNo: **561555**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.10	2.400	0	97.5	90	110			
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrite (As N)	4.9	0.10	4.800	0	102	90	110			
Bromide	12	0.10	12.00	0	99.7	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	107	90	110			
Phosphorus, Orthophosphate (As P	12	0.50	12.00	0	101	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572917**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	30	0.50	30.00	0	101	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572919**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572920**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.3	0.50	10.00	0	93.5	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572929**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	94.3	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572941**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.2	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572953**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	31	0.50	30.00	0	102	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572968**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	95.2	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572970**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572971**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.5	0.50	10.00	0	95.0	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/7/2014**	SeqNo: **572980**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.6	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **572992**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	30	0.50	30.00	0	102	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **573004**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	94.7	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R19725**	RunNo: **19725**							
Prep Date:	Analysis Date: **7/8/2014**	SeqNo: **573016**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.9	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19890**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578052** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Ethyl methacrylate	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Propionitrile	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								
2-Hexanone	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19890**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578052** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methylene Chloride	ND	0.50								
Styrene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	0.50								
o-Xylene	ND	0.50								
Acrolein	ND	10								
Bromochloromethane	ND	0.50								
Iodomethane	ND	0.50								
Vinyl acetate	ND	0.50								

Sample ID **LCS-R19890**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R19890**	RunNo: **19890**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **578053** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.6	0.50	10.00	0	95.5	80	120			
Toluene	9.8	0.50	10.00	0	98.2	80	120			
Ethylbenzene	10	0.50	10.00	0	99.9	80	120			
Chlorobenzene	9.8	0.50	10.00	0	97.5	80	120			
1,1-Dichloroethene	9.5	0.50	10.00	0	94.9	80	120			
Tetrachloroethene (PCE)	9.9	0.50	10.00	0	98.9	80	120			
Trichloroethene (TCE)	9.9	0.50	10.00	0	98.8	80	120			
o-Xylene	10	0.50	10.00	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19935**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579511** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitroso-di-n-butylamine	ND	1.0								
1-Methylnaphthalene	ND	10								
2,3,4,6-Tetrachlorophenol	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	10								
2,4-Dinitrophenol	ND	10								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3,3'-Dichlorobenzidine	ND	10								
3-Nitroaniline	ND	10								
4,6-Dinitro-2-methylphenol	ND	10								
4-Bromophenyl phenyl ether	ND	10								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Anthracene	ND	10								
Benzo(g,h,i)perylene	ND	1.0								
Benz(a)anthracene	ND	1.0								
Benzo(a)pyrene	ND	1.0								
Benzo(b)fluoranthene	ND	1.0								
Benzo(k)fluoranthene	ND	1.0								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19935**	SampType: **MBLK**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **PBW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579511** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	1.0								
Dibenzofuran	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Isophorone	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	5.0								
Pyrene	ND	10								

Sample ID **LCS-R19935**	SampType: **LCS**	TestCode: **EPA 8270C: Semivolatiles/Mod**
Client ID: **LCSW**	Batch ID: **R19935**	RunNo: **19935**
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579512** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.3		5.000	0	106	49	134			
2-Chlorophenol	4.4		5.000	0	87.0	50	131			
4-Chloro-3-methylphenol	5.4		5.000	0	108	42	139			
4-Nitrophenol	4.6		5.000	0	92.8	19	137			
Acenaphthene	4.6		5.000	0	93.0	36	122			
Bis(2-ethylhexyl)phthalate	4.9		5.000	0	97.8	43	142			
N-Nitrosodi-n-propylamine	4.5		5.000	0	89.6	46	135			
Pentachlorophenol	4.1		5.000	0	82.6	22	138			
Phenol	6.3		5.000	0	126	45	134			
Pyrene	4.7		5.000	0	93.6	45	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-13883**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564933** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID **LCS-13883**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564934** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	92.4	80	120			

Sample ID **1406935-001BMS**	SampType: **MS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564941** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.9	75	125			

Sample ID **1406935-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 7470: Mercury**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13883**	RunNo: **19515**
Prep Date: **6/25/2014**	Analysis Date: **6/26/2014**	SeqNo: **564944** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.6	75	125	0.263	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14082**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **14082**	RunNo: **19737**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573374** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-14082**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **14082**	RunNo: **19737**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573375** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	100	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14080**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573325** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-14080**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573326** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.9	80	120			
Barium	ND	100	0.5000	0	96.7	80	120			
Cadmium	ND	1.0	0.5000	0	97.9	80	120			
Chromium	ND	5.0	0.5000	0	96.1	80	120			
Lead	ND	5.0	0.5000	0	94.4	80	120			
Selenium	ND	1.0	0.5000	0	97.1	80	120			
Silver	ND	5.0	0.1000	0	101	80	120			

Sample ID **1406935-001CMS**	SampType: **MS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02968	108	75	125			
Barium	ND	100	0.5000	0.04484	98.2	75	125			
Cadmium	ND	1.0	0.5000	0	103	75	125			
Chromium	ND	5.0	0.5000	0.001840	98.1	75	125			
Lead	ND	5.0	0.5000	0	95.5	75	125			
Selenium	ND	1.0	0.5000	0.09485	103	75	125			
Silver	ND	5.0	0.1000	0	107	75	125			

Sample ID **1406935-001CMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **14080**	RunNo: **19736**
Prep Date: **7/7/2014**	Analysis Date: **7/8/2014**	SeqNo: **573330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0.02968	109	75	125	0	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **1406935-001CMSD** SampType: **MSD** TestCode: **EPA Method 6010B: TCLP Metals**

Client ID: **WDW-1, 2, & 3 Efflu** Batch ID: **14080** RunNo: **19736**

Prep Date: **7/7/2014** Analysis Date: **7/8/2014** SeqNo: **573330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.04484	98.1	75	125	0	20	
Cadmium	ND	1.0	0.5000	0	102	75	125	0	20	
Chromium	ND	5.0	0.5000	0.001840	97.8	75	125	0	20	
Lead	ND	5.0	0.5000	0	95.1	75	125	0	20	
Selenium	ND	1.0	0.5000	0.09485	108	75	125	0	20	
Silver	ND	5.0	0.1000	0	107	75	125	0	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-14075**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572184** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID **LCS-14075**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.55	0.050	0.5000	0	110	80	120			
Arsenic	0.55	0.020	0.5000	0	110	80	120			
Barium	0.54	0.020	0.5000	0	109	80	120			
Beryllium	0.57	0.0030	0.5000	0	115	80	120			
Cadmium	0.54	0.0020	0.5000	0	109	80	120			
Calcium	57	1.0	50.00	0	114	80	120			
Chromium	0.54	0.0060	0.5000	0	108	80	120			
Cobalt	0.52	0.0060	0.5000	0	104	80	120			
Copper	0.56	0.0060	0.5000	0	112	80	120			
Iron	0.55	0.050	0.5000	0	110	80	120			
Lead	0.53	0.0050	0.5000	0	107	80	120			
Magnesium	57	1.0	50.00	0	113	80	120			
Manganese	0.54	0.0020	0.5000	0	108	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **LCS-14075**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14075**	RunNo: **19704**
Prep Date: **7/5/2014**	Analysis Date: **7/7/2014**	SeqNo: **572185** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	0.52	0.010	0.5000	0	105	80	120			
Potassium	54	1.0	50.00	0	109	80	120			
Selenium	0.53	0.050	0.5000	0	106	80	120			
Silver	0.11	0.0050	0.1000	0	112	80	120			
Thallium	0.53	0.050	0.5000	0	106	80	120			
Vanadium	0.57	0.050	0.5000	0	113	80	120			
Zinc	0.53	0.020	0.5000	0	106	80	120			

Sample ID **MB-14172**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Metals**
Client ID: **PBW**	Batch ID: **14172**	RunNo: **19829**
Prep Date: **7/10/2014**	Analysis Date: **7/11/2014**	SeqNo: **576105** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								

Sample ID **LCS-14172**	SampType: **LCS**	TestCode: **EPA 6010B: Total Metals**
Client ID: **LCSW**	Batch ID: **14172**	RunNo: **19829**
Prep Date: **7/10/2014**	Analysis Date: **7/11/2014**	SeqNo: **576106** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.48	0.020	0.5000	0	96.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19940**	SampType: **MBLK**	TestCode: **CYANIDE, Reactive**
Client ID: **PBW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **7/2/2014**	SeqNo: **579570** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID **LCS-R19940**	SampType: **LCS**	TestCode: **CYANIDE, Reactive**
Client ID: **LCSW**	Batch ID: **R19940**	RunNo: **19940**
Prep Date:	Analysis Date: **7/2/2014**	SeqNo: **579571** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.512		0.5000	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-R19940**	SampType: **MBLK**	TestCode: **SULFIDE, Reactive**							
Client ID: **PBW**	Batch ID: **R19940**	RunNo: **19940**							
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579573**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID **LCS-R19940**	SampType: **LCS**	TestCode: **SULFIDE, Reactive**							
Client ID: **LCSW**	Batch ID: **R19940**	RunNo: **19940**							
Prep Date:	Analysis Date: **6/26/2014**	SeqNo: **579574**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.20		0.2000	0	100	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1406935**

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **mb-1**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563920**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-1**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563921**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	98.7	90	110			

Sample ID **mb-2**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563943**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID **lcs-2**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R19484**	RunNo: **19484**							
Prep Date:	Analysis Date: **6/23/2014**	SeqNo: **563944**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	100	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406935

18-Jul-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID **MB-13798**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **561986** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-13798**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **561987** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Sample ID **1406935-001AMS**	SampType: **MS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **562008** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	6460	40.0	2000	4442	101	80	120			

Sample ID **1406935-001AMSD**	SampType: **MSD**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WDW-1, 2, & 3 Efflu**	Batch ID: **13798**	RunNo: **19431**
Prep Date: **6/19/2014**	Analysis Date: **6/23/2014**	SeqNo: **562009** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	6460	40.0	2000	4442	101	80	120	0.124	5	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1406935 RcptNo: 1

Received by/date: AT 06/19/14

Logged By: Anne Thorne 6/19/2014 2:35:00 PM Anne Thorne

Completed By: Anne Thorne 6/19/2014 Anne Thorne

Reviewed By: AT 06/19/14

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.6	Good	Yes			

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Chain-of-Custody Record

Client: Navajo Refining Co.	Turn-Around Time: ☐ Standar ☐ **Rush**
	Project Name: WDW-1, 2, & 3 Qtrly Inj Well
Mailing Address: P.O. Box 159 Artesia, NM 88211-0159	Project #: P.O. # 167796
Phone #: 575-748-3311	
email or Fax#: 575-746-5451	Project Manager: Dan Crawford
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation) ☐ Other ☐ EDD (Type)	Sampler: Jerry Sosa
	On Ice: X Yes ☐ No
	Sample Temperature: 4/6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No 1406935	Specific Gravity,HCO3, CO3, Cl, SO4, TDS, pH, cond.,Fl, Cation/anion bal., Br, Eh/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R,C,I/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H2SO4	-001	X						X
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	1	HNO3	-001					X	X	
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	-001		X					
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001			X				
6/19/14	9:~~00~~ 30	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	-001				X			
6/19/14	9:~~00~~ 30	Liquid	Trip Blank	2	Neat	-002		X					
6/19/14	9:~~00~~ 30	Liquid	Temperature Blank	1	Neat								

Date: 6/19/14	Time: 10:00	Relinquished by: Jerry Sosa	Received by:	Date 06/19/14	Time 14:35
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Report these results separately from all other Chain of Custody kits provided.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Page 5244 of 5828

Classification	Analyte name	Method	Units	RL
Volatile organics	Acetone	SW-846 Method 8260C	µg/L	10
Volatile organics	Acetonitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Acrolein	SW-846 Method 8260C	µg/L	
Volatile organics	Allyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Allyl chloride	SW-846 Method 8260C	µg/L	
Volatile organics	t-Amyl ethyl ether (TAEE)	SW-846 Method 8260C	µg/L	
Volatile organics	t-Amyl methyl ether (TAME)	SW-846 Method 8260C	µg/L	
Volatile organics	Benzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Benzyl chloride	SW-846 Method 8260C	µg/L	
Volatile organics	Bis(2-chloroethyl)sulfide	SW-846 Method 8260C	µg/L	
Volatile organics	Bromoacetone	SW-846 Method 8260C	µg/L	
Volatile organics	Bromobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Bromochloromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	Bromodichloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	4-Bromofluorobenzene (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	Bromoform	SW-846 Method 8260C	µg/L	4
Volatile organics	Bromomethane	SW-846 Method 8260C	µg/L	2
Volatile organics	n-Butanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Butanone (MEK)	SW-846 Method 8260C	µg/L	10
Volatile organics	n-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	sec-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	tert-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	t-Butyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Carbon disulfide	SW-846 Method 8260C	µg/L	2
Volatile organics	Carbon tetrachloride	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloral hydrate	SW-846 Method 8260C	µg/L	
Volatile organics	Chlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Chlorobenzene-d5 (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	1-Chlorobutane	SW-846 Method 8260C	µg/L	
Volatile organics	Chlorodibromomethane	SW-846 Method 8260C	µg/L	
Volatile organics	1-Chlorohexane	SW-846 Method 8260C	µg/L	
Volatile organics	Chloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	2-Chloroethanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Chloroethyl vinyl ether	SW-846 Method 8260C	µg/L	
Volatile organics	Chloroform	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Chloroprene	SW-846 Method 8260C	µg/L	
Volatile organics	4-Chlorotoluene	SW-846 Method 8260C	µg/L	
Volatile organics	Crotonaldehyde	SW-846 Method 8260C	µg/L	
Volatile organics	Cyclohexane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2-Dibromo-3-chloropropane	SW-846 Method 8260C	µg/L	10
Volatile organics	1,2-Dibromoethane	SW-846 Method 8260C	µg/L	2
Volatile organics	Dibromochloromethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Dibromomethane	SW-846 Method 8260C	µg/L	
Volatile organics	1,2-Dichlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,3-Dichlorobenzene	SW-846 Method 8260C	µg/L	1

Volatile organics	1,4-Dichlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,4-Dichlorobenzene-d4 (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	cis-1,4-Dichloro-2-butene	SW-846 Method 8260C	µg/L	
Volatile organics	trans-1,4-Dichloro-2-butene	SW-846 Method 8260C	µg/L	
Volatile organics	Dichlorodifluoromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1-Dichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloroethane-d4 (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	1,1-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	cis-1,2-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	trans-1,2-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2-Dichloropropane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,3-Dichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	2,2-Dichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	1,1-Dichloropropene	SW-846 Method 8260C	µg/L	
Volatile organics	1,3-Dichloro-2-propanol	SW-846 Method 8260C	µg/L	
Volatile organics	cis-1,3-Dichloropropene	SW-846 Method 8260C	µg/L	1
Volatile organics	trans-1,3-Dichloropropene	SW-846 Method 8260C	µg/L	1
Volatile organics	1,2,3,4-Depoxybutane	SW-846 Method 8260C	µg/L	
Volatile organics	Diethyl ether	SW-846 Method 8260C	µg/L	
Volatile organics	Diisopropyl either (DIPE)	SW-846 Method 8260C	µg/L	
Volatile organics	1,4-Difluorobenzene (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	1,4-Dioxane	SW-846 Method 8260C	µg/L	130
Volatile organics	Epichlorohydrin	SW-846 Method 8260C	µg/L	
Volatile organics	Ethanol	SW-846 Method 8260C	µg/L	
Volatile organics	Ethyl acetate	SW-846 Method 8260C	µg/L	
Volatile organics	Ethylbenzene	SW-846 Method 8260C	µg/L	1
Volatile organics	Ethylene oxide	SW-846 Method 8260C	µg/L	
Volatile organics	Ethyl methacrylate	SW-846 Method 8260C	µg/L	
Volatile organics	Fluorobenzene (IS)	SW-846 Method 8260C	µg/L	
Volatile organics	Freon 113	SW-846 Method 8260C	µg/L	5
Volatile organics	Ethyl tert-butyl ether (ETBE)	SW-846 Method 8260C	µg/L	
Volatile organics	Hexachlorobutadiene	SW-846 Method 8260C	µg/L	
Volatile organics	Hexachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	2-Hexanone	SW-846 Method 8260C	µg/L	5
Volatile organics	Iodomethane	SW-846 Method 8260C	µg/L	
Volatile organics	Isobutyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	Isopropylbenzene	SW-846 Method 8260C	µg/L	2
Volatile organics	p-Isopropyltoluene	SW-846 Method 8260C	µg/L	
Volatile organics	Malononitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Methacrylonitrile	SW-846 Method 8260C	µg/L	
Volatile organics	Methanol	SW-846 Method 8260C	µg/L	
Volatile organics	Methyl acetate	SW-846 Method 8260C	µg/L	5
Volatile organics	Methylcyclohexane	SW-846 Method 8260C	µg/L	5
Volatile organics	Methyl acrylate	SW-846 Method 8260C	µg/L	
Volatile organics	Methylene chloride	SW-846 Method 8260C	µg/L	2
Volatile organics	Methyl methacrylate	SW-846 Method 8260C	µg/L	

Volatile organics	4-Methyl-2-pentanone (MIBK)	SW-846 Method 8260C	µg/L	5
Volatile organics	Methyl tert-butyl ether (MTBE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Naphthalene	SW-846 Method 8260C	µg/L	
Volatile organics	Nitrobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	2-Nitropropane	SW-846 Method 8260C	µg/L	
Volatile organics	N-Nitroso-di-n-butylamine	SW-846 Method 8260C	µg/L	
Volatile organics	Paraldehyde	SW-846 Method 8260C	µg/L	
Volatile organics	Pentachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	Pentafluorobenzene	SW-846 Method 8260C	µg/L	
Volatile organics	2-Pentanone	SW-846 Method 8260C	µg/L	
Volatile organics	2-Picoline	SW-846 Method 8260C	µg/L	
Volatile organics	1-Propanol	SW-846 Method 8260C	µg/L	
Volatile organics	2-Propanol	SW-846 Method 8260C	µg/L	
Volatile organics	Propargyl alcohol	SW-846 Method 8260C	µg/L	
Volatile organics	beta-Propiolactone	SW-846 Method 8260C	µg/L	
Volatile organics	Propionitrile	SW-846 Method 8260C	µg/L	
Volatile organics	n-Propylamine	SW-846 Method 8260C	µg/L	
Volatile organics	n-Propylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Pyridine	SW-846 Method 8260C	µg/L	
Volatile organics	Styrene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1,1,2-Tetrachloroethane	SW-846 Method 8260C	µg/L	
Volatile organics	1,1,2,2-Tetrachloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Tetrachloroethene (PCE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Toluene	SW-846 Method 8260C	µg/L	1
Volatile organics	Toluene-d8 (surr)	SW-846 Method 8260C	µg/L	
Volatile organics	o-Toluidine	SW-846 Method 8260C	µg/L	
Volatile organics	1,2,3-Trichlorobenzene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2,4-Trichlorobenzene	SW-846 Method 8260C	µg/L	5
Volatile organics	1,1,1-Trichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	1,1,2-Trichloroethane	SW-846 Method 8260C	µg/L	1
Volatile organics	Trichloroethene (TCE)	SW-846 Method 8260C	µg/L	1
Volatile organics	Trichlorofluoromethane	SW-846 Method 8260C	µg/L	5
Volatile organics	1,2,3-Trichloropropane	SW-846 Method 8260C	µg/L	
Volatile organics	1,2,4-Trimethylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	1,3,5-Trimethylbenzene	SW-846 Method 8260C	µg/L	
Volatile organics	Vinyl acetate	SW-846 Method 8260C	µg/L	
Volatile organics	Vinyl chloride	SW-846 Method 8260C	µg/L	1
Volatile organics	o-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	m-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	p-Xylene	SW-846 Method 8260C	µg/L	1
Volatile organics	Xylene, total	SW-846 Method 8260C	µg/L	1

(surr) - Surrogate
(IS) - Internal Standard
Method 8260C Volatile Organic Compounds by Gas Chromatograhy/Mass Spectrometry (GC/MS) (EPA, Revision 3, August 2006)
Constituents with RLs are on the VOC Target Compound List (TCL) (SOMO 1.1)

Classification	Analyte name	Method	Units	RL
Semivolatile organics	1,1'-Biphenyl	SW-864 Method 8270B	µg/L	1
Semivolatile organics	1,2,4,5-Tetrachlorobenzene	SW-864 Method 8270B	µg/L	2
Semivolatile organics	2-Chloronaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Chlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Methylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2-Nitrophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,3,4,6-Tetrachlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dichlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dimethylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4-Dinitrophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2,4-Dinitrotoluene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,4,5-Trichlorophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	2,4,6-Trichlorophenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2,6-Dinitrotoluene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	3-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	3,3'-Dichlrobenzidine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Bromophenyl-phenylether	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chloro-3-methylphenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chloroaniline	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Chlorophenyl-phenyl ether	SW-864 Method 8270B	µg/L	5
Semivolatile organics	4-Nitroaniline	SW-864 Method 8270B	µg/L	10
Semivolatile organics	4-Nitrophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	4,6-Dinitro-2-methylphenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Acetophenone	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Acenaphthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Acenaphthylene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Atrazine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzaldehyde	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(a)anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(a)pyrene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(b)fluoranthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(g,h,i)perylene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Benzo(k)fluoranthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	bis(2-Chloroethoxy)-methane	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Chloroethyl) ether	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Chloroisopropyl) ether	SW-864 Method 8270B	µg/L	2
Semivolatile organics	bis(2-Ethylhexyl)phthalate	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Butylbenzylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Carbazole	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Caprolactam	SW-864 Method 8270B	µg/L	2
Semivolatile organics	Chrysene	SW-864 Method 8270B	µg/L	0.1
Semivolatile organics	Di-n-butylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Di-n-octylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Dibenz(a,h)anthracene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Dibenzofuran	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Diethylphthalate	SW-864 Method 8270B	µg/L	5

Semivolatile organics	Dimethylphthalate	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Fluroanthene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Fluorene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Hexachlorobenzene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Hexachlorobutadiene	SW-864 Method 8270B	µg/L	1
Semivolatile organics	Hexachlorocyclopentadiene	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Hexachloroethane	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Indeno(1,2,3-cd)peryline	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Isophorone	SW-864 Method 8270B	µg/L	5
Semivolatile organics	1-Methylnaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	2-Methylnaphthalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	N-Nitroso-di-n-propylamine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	N-Nitrosodiphenylamine	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Napthtalene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Nitrobenzene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Pentachlorophenol	SW-864 Method 8270B	µg/L	10
Semivolatile organics	Phenanthrene	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Phenol	SW-864 Method 8270B	µg/L	5
Semivolatile organics	Pyrene	SW-864 Method 8270B	µg/L	5

Target Compound List 1.5 for SVOCs by SW-846 Method 8270

Classification	Analyte name[1]	Method	Units	RL
Inorganics	Mercury	SW-846 Method 7470		
Inorganics	Arsenic	SW-846 Method 6010		
Inorganics	Silver	SW-846 Method 6010		
Inorganics	Aluminum	SW-846 Method 6010		
Inorganics	Barium	SW-846 Method 6010		
Inorganics	Beryllium	SW-846 Method 6010		
Inorganics	Calcium	SW-846 Method 6010		
Inorganics	Cadmium	SW-846 Method 6010		
Inorganics	Cobalt	SW-846 Method 6010		
Inorganics	Chromium	SW-846 Method 6010		
Inorganics	Copper	SW-846 Method 6010		
Inorganics	Iron	SW-846 Method 6010		
Inorganics	Mercury	SW-846 Method 6010		
Inorganics	Potassium	SW-846 Method 6010		
Inorganics	Magnesium	SW-846 Method 6010		
Inorganics	Manganese	SW-846 Method 6010		
Inorganics	Sodium	SW-846 Method 6010		
Inorganics	Nickel	SW-846 Method 6010		
Inorganics	Lead	SW-846 Method 6010		
Inorganics	Antimony	SW-846 Method 6010		
Inorganics	Selenium	SW-846 Method 6010		
Inorganics	Thallium	SW-846 Method 6010		
Inorganics	Vanadium	SW-846 Method 6010		
Inorganics	Zinc	SW-846 Method 6010		

** dilute elements only if necessary

[1] 23 TAL Metals

REFINING COMPANY, LLC

FAX
(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

FAX
(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

July 30, 2008

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2008 Second Quarterly Injection Report for Navajo Refining WDW-1, WDW-2 and WDW-3

Dear Mr. Chavez,

Enclosed, please find the sampling results for the second quarter of 2008 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on wells WDW-1 and WDW-2 continue to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level have found WDW-3 to have varied more than 5%. WDW-3 has an electronic gauging system that continually reports the fluid levels in a percentage of capacity. We are closely monitoring WDW-3, and a Mechanical Integrity Test (MIT) is scheduled for August 5, 2008. The volumes for these three tanks are reported in the attached table.

This report covers the period from April 1, 2008 to June 30, 2008. We have disposed a total of 38,972,716 barrels of fluid into the three wells as of June 30, 2008. This is broken down as follows: 25,550,339 barrels into WDW-1, 12,357,611 barrels into WDW-2 and 1,064,766 barrels into WDW-3.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Aaron Strange

Aaron Strange
Sr. Environmental Technician

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

RECEIVED
2008 AUG 1 PM 12 31

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2008 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	25,013,505
Apr-08	234	303	115	165	192	135	117	168	75	5,656	6,580	4,619	169,694	25,183,198
May-08	264	322	194	171	186	151	142	222	55	5,872	6,394	5,170	182,018	25,365,217
Jun-08	297	338	231	180	192	158	203	416	29	6,171	6,592	5,403	185,122	25,550,339
WDW-2													**Previous Quarter**	12,126,440
Apr-08	293	400	239	81	123	55	467	500	330	2,774	4,221	1,883	83,219	12,209,659
May-08	314	376	245	70	99	33	411	500	165	2,409	3,400	1,142	74,669	12,284,329
Jun-08	348	394	285	71	92	19	500	500	498	2,443	3,143	660	73,282	12,357,611
WDW-3													**Previous Quarter**	1,049,409
Apr-08	473	588	326	148	228	79	676	915	530	5,086	7,818	2,707	152,578	727,836
May-08	502	622	388	150	179	112	678	901	540	5,131	6,133	3,852	159,072	886,908
Jun-08	559	642	415	173	189	132	761	998	564	5,929	6,497	4,539	177,858	1,064,766
													Total Injected fluids:	38,972,716

H:\jeff\Working folder\OCD\Injection well\2008\
2nd 08 qtrly rpt
Injection fluids

7/30/200812:55 PM

Released to Imaging: 7/12/2024 10:49:45 AM

2008 SECOND QUARTER WEEKLY WHAMS LEVEL TABLE

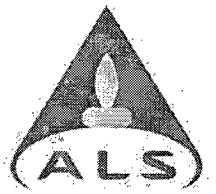
	4/2/200	4/11/08	4/17/08	4/25/08	4/30/08	5/8/08	5/14/08	5/21/08	5/30/08	6/5/08	6/11/08	6/17/08	6/27/08
WDW -1[1]	190	190	190	190	190	200	200	200	200	200	200	200	200
WDW-2[1]	160	160	160	160	160	160	160	160	160	160	160	200	200
WDW-3[2]	67%	66%	66%	65%	65%	64%	63%	60%	59%	58%	58%	58%	55%

[1] Graduated tank gauged weekly in the field.

[2] Reading measured directly, and reported as percentage capacity.

Received by OCD: 5/16/2022 2:12:41 PM

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES



Environmental Division

04-Jun-08

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5468
Fax: (505) 746-5421

Re: Injection Well Qrtly.

Work Order : **0805558**

Dear Jeff,

ALS Laboratory Group received 2 samples on 5/23/2008 08:40 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 36.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Glenda H. Ramos

Jeffrey L Croston
Project Manager

Certificate No: T104704231-08-TX

ALS Group USA, Corp.
Part of the **ALS Laboratory Group**
10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338
Phone: (281) 530-5656 Fax: (281) 530-5887
www.alsglobal.com www.elabi.com
A Campbell Brothers Limited Company

ALS Laboratory Group

Date: 04-Jun-08

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Work Order: **0805558**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0805558-01	Injection Well	Water		5/22/2008 14:10	5/23/2008 08:40	☐
0805558-02	Trip Blank	Water		5/22/2008 14:10	5/23/2008 08:40	☑

ALS Laboratory Group *Date: 04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Work Order: 0805558

Case Narrative

Batch pH (sample Injection Well) was analyzed outside of the recommended holding time, but was analyzed immediately upon receipt of the laboratory.

Batch 30049 Metals MS/MSD was an unrelated sample.

Batch 29950 Semivolatiles LCS/LCSD RPD recovery was above the control limits for Benzidine (37.1%). Recoveries met method criteria in both LCS/LCSD.

Batch R63837 Volatiles MS/MSD was an unrelated sample.

Batch R64025 Anions MS was an unrelated sample.

ALS Laboratory Group

Date: 04-Jun-08

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL - SW 7470A			**SW7470**		Prep Date: **6/3/2008**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	6/4/2008 12:11 PM
ICP METALS, TOTAL - SW6020A			**SW6020**		Prep Date: **6/2/2008**	Analyst: **ALR**
Aluminum	**0.0846**		**0.0100**	**mg/L**	1	6/2/2008 11:43 PM
Arsenic	**0.0474**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Barium	**0.0229**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Beryllium	ND		0.00200	mg/L	1	6/2/2008 11:43 PM
Boron	**0.0839**		**0.0200**	**mg/L**	1	6/2/2008 11:43 PM
Cadmium	ND		0.00200	mg/L	1	6/2/2008 11:43 PM
Calcium	**121**		**0.500**	**mg/L**	1	6/2/2008 11:43 PM
Chromium	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Cobalt	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Copper	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Iron	ND		0.200	mg/L	1	6/2/2008 11:43 PM
Lead	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Magnesium	**41.0**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Manganese	**0.100**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Molybdenum	**0.0505**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Nickel	**0.00601**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Potassium	**3.78**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Selenium	**0.0152**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
Silver	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Sodium	**136**		**0.200**	**mg/L**	1	6/2/2008 11:43 PM
Vanadium	ND		0.00500	mg/L	1	6/2/2008 11:43 PM
Zinc	**0.0384**		**0.00500**	**mg/L**	1	6/2/2008 11:43 PM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **5/28/2008**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Methylphenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
2-Nitrophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
3-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
4-Nitroaniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
4-Nitrophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Acenaphthene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Acenaphthylene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Anthracene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Benzidine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Hexachloroethane	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Isophorone	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Naphthalene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Nitrobenzene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Pentachlorophenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Phenanthrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Phenol	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Pyrene	ND		0.0050	mg/L	1	5/31/2008 03:57 PM
Surr: 2,4,6-Tribromophenol	*69.4*		*42-124*	*%REC*	1	5/31/2008 03:57 PM
Surr: 2-Fluorobiphenyl	*71.2*		*48-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: 2-Fluorophenol	*64.5*		*20-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: 4-Terphenyl-d14	*75.7*		*51-135*	*%REC*	1	5/31/2008 03:57 PM
Surr: Nitrobenzene-d5	*66.4*		*41-120*	*%REC*	1	5/31/2008 03:57 PM
Surr: Phenol-d6	*70.6*		*20-120*	*%REC*	1	5/31/2008 03:57 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
2-Butanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	5/28/2008 04:38 PM
2-Hexanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Acetone	**0.13**		**0.010**	**mg/L**	1	5/28/2008 04:38 PM
Benzene	**0.034**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
Bromodichloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Bromoform	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Bromomethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Carbon disulfide	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	5/28/2008 04:38 PM

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloroethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloroform	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Chloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Dibromochloromethane	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Ethylbenzene	**0.011**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
m,p-Xylene	**0.052**		**0.010**	**mg/L**	1	5/28/2008 04:38 PM
Methylene chloride	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Styrene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Tetrachloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Toluene	**0.039**		**0.0050**	**mg/L**	1	5/28/2008 04:38 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Trichloroethene	ND		0.0050	mg/L	1	5/28/2008 04:38 PM
Vinyl acetate	ND		0.010	mg/L	1	5/28/2008 04:38 PM
Vinyl chloride	ND		0.0020	mg/L	1	5/28/2008 04:38 PM
Xylenes, Total	**0.081**		**0.015**	**mg/L**	1	5/28/2008 04:38 PM
Surr: 1,2-Dichloroethane-d4	*87.7*		*70-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: 4-Bromofluorobenzene	*86.3*		*72-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: Dibromofluoromethane	*87.6*		*71-125*	*%REC*	1	5/28/2008 04:38 PM
Surr: Toluene-d8	*85.8*		*75-125*	*%REC*	1	5/28/2008 04:38 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	5/29/2008
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	5/29/2008
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **PV**
Chloride	**150**		**10.0**	**mg/L**	20	6/2/2008 04:59 PM
Sulfate	**497**		**10.0**	**mg/L**	20	6/2/2008 04:59 PM
Surr: Selenate (surr)	*94.7*		*85-115*	*%REC*	20	6/2/2008 04:59 PM
ALKALINITY			**E310.1**			Analyst: **MAM**
Alkalinity, Bicarbonate (As CaCO3)	**135**		**5.00**	**mg/L**	1	5/28/2008 02:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	5/28/2008 02:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	5/28/2008 02:00 PM
Alkalinity, Total (As CaCO3)	**135**		**5.00**	**mg/L**	1	5/28/2008 02:00 PM
CONDUCTIVITY			**E120.1**			Analyst: **MAM**
Specific Conductance	**1,590**		**1.00**	**µmhos/cm**	1	5/27/2008 03:00 PM
FLASHPOINT-SW1010A			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	5/28/2008 03:00 PM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Date: *04-Jun-08*

Client: Navajo Refining Company
Project: Injection Well Qrtly.
Sample ID: Injection Well
Collection Date: 5/22/2008 02:10 PM

Work Order: 0805558
Lab ID: 0805558-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	7.15	H	0.100	pH units	1	5/23/2008 10:00 AM
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **KKP**
Total Dissolved Solids (Residue, Filterable)	1,240		10.0	mg/L	1	5/27/2008 03:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

Date: *04-Jun-08*

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 11:11 PM**

Client ID: Run ID: **ICPMS02_080602A** SeqNo: **1410011** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.050								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 11:17 PM**
Client ID: Run ID: **ICPMS02_080602A** SeqNo: **1410012** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05531	0.010	0.05	0	111	80-120	0			
Arsenic	0.05086	0.0050	0.05	0	102	80-120	0			
Barium	0.0515	0.0050	0.05	0	103	80-120	0			
Beryllium	0.04961	0.0020	0.05	0	99.2	80-120	0			
Boron	0.51	0.050	0.5	0	102	80-120	0			
Cadmium	0.05043	0.0020	0.05	0	101	80-120	0			
Calcium	5.085	0.50	5	0	102	80-120	0			
Chromium	0.04787	0.0050	0.05	0	95.7	80-120	0			
Cobalt	0.0505	0.0050	0.05	0	101	80-120	0			
Copper	0.04711	0.0050	0.05	0	94.2	80-120	0			
Iron	5.108	0.20	5	0	102	80-120	0			
Lead	0.05004	0.0050	0.05	0	100	80-120	0			
Magnesium	4.979	0.20	5	0	99.6	80-120	0			
Manganese	0.0499	0.0050	0.05	0	99.8	80-120	0			
Molybdenum	0.04938	0.0050	0.05	0	98.8	80-120	0			
Nickel	0.04953	0.0050	0.05	0	99.1	80-120	0			
Potassium	5.014	0.20	5	0	100	80-120	0			
Selenium	0.04986	0.0050	0.05	0	99.7	80-120	0			
Silver	0.04002	0.0050	0.05	0	80	80-120	0			
Sodium	4.943	0.20	5	0	98.9	80-120	0			
Vanadium	0.05043	0.0050	0.05	0	101	80-120	0			
Zinc	0.04926	0.0050	0.05	0	98.5	80-120	0			

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0805606-08CMS** Units: **mg/L** Analysis Date: **6/3/2008 02:20 PM**

Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410745** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06189	0.010	0.05	0.01497	93.8	80-120	0			
Arsenic	0.06337	0.0050	0.05	0.01058	106	80-120	0			
Barium	0.09153	0.0050	0.05	0.03819	107	80-120	0			
Beryllium	0.04985	0.0020	0.05	-0.0001438	100	80-120	0			
Boron	1.165	0.050	0.5	0.6122	111	80-120	0			
Cadmium	0.05037	0.0020	0.05	-0.0004353	102	80-120	0			
Calcium	149.2	0.50	5	143.9	106	80-120	0			O
Chromium	0.04788	0.0050	0.05	0.0002614	95.2	80-120	0			
Cobalt	0.05154	0.0050	0.05	0.002614	97.9	80-120	0			
Copper	0.04456	0.0050	0.05	0.0004179	88.3	80-120	0			
Iron	5.507	0.20	5	0.5342	99.5	80-120	0			
Lead	0.05257	0.0050	0.05	-0.00002332	105	80-120	0			
Magnesium	85.42	0.20	5	80.06	107	80-120	0			O
Manganese	0.2299	0.0050	0.05	0.179	102	80-120	0			
Molybdenum	0.05753	0.0050	0.05	0.005355	104	80-120	0			
Nickel	0.05094	0.0050	0.05	0.002892	96.1	80-120	0			
Potassium	9.248	0.20	5	4.425	96.5	80-120	0			
Selenium	0.05288	0.0050	0.05	0.0005107	105	80-120	0			
Silver	0.04033	0.0050	0.05	-0.0003408	81.3	80-120	0			
Sodium	215.6	0.20	5	209.9	114	80-120	0			EO
Vanadium	0.05326	0.0050	0.05	0.001695	103	80-120	0			
Zinc	0.05312	0.0050	0.05	0.00839	89.5	80-120	0			

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0805606-08CMSD** Units: **mg/L** Analysis Date: **6/3/2008 02:26 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410746** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06039	0.010	0.05	0.01497	90.8	80-120	0.06189	2.45	15	
Arsenic	0.06377	0.0050	0.05	0.01058	106	80-120	0.06337	0.629	15	
Barium	0.09108	0.0050	0.05	0.03819	106	80-120	0.09153	0.493	15	
Beryllium	0.04878	0.0020	0.05	-0.0001438	97.8	80-120	0.04985	2.17	15	
Boron	1.186	0.050	0.5	0.6122	115	80-120	1.165	1.79	15	
Cadmium	0.04962	0.0020	0.05	-0.0004353	100	80-120	0.05037	1.5	15	
Calcium	150.7	0.50	5	143.9	136	80-120	149.2	1	15	SO
Chromium	0.04772	0.0050	0.05	0.0002614	94.9	80-120	0.04788	0.335	15	
Cobalt	0.05164	0.0050	0.05	0.002614	98.1	80-120	0.05154	0.194	15	
Copper	0.04497	0.0050	0.05	0.0004179	89.1	80-120	0.04456	0.916	15	
Iron	5.431	0.20	5	0.5342	97.9	80-120	5.507	1.39	15	
Lead	0.05227	0.0050	0.05	-0.00002332	105	80-120	0.05257	0.572	15	
Magnesium	84.25	0.20	5	80.06	83.8	80-120	85.42	1.38	15	O
Manganese	0.2326	0.0050	0.05	0.179	107	80-120	0.2299	1.17	15	
Molybdenum	0.0565	0.0050	0.05	0.005355	102	80-120	0.05753	1.81	15	
Nickel	0.04908	0.0050	0.05	0.002892	92.4	80-120	0.05094	3.72	15	
Potassium	9.267	0.20	5	4.425	96.8	80-120	9.248	0.205	15	
Selenium	0.05261	0.0050	0.05	0.0005107	104	80-120	0.05288	0.512	15	
Silver	0.04025	0.0050	0.05	-0.0003408	81.2	80-120	0.04033	0.199	15	
Sodium	212.4	0.20	5	209.9	50	80-120	215.6	1.5	15	SEO
Vanadium	0.05363	0.0050	0.05	0.001695	104	80-120	0.05326	0.692	15	
Zinc	0.05195	0.0050	0.05	0.00839	87.1	80-120	0.05312	2.23	15	

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30049** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0805606-08CDUP** Units: **mg/L** Analysis Date: **6/3/2008 01:48 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410741** Prep Date: **6/2/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01681	0.010	0	0	0	0-0	0.01497	11.6	25	
Arsenic	0.01089	0.0050	0	0	0	0-0	0.01058	2.89	25	
Barium	0.0393	0.0050	0	0	0	0-0	0.03819	2.86	25	
Beryllium	ND	0.0020	0	0	0	0-0	-0.0001438	0	25	
Boron	0.6411	0.050	0	0	0	0-0	0.6122	4.61	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.0004353	0	25	
Calcium	147	0.50	0	0	0	0-0	143.9	2.13	25	
Chromium	ND	0.0050	0	0	0	0-0	0.0002614	0	25	
Cobalt	0.002661	0.0050	0	0	0	0-0	0.002614	0	25	J
Copper	ND	0.0050	0	0	0	0-0	0.0004179	0	25	
Iron	0.545	0.20	0	0	0	0-0	0.5342	2	25	
Lead	ND	0.0050	0	0	0	0-0	-0.00002332	0	25	
Magnesium	82.64	0.20	0	0	0	0-0	80.06	3.17	25	
Manganese	0.1849	0.0050	0	0	0	0-0	0.179	3.24	25	
Molybdenum	0.005564	0.0050	0	0	0	0-0	0.005355	3.83	25	
Nickel	0.002742	0.0050	0	0	0	0-0	0.002892	0	25	J
Potassium	4.499	0.20	0	0	0	0-0	4.425	1.66	25	
Selenium	ND	0.0050	0	0	0	0-0	0.0005107	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003408	0	25	
Vanadium	0.001621	0.0050	0	0	0	0-0	0.001695	0	25	J
Zinc	0.004506	0.0050	0	0	0	0-0	0.00839	0	25	J

DUP Sample ID: **0805606-08CDUP** Units: **mg/L** Analysis Date: **6/3/2008 03:07 PM**
Client ID: Run ID: **ICPMS02_080603A** SeqNo: **1410816** Prep Date: **6/2/2008** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	198.8	10	0	0	0	0-0	216.8	8.66	25	

The following samples were analyzed in this batch: 0805558-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **30093** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:55 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411704** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000044	0.00020								J

LCS Sample ID: **GLCSW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:57 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411705** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00452	0.00020	0.005	0	90.4	85-115	0			

LCSD Sample ID: **GLCSDW2-060308** Units: **mg/L** Analysis Date: **6/4/2008 11:59 AM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411706** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00438	0.00020	0.005	0	87.6	85-115	0.00452	3.15	20	

MS Sample ID: **0806044-01CMS** Units: **mg/L** Analysis Date: **6/4/2008 12:05 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411709** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00461	0.00020	0.005	-0.000049	93.2	85-115	0			

MSD Sample ID: **0806044-01CMSD** Units: **mg/L** Analysis Date: **6/4/2008 12:07 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411710** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00464	0.00020	0.005	-0.000049	93.8	85-115	0.00461	0.649	20	

DUP Sample ID: **0806044-01CDUP** Units: **mg/L** Analysis Date: **6/4/2008 12:03 PM**
Client ID: Run ID: **MERCURY_080604B** SeqNo: **1411708** Prep Date: **6/3/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000049	0	20	

The following samples were analyzed in this batch: 0805558-01B

ND - Not Detected at the Reporting Limit
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E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

MBLK Sample ID: **SBLKW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 04:45 PM**

Client ID: Run ID: **SV-5_080529C** SeqNo: **1408204** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*66.46*	5.0	*100*	0	*66.5*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*75.49*	5.0	*100*	0	*75.5*	*48-120*	0			
Surr: 2-Fluorophenol	*63.48*	5.0	*100*	0	*63.5*	*20-120*	0			
Surr: 4-Terphenyl-d14	*75.31*	5.0	*100*	0	*75.3*	*51-135*	0			
Surr: Nitrobenzene-d5	*78.24*	5.0	*100*	0	*78.2*	*41-120*	0			
Surr: Phenol-d6	*71.08*	5.0	*100*	0	*71.1*	*20-120*	0			

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

LCS Sample ID: **SLCSW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 11:50 AM**

Client ID: Run ID: **SV-5_080529C** SeqNo: **1408202** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.48	5.0	50	0	77	50-120	0			
2,4,5-Trichlorophenol	70.59	5.0	100	0	70.6	50-120	0			
2,4,6-Trichlorophenol	77.31	5.0	100	0	77.3	50-120	0			
2-Methylnaphthalene	39.73	5.0	50	0	79.5	55-120	0			
2-Methylphenol	72.4	5.0	100	0	72.4	50-120	0			
2-Nitroaniline	41.9	5.0	50	0	83.8	55-120	0			
2-Nitrophenol	77.95	5.0	100	0	78	55-120	0			
3&4-Methylphenol	112.7	5.0	150	0	75.1	55-120	0			
3-Nitroaniline	31.41	5.0	50	0	62.8	40-120	0			
4-Nitroaniline	37.07	5.0	50	0	74.1	50-120	0			
4-Nitrophenol	97.1	5.0	100	0	97.1	45-120	0			
Acenaphthene	40.42	5.0	50	0	80.8	55-120	0			
Acenaphthylene	41.2	5.0	50	0	82.4	55-120	0			
Aniline	30.83	5.0	50	0	61.7	30-120	0			
Anthracene	40.67	5.0	50	0	81.3	55-120	0			
Benz(a)anthracene	37.11	5.0	50	0	74.2	55-120	0			
Benzidine	15.02	5.0	50	0	30	10-120	0			
Hexachloroethane	38.38	5.0	50	0	76.8	55-120	0			
Indeno(1,2,3-cd)pyrene	36.31	5.0	50	0	72.6	55-120	0			
Isophorone	41.97	5.0	50	0	83.9	55-120	0			
N-Nitrosodi-n-propylamine	40.43	5.0	50	0	80.9	50-120	0			
N-Nitrosodimethylamine	37.79	5.0	50	0	75.6	45-120	0			
N-Nitrosodiphenylamine	40.24	5.0	50	0	80.5	55-120	0			
Naphthalene	40.25	5.0	50	0	80.5	55-120	0			
Nitrobenzene	39.48	5.0	50	0	79	55-120	0			
Pentachlorophenol	71.77	5.0	100	0	71.8	55-120	0			
Phenanthrene	39.92	5.0	50	0	79.8	55-120	0			
Phenol	77.57	5.0	100	0	77.6	50-120	0			
Pyrene	40.45	5.0	50	0	80.9	55-120	0			
Surr: 2,4,6-Tribromophenol	*72.66*	5.0	*100*	0	*72.7*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*77.75*	5.0	*100*	0	*77.7*	*48-120*	0			
Surr: 2-Fluorophenol	*68.18*	5.0	*100*	0	*68.2*	*20-120*	0			
Surr: 4-Terphenyl-d14	*76.16*	5.0	*100*	0	*76.2*	*51-135*	0			
Surr: Nitrobenzene-d5	*79.91*	5.0	*100*	0	*79.9*	*41-120*	0			
Surr: Phenol-d6	*72.59*	5.0	*100*	0	*72.6*	*20-120*	0			

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **29950** Instrument ID **SV-5** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-080528** Units: **µg/L** Analysis Date: **5/29/2008 12:16 PM**
Client ID: Run ID: **SV-5_080529C** SeqNo: **1408203** Prep Date: **5/28/2008** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.38	5.0	50	0	76.8	50-120	38.48	0.238	20	
2,4,5-Trichlorophenol	84.21	5.0	100	0	84.2	50-120	70.59	17.6	20	
2,4,6-Trichlorophenol	79.22	5.0	100	0	79.2	50-120	77.31	2.45	20	
2-Methylnaphthalene	40.87	5.0	50	0	81.7	55-120	39.73	2.83	20	
2-Methylphenol	75.67	5.0	100	0	75.7	50-120	72.4	4.42	20	
2-Nitroaniline	42.15	5.0	50	0	84.3	55-120	41.9	0.588	20	
2-Nitrophenol	79.6	5.0	100	0	79.6	55-120	77.95	2.1	20	
3&4-Methylphenol	117.5	5.0	150	0	78.3	55-120	112.7	4.17	20	
3-Nitroaniline	26.62	5.0	50	0	53.2	40-120	31.41	16.5	20	
4-Nitroaniline	36.41	5.0	50	0	72.8	50-120	37.07	1.79	20	
4-Nitrophenol	82.95	5.0	100	0	82.9	45-120	97.1	15.7	20	
Acenaphthene	41.82	5.0	50	0	83.6	55-120	40.42	3.42	20	
Acenaphthylene	41.46	5.0	50	0	82.9	55-120	41.2	0.614	20	
Aniline	31.37	5.0	50	0	62.7	30-120	30.83	1.74	20	
Anthracene	39.59	5.0	50	0	79.2	55-120	40.67	2.7	20	
Benz(a)anthracene	37.02	5.0	50	0	74	55-120	37.11	0.242	20	
Benzidine	10.32	5.0	50	0	20.6	10-120	15.02	37.1	20	R
Hexachloroethane	41.36	5.0	50	0	82.7	55-120	38.38	7.47	20	
Indeno(1,2,3-cd)pyrene	36.71	5.0	50	0	73.4	55-120	36.31	1.08	20	
Isophorone	43.01	5.0	50	0	86	55-120	41.97	2.46	20	
N-Nitrosodi-n-propylamine	41.81	5.0	50	0	83.6	50-120	40.43	3.36	20	
N-Nitrosodimethylamine	39.68	5.0	50	0	79.4	45-120	37.79	4.88	20	
N-Nitrosodiphenylamine	41.17	5.0	50	0	82.3	55-120	40.24	2.29	20	
Naphthalene	40.53	5.0	50	0	81.1	55-120	40.25	0.683	20	
Nitrobenzene	40.12	5.0	50	0	80.2	55-120	39.48	1.61	20	
Pentachlorophenol	75.95	5.0	100	0	76	55-120	71.77	5.66	20	
Phenanthrene	41.64	5.0	50	0	83.3	55-120	39.92	4.21	20	
Phenol	81.2	5.0	100	0	81.2	50-120	77.57	4.58	20	
Pyrene	42.21	5.0	50	0	84.4	55-120	40.45	4.27	20	
Surr: 2,4,6-Tribromophenol	*73.12*	5.0	*100*	0	*73.1*	*42-124*	72.66	*0.63*	*20*	
Surr: 2-Fluorobiphenyl	*77.94*	5.0	*100*	0	*77.9*	*48-120*	77.75	*0.241*	*20*	
Surr: 2-Fluorophenol	*70.82*	5.0	*100*	0	*70.8*	*20-120*	68.18	*3.8*	*20*	
Surr: 4-Terphenyl-d14	*74.56*	5.0	*100*	0	*74.6*	*51-135*	76.16	*2.12*	*20*	
Surr: Nitrobenzene-d5	*77.03*	5.0	*100*	0	*77*	*41-120*	79.91	*3.68*	*20*	
Surr: Phenol-d6	*77.02*	5.0	*100*	0	*77*	*20-120*	72.59	*5.92*	*20*	

The following samples were analyzed in this batch: 0805558-01E

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: R63837 Instrument ID VOA2 Method: SW8260

MBLK Sample ID: VBLKW-052808 Units: µg/L Analysis Date: 5/28/2008 12:10 PM
Client ID: Run ID: VOA2_080528B SeqNo: 1406315 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*43.9*	5.0	*50*	0	*87.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*39.58*	5.0	*50*	0	*79.2*	*72-125*	0			
Surr: Dibromofluoromethane	*44.48*	5.0	*50*	0	*89*	*71-125*	0			
Surr: Toluene-d8	*42.61*	5.0	*50*	0	*85.2*	*75-125*	0			

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63837** Instrument ID **VOA2** Method: **SW8260**

LCS Sample ID: **VLCSW-052808** Units: **µg/L** Analysis Date: **5/28/2008 10:32 AM**
Client ID: Run ID: **VOA2_080528B** SeqNo: **1406314** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.59	5.0	50	0	107	80-120	0			
1,1,2,2-Tetrachloroethane	43.21	5.0	50	0	86.4	72-120	0			
1,1,2-Trichloroethane	45.61	5.0	50	0	91.2	80-120	0			
1,1-Dichloroethane	57.72	5.0	50	0	115	76-120	0			
1,1-Dichloroethene	59.25	5.0	50	0	118	73-124	0			
1,2-Dichloroethane	50.06	5.0	50	0	100	78-120	0			
2-Butanone	105.4	10	100	0	105	58-132	0			
2-Chloroethyl vinyl ether	113.7	10	100	0	114	74-120	0			
2-Hexanone	90.16	10	100	0	90.2	61-130	0			
4-Methyl-2-pentanone	92.78	10	100	0	92.8	65-127	0			
Acetone	112.7	10	100	0	113	59-137	0			
Benzene	49.49	5.0	50	0	99	73-121	0			
Bromodichloromethane	56.85	5.0	50	0	114	80-120	0			
Bromoform	43.63	5.0	50	0	87.3	79-120	0			
Bromomethane	55.41	5.0	50	0	111	66-137	0			
Carbon disulfide	120.7	10	100	0	121	68-141	0			
Carbon tetrachloride	46.35	5.0	50	0	92.7	75-124	0			
Chlorobenzene	45.69	5.0	50	0	91.4	80-120	0			
Chloroethane	56.2	5.0	50	0	112	76-121	0			
Chloroform	51.36	5.0	50	0	103	80-120	0			
Chloromethane	52.26	5.0	50	0	105	67-123	0			
cis-1,3-Dichloropropene	51.11	5.0	50	0	102	80-120	0			
Dibromochloromethane	43.19	5.0	50	0	86.4	80-120	0			
Ethylbenzene	48.15	5.0	50	0	96.3	80-120	0			
m,p-Xylene	95.83	10	100	0	95.8	78-121	0			
Methylene chloride	54.74	10	50	0	109	65-133	0			
Styrene	47.23	5.0	50	0	94.5	80-120	0			
Tetrachloroethene	48.06	5.0	50	0	96.1	79-120	0			
Toluene	46.84	5.0	50	0	93.7	80-120	0			
trans-1,3-Dichloropropene	41.8	5.0	50	0	83.6	80-120	0			
Trichloroethene	54.59	5.0	50	0	109	80-120	0			
Vinyl acetate	116.5	10	100	0	117	67-139	0			
Vinyl chloride	55.86	2.0	50	0	112	70-127	0			
Xylenes, Total	144.1	15	150	0	96.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	*43.38*	5.0	*50*	0	*86.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*42.1*	5.0	*50*	0	*84.2*	*72-125*	0			
Surr: Dibromofluoromethane	*46.28*	5.0	*50*	0	*92.6*	*71-125*	0			
Surr: Toluene-d8	*41.88*	5.0	*50*	0	*83.8*	*75-125*	0			

ND - Not Detected at the Reporting Limit
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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63837** Instrument ID **VOA2** Method: **SW8260**

MS Sample ID: **0805601-04AMS** Units: **µg/L** Analysis Date: **5/28/2008 03:25 PM**

Client ID: Run ID: **VOA2_080528B** SeqNo: **1406317** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.89	5.0	50	0	91.8	80-120	0			
1,1,2,2-Tetrachloroethane	47.3	5.0	50	0	94.6	72-120	0			
1,1,2-Trichloroethane	47.41	5.0	50	0	94.8	80-120	0			
1,1-Dichloroethane	44.83	5.0	50	0	89.7	76-120	0			
1,1-Dichloroethene	44.54	5.0	50	0	89.1	73-124	0			
1,2-Dichloroethane	47.57	5.0	50	0	95.1	78-120	0			
2-Butanone	102.3	10	100	0	102	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	108.8	10	100	0	109	61-130	0			
4-Methyl-2-pentanone	111.4	10	100	0	111	65-127	0			
Acetone	106.9	10	100	0	107	59-137	0			
Benzene	47.77	5.0	50	0	95.5	73-121	0			
Bromodichloromethane	49.32	5.0	50	0	98.6	80-120	0			
Bromoform	44.57	5.0	50	0	89.1	79-120	0			
Bromomethane	46.98	5.0	50	0	94	66-137	0			
Carbon disulfide	86.27	10	100	0	86.3	68-141	0			
Carbon tetrachloride	38.35	5.0	50	0	76.7	75-124	0			
Chlorobenzene	43.93	5.0	50	0	87.9	80-120	0			
Chloroethane	43.52	5.0	50	0	87	76-121	0			
Chloroform	47.36	5.0	50	0	94.7	80-120	0			
Chloromethane	44.75	5.0	50	0	89.5	67-123	0			
cis-1,3-Dichloropropene	44.26	5.0	50	0	88.5	80-120	0			
Dibromochloromethane	42.95	5.0	50	0	85.9	80-120	0			
Ethylbenzene	58.52	5.0	50	15.72	85.6	80-120	0			
m,p-Xylene	88.48	10	100	0	88.5	78-121	0			
Methylene chloride	46.9	10	50	0	93.8	65-133	0			
Styrene	45.6	5.0	50	0	91.2	80-120	0			
Tetrachloroethene	41.8	5.0	50	0	83.6	79-120	0			
Toluene	44.02	5.0	50	0	88	80-120	0			
trans-1,3-Dichloropropene	40.8	5.0	50	0	81.6	80-120	0			
Trichloroethene	47.16	5.0	50	0	94.3	80-120	0			
Vinyl acetate	109.4	10	100	0	109	67-139	0			
Vinyl chloride	42.03	2.0	50	0	84.1	70-127	0			
Xylenes, Total	133.6	15	150	0	89	80-120	0			
Surr: 1,2-Dichloroethane-d4	*41.93*	5.0	*50*	0	*83.9*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*42.08*	5.0	*50*	0	*84.2*	*72-125*	0			
Surr: Dibromofluoromethane	*44.57*	5.0	*50*	0	*89.1*	*71-125*	0			
Surr: Toluene-d8	*41*	5.0	*50*	0	*82*	*75-125*	0			

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Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: R63837 Instrument ID VOA2 Method: SW8260

MSD Sample ID: 0805601-04AMSD Units: µg/L Analysis Date: 5/28/2008 03:49 PM

Client ID: Run ID: VOA2_080528B SeqNo: 1406318 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.03	5.0	50	0	98.1	80-120	45.89	6.62	20	
1,1,2,2-Tetrachloroethane	50.56	5.0	50	0	101	72-120	47.3	6.65	20	
1,1,2-Trichloroethane	49.8	5.0	50	0	99.6	80-120	47.41	4.93	20	
1,1-Dichloroethane	47.18	5.0	50	0	94.4	76-120	44.83	5.1	20	
1,1-Dichloroethene	47.98	5.0	50	0	96	73-124	44.54	7.43	20	
1,2-Dichloroethane	49.81	5.0	50	0	99.6	78-120	47.57	4.62	20	
2-Butanone	106.7	10	100	0	107	58-132	102.3	4.28	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	115.9	10	100	0	116	61-130	108.8	6.33	20	
4-Methyl-2-pentanone	116.8	10	100	0	117	65-127	111.4	4.73	20	
Acetone	109.6	10	100	0	110	59-137	106.9	2.52	20	
Benzene	50.81	5.0	50	0	102	73-121	47.77	6.17	20	
Bromodichloromethane	52.54	5.0	50	0	105	80-120	49.32	6.33	20	
Bromoform	47.3	5.0	50	0	94.6	79-120	44.57	5.96	20	
Bromomethane	50.64	5.0	50	0	101	66-137	46.98	7.51	20	
Carbon disulfide	93.63	10	100	0	93.6	68-141	86.27	8.18	20	
Carbon tetrachloride	41.62	5.0	50	0	83.2	75-124	38.35	8.18	20	
Chlorobenzene	46.42	5.0	50	0	92.8	80-120	43.93	5.51	20	
Chloroethane	46.89	5.0	50	0	93.8	76-121	43.52	7.44	20	
Chloroform	48.94	5.0	50	0	97.9	80-120	47.36	3.27	20	
Chloromethane	48.35	5.0	50	0	96.7	67-123	44.75	7.73	20	
cis-1,3-Dichloropropene	47.47	5.0	50	0	94.9	80-120	44.26	6.99	20	
Dibromochloromethane	45.31	5.0	50	0	90.6	80-120	42.95	5.36	20	
Ethylbenzene	62.77	5.0	50	15.72	94.1	80-120	58.52	7.01	20	
m,p-Xylene	94.53	10	100	0	94.5	78-121	88.48	6.61	20	
Methylene chloride	49.02	10	50	0	98	65-133	46.9	4.41	20	
Styrene	48.13	5.0	50	0	96.3	80-120	45.6	5.4	20	
Tetrachloroethene	44.75	5.0	50	0	89.5	79-120	41.8	6.82	20	
Toluene	46.63	5.0	50	0	93.3	80-120	44.02	5.77	20	
trans-1,3-Dichloropropene	43.88	5.0	50	0	87.8	80-120	40.8	7.28	20	
Trichloroethene	50.02	5.0	50	0	100	80-120	47.16	5.89	20	
Vinyl acetate	115.9	10	100	0	116	67-139	109.4	5.83	20	
Vinyl chloride	45.4	2.0	50	0	90.8	70-127	42.03	7.71	20	
Xylenes, Total	142	15	150	0	94.6	80-120	133.6	6.11	20	
Surr: 1,2-Dichloroethane-d4	*42.81*	5.0	*50*	0	*85.6*	*70-125*	41.93	*2.06*	*20*	
Surr: 4-Bromofluorobenzene	*44.6*	5.0	*50*	0	*89.2*	*72-125*	42.08	*5.81*	*20*	
Surr: Dibromofluoromethane	*46.59*	5.0	*50*	0	*93.2*	*71-125*	44.57	*4.43*	*20*	
Surr: Toluene-d8	*43.46*	5.0	*50*	0	*86.9*	*75-125*	41	*5.83*	*20*	

The following samples were analyzed in this batch: 0805558-01A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63600** Instrument ID **SWetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-052308** Units: **pH units** Analysis Date: **5/23/2008 10:00 AM**
Client ID: Run ID: **SWETCHEM_080523D** SeqNo: **1401952** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.08	0.10	6	0	101	90-110	0			

DUP Sample ID: **0805529-01ADUP** Units: **pH units** Analysis Date: **5/23/2008 10:00 AM**
Client ID: Run ID: **SWETCHEM_080523D** SeqNo: **1401961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	13.17	0.10	0	0	0	0-0	13.14	0.228	20	H

The following samples were analyzed in this batch: 0805558-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63719** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-052708** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403637** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-052708** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403638** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1420	1.0	1413	0	100	80-120	0			

DUP Sample ID: **0805363-01FDUP** Units: **µmhos/cm** Analysis Date: **5/27/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080527F** SeqNo: **1403641** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	3550	1.0	0	0	0	0-0	3570	0.562	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63797** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-052808** Units: **°F** Analysis Date: **5/28/2008 03:00 PM**
Client ID: Run ID: **WETCHEM_080528C** SeqNo: **1405214** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID: **0805558-01DDUP** Units: **°F** Analysis Date: **5/28/2008 03:00 PM**
Client ID: **Injection Well** Run ID: **WETCHEM_080528C** SeqNo: **1405217** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch: 0805558-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R63808** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-052808** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405421** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-052808** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405422** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1003	5.0	1000	0	100	80-120	0			
Alkalinity, Total (As CaCO3)	1003	5.0	1000	0	100	80-120	0			

DUP Sample ID: **0805543-01FDUP** Units: **mg/L** Analysis Date: **5/28/2008 02:00 PM**
Client ID: Run ID: **WETCHEM_080528F** SeqNo: **1405442** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	538	5.0	0	0	0	0-0	530	1.5	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	538	5.0	0	0	0	0-0	530	1.5	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: R63822 Instrument ID Balance1 Method: E160.1 (Dissolve)

MBLK Sample ID: BLANK Units: mg/L Analysis Date: 5/27/2008 03:00 PM
Client ID: Run ID: BALANCE1_080527K SeqNo: 1405748 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	ND	10								

LCS Sample ID: LCS Units: mg/L Analysis Date: 5/27/2008 03:00 PM
Client ID: Run ID: BALANCE1_080527K SeqNo: 1405750 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1004	10	1000	0	100	85-115	0			

DUP Sample ID: 0805531-21BDUP Units: mg/L Analysis Date: 5/27/2008 03:00 PM
Client ID: Run ID: BALANCE1_080527K SeqNo: 1405729 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	5874	10	0	0	0	0-0	5882	0.136	20	

DUP Sample ID: 0805558-01CDUP Units: mg/L Analysis Date: 5/27/2008 03:00 PM
Client ID: Injection Well Run ID: BALANCE1_080527K SeqNo: 1405743 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1232	10	0	0	0	0-0	1238	0.486	20	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0805558
Project: Injection Well Qrtly.

QC BATCH REPORT

Batch ID: **R64025** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 12:00 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410755** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*4.751*	0.10	*5*	0	*95*	*85-115*	0			

LCS Sample ID: **WLCSW1-060208** Units: **mg/L** Analysis Date: **6/2/2008 12:25 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410757** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.8	0.50	20	0	99	90-110	0			
Sulfate	20.2	0.50	20	0	101	90-110	0			
Surr: Selenate (surr)	*4.969*	0.10	*5*	0	*99.4*	*85-115*	0			

MS Sample ID: **0805556-01BMS** Units: **mg/L** Analysis Date: **6/2/2008 03:39 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410766** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	284.1	0.50	10	280.2	38.6	80-120	0			SEO
Sulfate	1394	0.50	10	1422	-279	80-120	0			SEO
Surr: Selenate (surr)	*4.656*	0.10	*5*	0	*93.1*	*85-115*	0			

DUP Sample ID: **0805556-01BDUP** Units: **mg/L** Analysis Date: **6/2/2008 03:14 PM**
Client ID: Run ID: **ICS3000_080602B** SeqNo: **1410765** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	272.4	0.50	0	0	0	0-0	280.2	2.84	20	E
Sulfate	1384	0.50	0	0	0	0-0	1422	2.7	20	E
Surr: Selenate (surr)	*4.517*	0.10	*5*	0	*90.3*	*85-115*	4.649	*2.88*	*20*	

The following samples were analyzed in this batch: 0805558-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

☐ e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page ___ of ___

☐ e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Project Manager: Work Order #: 680555

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Qrtly.	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Injection Well	5/22/08	1410	L	Y	9	X	X	X	X	X	X	X	X	X		
2	Trip Blank																
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Aaron Strange

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☐ Std 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
Aaron Strange	5/22/08	1615		10 Day TAT.
Relinquished by:	Date:	Time:	Received by (Laboratory): 5/22/08 0840	
Logged by (Laboratory)	Date:	Time:	Checked by (Laboratory):	

Cooler ID | Cooler Temp:

QC Packages: (Check One Box Below)
- ☑ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other
- ☐ TRRP CheckList
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 5/23/2008 08:40

Work Order Number 0805558 Received by: RNG

Checklist completed by [signature] 5/23/08 Reviewed by [initials] 5/27/08
Signature Date Initials Date

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ✓	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✓	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✓
Chain of custody present?	Yes ✓	No	
Chain of custody signed when relinquished and received?	Yes ✓	No	
Chain of custody agrees with sample labels?	Yes ✓	No	
Samples in proper container/bottle?	Yes ✓	No	
Sample containers intact?	Yes ✓	No	
Sufficient sample volume for indicated test?	Yes ✓	No	
All samples received within holding time?	Yes ✓	No	
Container/Temp Blank temperature in compliance?	Yes ✓	No	
Temperature(s)/Thermometer(s):	2.9c	002	
Cooler(s)/Kit(s):	2369		
Water - VOA vials have zero headspace?	Yes ✓	No	No VOA vials submitted
Water - pH acceptable upon receipt?	Yes ✓	No	N/A

Adjusted? Checked by

Login Notes:

Client contacted: Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action

D8002250

ALS e-Lab Analytical
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

CUSTODY

Date: 5/27/08 Time

Name:

Company: Navajo Re

SEAL

1615

Seal Broken By:

Date:

ALS Laboratory Group

Date: 29-May-08

Client: ALS Laboratory Group
Project: 0805558
Work Order: **0805504**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0805504-01	0805558-01F	Water		5/22/2008 14:10	5/28/2008 09:40	☐

Released to Imaging: 7/12/2024 10:49:45 AM

ALS Laboratory Group

Date: *29-May-08*

Client: ALS Laboratory Group
Project: 0805558
Sample ID: 0805558-01F
Collection Date: 5/22/2008 02:10 PM
Work Order: 0805504
Lab ID: 0805504-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **DB**
Cyanide, Reactive	ND		40.0	mg/Kg	1	5/29/2008
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **DB**
Sulfide, Reactive	ND		40.0	mg/Kg	1	5/29/2008

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Client: ALS Laboratory Group
Work Order: 0805504
Project: 0805558

Date: *29-May-08*

QC BATCH REPORT

Batch ID: **R59003** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID: **WBLKS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977280** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: **WLCSS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977281** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	220.2	40	250	0	88.1	75-125	0			

LCSD Sample ID: **WLCSDS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529E** SeqNo: **977290** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	220.2	40	250	0	88.1	75-125	220.2	0	35	

MS Sample ID: **0805504-01A MS** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: **0805558-01F** Run ID: **WETCHEM_080529E** SeqNo: **977283** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	264.2	40	250	0	106	50-150	0			

MSD Sample ID: **0805504-01A MSD** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: **0805558-01F** Run ID: **WETCHEM_080529E** SeqNo: **977284** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	264.2	40	250	0	106	50-150	264.2	0	35	

The following samples were analyzed in this batch: 0805504-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Client: ALS Laboratory Group
Work Order: 0805504
Project: 0805558

QC BATCH REPORT

Batch ID: **R59004** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID: **WBLKS1-052908** Units: **mg/Kg** Analysis Date: **5/29/2008**
Client ID: Run ID: **WETCHEM_080529F** SeqNo: **977295** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0805504-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

0805504

Subcontractor:
e-Lab Analytical, Inc.
3352 128th Ave.
Holland, MI 49424
TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Date: 23-May-08
COC ID: 6398
Due Date 04-Jun-08

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	0805558	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jeff.croston@alsenviro.com	eMail CC	glenda.ramos@alsenviro.com	J

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
0805558-01F (Injection Well)	Water	5/22/2008 14:10	(1) 1LPNEAT	X	X								

Comments:

Please analyze for Reactive Cyanide & Reactive Sulfide.

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
					Std
Relinquished by:	Date/Time	Received by:	Date/Time		
	5.21.08		5/28/08 0940		

ALS Laboratory Group

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 5/28/2008 09:40

Work Order Number 0805504 Received by: AJK

Checklist completed by _____ 5/28/08 Reviewed by _____ 5/28/08
Signature Date Initials Date

Matrix: Water Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.0°C		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

UPS Next Day Air Saver

WEIGHT 49 | DIMENSIONAL WEIGHT | LARGE PACKAGE | SHIPPER RELEASE

1P

Saver

The shipper authorizes UPS to act as forwarding agent for export control and customs purposes. The shipper certifies that these commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to U.S. law is prohibited.

SHIPMENT FROM

UPS ACCOUNT NO. 698174

REFERENCE NUMBER
SUB CONTRACT

RICHARD SANCHEZ TELEPHONE 281-530-5656

ALS LABORATORY GROUP

1450 STANCLIFF RD STE # 210

HOUSTON TX 77099

MI 495 9-04

UPS Next Day Air Saver 1P

DELIVERY TO

RECEIVING TELEPHONE 616-399-6070

ALS LABORATORY GROUP

3352 128TH AVE

HOLLAND MI 49424

(URC 1.72 5/30/2007)
0201952502609 1/07

United Parcel Service, Louisville, KY

1Z 698 174 23 1005 3901

TRACKING NUMBER

SHIPMENT ID NUMBER 6981 747B BCW

3352 128TH AVE

HOLLAND MI 49424

P: S: I:

M220-RDL

1500

1Z 698 174 23 1005 3901

1256391 SS3004 US 04959 May 28 08:06:53 2008 HIP 7.0.1 INT4420

HEAVY

49 lbs.
FedEx M-1578
119686 3/00 WCS

HEAVY

49 lbs.
FedEx M-1578
119685 3/00 WCS

e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

QUALITY • INTEGRITY • SERVICE

CUSTODY SEAL

Date: 5-27-08 Time: 1640
Name: RICHARD SANCHEZ
Company: ALS

Seal Broken By:

Date: 5/28/08

08055504

REFINING COMPANY, LLC

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 ENV/PURCH/MKTG
(505) 746-5421 ENGINEERING

January 18, 2008

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 Fourth Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

While generating this report an error was found and corrected on the 2007 third quarter monthly injection pressures, rates and volumes spread sheet. Please see the enclosed corrected spread sheet.

Also enclosed, please find the sampling results for the fourth quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2007 to December 31, 2007. We have disposed a total of 36,349,675 barrels of fluid into the two wells as of December 31, 2007. This is broken down as follows: 24,507,561 barrels into WDW-1 and 11,842,114 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Aaron Strange

Aaron Strange
Sr. Environmental Technician

Encl.

cc: DGM
File: REF:ART: 4 A 02 D

RECEIVED
2008 JAN 23 PM 2 01

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2007 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													Previous Quarter	23,700,982
Oct-07	273	316	1	281	304	162	96	194	18	9,624	10,435	5,543	298,355	23,999,337
Nov-07	293	386	87	242	280	64	206	333	29	8,297	9,597	2,184	257,219	24,256,556
Dec-07	395	468	368	236	264	146	193	272	113	8,097	9,036	5,000	251,005	24,507,561
WDW-2													Previous Quarter	11,362,072
Oct-07	339	406	30	133	160	0	477	500	168	4,546	5,469	0	140,915	11,502,987
Nov-07	347	401	121	144	176	36	486	500	303	4,925	6,038	1,237	152,676	11,655,663
Dec-07	410	443	367	175	187	153	455	500	310	6,015	6,428	5,242	186,452	11,842,114
													Total Injected fluids:	36,349,675

H:\jeff\Working folder\OCD\Injection well\2007\
4TH qtrly rpt
Injection fluids

1/15/20083:42 PM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 THIRD QUARTER WEEKLY WHAMS LEVEL TABLE

	10/2/07	10/9/07	10/15/07	10/23/07	10/30/07	11/6/07	11/12/07	11/20/07	11/27/07	12/3/07	12/11/07	12/18/07	12/25/07
WDW -1[1]	200	200	200	200	200	200	200	200	190	190	190	190	190
WDW-2[1]	160	160	160	160	160	160	160	160	160	160	160	160	160
WDW-3[2]	*	*	*	*	*	*	*	*	*	*	240	240	240

[1] Graduated 200 gallon tank.

[2] 300 gallon tank, filled the week of 12/10/07, no fluids were injected as of 12/31/07.

Page 5292 of 5828

November 30, 2007

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Well Quarterly

Work Order : **0711312**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 1 sample on 11/14/2007 09:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 35.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Rebecca L. Hunt

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: November 30, 2007

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312

LELAP Certificate #03087

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Dat	Date Received	Hold
0711312-01	Inj. Well	Water		11/13/2007 09:15	11/14/2007 09:20	☐

e-Lab Analytical, Inc. *Date: November 30, 2007*

Client:	Navajo Refining Company	LELAP Certificate #03087
Project:	Injection Well Quarterly	**Case Narrative**
Work Order:	0711312	

Metals (sample Inj. Well) could not be reported at a lower dilution for all elements due the nature of the sample.

Batch 26751 Metals MS/MSD was an unrelated sample.

Batch 26771 Semivolatiles LCS/LCSD RPD recovery was above the control limits for Benzidine (23.7%). Recoveries met method criteria in both LCS/LCSD.

Batch R57123 Volatiles MS/MSD was an unrelated sample.

Batch R57038 Anions MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Inj. Well
Collection Date: 11/13/2007 9:15:00 AM

Work Order: 0711312
Lab ID: 0711312-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **11/24/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	11/25/2007 6:38:10 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **11/15/2007**	Analyst: **ALR**
Aluminum	**1.85**		**0.100**	**mg/L**	10	11/19/2007 8:55:00 PM
Arsenic	**0.147**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Barium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Beryllium	ND		0.00200	mg/L	1	11/19/2007 9:01:00 PM
Boron	**0.241**		**0.0200**	**mg/L**	1	11/19/2007 9:01:00 PM
Cadmium	ND		0.0200	mg/L	10	11/17/2007 12:10:00 AM
Calcium	**119**		**5.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Chromium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Cobalt	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Copper	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Iron	**4.17**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Lead	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Magnesium	**43.3**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Manganese	**0.117**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Molybdenum	**0.144**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Nickel	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Potassium	**27.4**		**2.00**	**mg/L**	10	11/17/2007 12:10:00 AM
Selenium	**0.452**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
Silver	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Sodium	**1,200**		**2.00**	**mg/L**	10	11/19/2007 8:55:00 PM
Vanadium	ND		0.0500	mg/L	10	11/17/2007 12:10:00 AM
Zinc	**0.190**		**0.0500**	**mg/L**	10	11/17/2007 12:10:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **11/16/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Methylphenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
2-Nitrophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
3-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
4-Nitroaniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
4-Nitrophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Acenaphthene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Acenaphthylene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Anthracene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Benzidine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Hexachloroethane	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Isophorone	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Naphthalene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Nitrobenzene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Pentachlorophenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Phenanthrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Phenol	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Pyrene	ND		0.0050	mg/L	1	11/19/2007 5:17:00 PM
Surr: 2,4,6-Tribromophenol	*86.1*		*42-124*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 2-Fluorobiphenyl	*63.6*		*48-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 2-Fluorophenol	*64.9*		*20-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: 4-Terphenyl-d14	*71.0*		*51-135*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: Nitrobenzene-d5	*65.9*		*41-120*	*%REC*	1	11/19/2007 5:17:00 PM
Surr: Phenol-d6	*69.3*		*20-120*	*%REC*	1	11/19/2007 5:17:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
2-Butanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
2-Hexanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Acetone	**0.042**		**0.010**	**mg/L**	1	11/21/2007 5:00:00 PM
Benzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromodichloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromoform	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Bromomethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Carbon disulfide	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloroethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloroform	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Chloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Dibromochloromethane	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Ethylbenzene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
m,p-Xylene	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Methylene chloride	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Styrene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Tetrachloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Toluene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Trichloroethene	ND		0.0050	mg/L	1	11/21/2007 5:00:00 PM
Vinyl acetate	ND		0.010	mg/L	1	11/21/2007 5:00:00 PM
Vinyl chloride	ND		0.0020	mg/L	1	11/21/2007 5:00:00 PM
Xylenes, Total	ND		0.015	mg/L	1	11/21/2007 5:00:00 PM
Surr: 1,2-Dichloroethane-d4	*87.0*		*70-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: 4-Bromofluorobenzene	*92.8*		*72-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: Dibromofluoromethane	*102*		*71-125*	*%REC*	1	11/21/2007 5:00:00 PM
Surr: Toluene-d8	*102*		*75-125*	*%REC*	1	11/21/2007 5:00:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	11/16/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	11/16/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **RPM**
Chloride	**889**		**50.0**	**mg/L**	100	11/20/2007 7:10:00 PM
Sulfate	**1,650**		**50.0**	**mg/L**	100	11/20/2007 7:10:00 PM
Surr: Selenate (surr)	*113*		*85-115*	*%REC*	100	11/20/2007 7:10:00 PM
ALKALINITY			**E310.1**			Analyst: **DM**
Alkalinity, Bicarbonate (As CaCO3)	**334**		**5.00**	**mg/L**	1	11/19/2007 4:00:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	11/19/2007 4:00:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	11/19/2007 4:00:00 PM
Alkalinity, Total (As CaCO3)	**334**		**5.00**	**mg/L**	1	11/19/2007 4:00:00 PM
CONDUCTIVITY			**E120.1**			Analyst: **DM**
Specific Conductance	**5,980**		**1.00**	**µmhos/cm**	1	11/16/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	11/15/2007

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *November 30, 2007*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0711312
Sample ID: Inj. Well
Lab ID: 0711312-01
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	**7.37**	H	**0.100**	**pH units**	1	11/14/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	**4,300**		**10.0**	**mg/L**	1	11/15/2007 3:00:00 PM

Qualifiers:

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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

Date: *Nov 30 2007*

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID **MBLKW2-111507** Units: **mg/L** Analysis Date: **11/16/07 23:57**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264730** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	0.0003037	0.0020								J
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	0.0002719	0.0050								J
Copper	ND	0.0050								
Iron	0.05465	0.20								J
Lead	0.000386	0.0050								J
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	0.0004153	0.0050								J
Potassium	0.04252	0.20								J
Selenium	ND	0.0050								
Silver	ND	0.0050								
Vanadium	0.0006997	0.0050								J
Zinc	ND	0.0050								

MBLK Sample ID **MBLKW2-111507** Units: **mg/L** Analysis Date: **11/19/07 17:19**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265810** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.0003468	0.0020								J
Boron	ND	0.020								
Sodium	ND	0.20								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID **MLCSW2-111507** Units: **mg/L** Analysis Date: **11/17/07 0:04**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264732** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04957	0.0050	0.05	0	99.1	80-120	0			
Barium	0.05136	0.0050	0.05	0	103	80-120	0			
Cadmium	0.05239	0.0020	0.05	0	105	80-120	0			
Calcium	5.456	0.50	5	0	109	80-120	0			
Chromium	0.05098	0.0050	0.05	0	102	80-120	0			
Cobalt	0.0535	0.0050	0.05	0	107	80-120	0			
Copper	0.05107	0.0050	0.05	0	102	80-120	0			
Iron	5.187	0.20	5	0	104	80-120	0			
Lead	0.05153	0.0050	0.05	0	103	80-120	0			
Magnesium	5.225	0.20	5	0	104	80-120	0			
Manganese	0.05052	0.0050	0.05	0	101	80-120	0			
Molybdenum	0.05028	0.0050	0.05	0	101	80-120	0			
Nickel	0.05157	0.0050	0.05	0	103	80-120	0			
Potassium	5.175	0.20	5	0	104	80-120	0			
Selenium	0.05426	0.0050	0.05	0	109	80-120	0			
Silver	0.04955	0.0050	0.05	0	99.1	80-120	0			
Vanadium	0.05257	0.0050	0.05	0	105	80-120	0			
Zinc	0.05273	0.0050	0.05	0	105	80-120	0			

LCS Sample ID **MLCSW2-111507** Units: **mg/L** Analysis Date: **11/19/07 17:26**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265811** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.05013	0.0020	0.05	0	100	80-120	0			
Boron	0.5145	0.020	0.5	0	103	80-120	0			
Sodium	4.668	0.20	5	0	93.4	80-120	0			

ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID **0711313-06EMS** Units: **mg/L** Analysis Date: **11/17/07 3:00**
Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264759** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06728	0.0050	0.05	0.01503	104	80-120	0			
Barium	0.1102	0.0050	0.05	0.06018	100	80-120	0			
Beryllium	0.05128	0.0020	0.05	0.0006468	101	80-120	0			
Boron	0.8142	0.020	0.5	0.2942	104	80-120	0			
Cadmium	0.04984	0.0020	0.05	0.0003068	99.1	80-120	0			
Calcium	149.3	0.50	5	148.6	14	80-120	0			SO
Chromium	0.045	0.0050	0.05	0.0002828	89.4	80-120	0			
Cobalt	0.05518	0.0050	0.05	0.007226	95.9	80-120	0			
Copper	0.04599	0.0050	0.05	0.0007485	90.5	80-120	0			
Iron	5.172	0.20	5	0.6444	90.6	80-120	0			
Lead	0.04957	0.0050	0.05	0.0003491	98.4	80-120	0			
Magnesium	31.26	0.20	5	28.38	57.6	80-120	0			SO
Manganese	2.072	0.0050	0.05	2.124	-104	80-120	0			SEO
Molybdenum	0.05029	0.0050	0.05	0.002178	96.2	80-120	0			
Nickel	0.0611	0.0050	0.05	0.01618	89.8	80-120	0			
Potassium	21.17	0.20	5	17.18	79.8	80-120	0			S
Selenium	0.05263	0.0050	0.05	0.001845	102	80-120	0			
Silver	0.04467	0.0050	0.05	0.0003217	88.7	80-120	0			
Sodium	139	0.20	5	141.8	-56	80-120	0			SO
Vanadium	0.06015	0.0050	0.05	0.01373	92.8	80-120	0			
Zinc	0.05148	0.0050	0.05	0.002264	98.4	80-120	0			

MS Sample ID **0711313-06EMS** Units: **mg/L** Analysis Date: **11/19/07 18:55**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265940** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05348	0.010	0.05	0.007074	92.8	80-120	0			

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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID **0711313-06EMSD** Units: **mg/L** Analysis Date: **11/17/07 3:06**

Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264760** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.07399	0.0050	0.05	0.01503	118	80-120	0.06728	9.5	15	
Barium	0.1087	0.0050	0.05	0.06018	97	80-120	0.1102	1.37	15	
Beryllium	0.04895	0.0020	0.05	0.0006468	96.6	80-120	0.05128	4.65	15	
Boron	0.7898	0.020	0.5	0.2942	99.1	80-120	0.8142	3.04	15	
Cadmium	0.04852	0.0020	0.05	0.0003068	96.4	80-120	0.04984	2.68	15	
Calcium	146	0.50	5	148.6	-52	80-120	149.3	2.24	15	SO
Chromium	0.04641	0.0050	0.05	0.0002828	92.3	80-120	0.045	3.09	15	
Cobalt	0.05651	0.0050	0.05	0.007226	98.6	80-120	0.05518	2.38	15	
Copper	0.04666	0.0050	0.05	0.0007485	91.8	80-120	0.04599	1.45	15	
Iron	5.181	0.20	5	0.6444	90.7	80-120	5.172	0.174	15	
Lead	0.0476	0.0050	0.05	0.0003491	94.5	80-120	0.04957	4.05	15	
Magnesium	30.78	0.20	5	28.38	48	80-120	31.26	1.55	15	SO
Manganese	2.107	0.0050	0.05	2.124	-34	80-120	2.072	1.68	15	SEO
Molybdenum	0.04949	0.0050	0.05	0.002178	94.6	80-120	0.05029	1.6	15	
Nickel	0.05928	0.0050	0.05	0.01618	86.2	80-120	0.0611	3.02	15	
Potassium	20.87	0.20	5	17.18	73.8	80-120	21.17	1.43	15	S
Selenium	0.05122	0.0050	0.05	0.001845	98.8	80-120	0.05263	2.72	15	
Silver	0.04655	0.0050	0.05	0.0003217	92.5	80-120	0.04467	4.12	15	
Sodium	137.8	0.20	5	141.8	-80	80-120	139	0.867	15	SO
Vanadium	0.06479	0.0050	0.05	0.01373	102	80-120	0.06015	7.43	15	
Zinc	0.05098	0.0050	0.05	0.002264	97.4	80-120	0.05148	0.976	15	

MSD Sample ID **0711313-06EMSD** Units: **mg/L** Analysis Date: **11/19/07 19:01**

Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265941** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05155	0.010	0.05	0.007074	89	80-120	0.05348	3.68	15	

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26751** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/17/07 2:47**
Client ID: Run ID: **ICPMS02_071116A** SeqNo: **1264757** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.01783	0.0050	0	0	0	0-0	0.01503	17	25	
Barium	0.06495	0.0050	0	0	0	0-0	0.06018	7.62	25	
Beryllium	0.0004054	0.0020	0	0	0	0-0	0.0006468	0	25	J
Boron	0.3056	0.020	0	0	0	0-0	0.2942	3.8	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.0003068	0	25	
Calcium	151.1	0.50	0	0	0	0-0	148.6	1.67	25	
Chromium	ND	0.0050	0	0	0	0-0	0.0002828	0	25	
Cobalt	0.007171	0.0050	0	0	0	0-0	0.007226	0.764	25	
Copper	0.0005842	0.0050	0	0	0	0-0	0.0007485	0	25	J
Iron	0.6462	0.20	0	0	0	0-0	0.6444	0.279	25	
Lead	ND	0.0050	0	0	0	0-0	0.0003491	0	25	
Magnesium	28.36	0.20	0	0	0	0-0	28.38	0.0705	25	
Molybdenum	0.002077	0.0050	0	0	0	0-0	0.002178	0	25	J
Nickel	0.0161	0.0050	0	0	0	0-0	0.01618	0.496	25	
Potassium	17.34	0.20	0	0	0	0-0	17.18	0.927	25	
Selenium	ND	0.0050	0	0	0	0-0	0.001845	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0003217	0	25	
Sodium	141.8	0.20	0	0	0	0-0	141.8	0	25	
Vanadium	0.01359	0.0050	0	0	0	0-0	0.01373	1.02	25	
Zinc	0.002235	0.0050	0	0	0	0-0	0.002264	0	25	J

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/19/07 17:38**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265813** Prep Date: **11/15/2007** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	2.195	0.25	0	0	0	0-0	2.163	1.47	25	

DUP Sample ID **0711313-06EDUP** Units: **mg/L** Analysis Date: **11/19/07 18:23**
Client ID: Run ID: **ICPMS02_071119A** SeqNo: **1265819** Prep Date: **11/15/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.007846	0.010	0	0	0	0-0	0.007074	0	25	J

The following samples were analyzed in this batch: 0711312-01B

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26874** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID **GBLKW3-112407** Units: **mg/L** Analysis Date: **11/25/07 17:44**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269056** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID **GLCSW3-112407** Units: **mg/L** Analysis Date: **11/25/07 17:48**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269057** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00475	0.00020	0.005	0	95	85-115	0			

LCSD Sample ID **GLCSDW3-11240** Units: **mg/L** Analysis Date: **11/25/07 17:50**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269058** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00498	0.00020	0.005	0	99.6	85-115	0.00475	4.73	20	

MS Sample ID **0711456-01DMS** Units: **mg/L** Analysis Date: **11/25/07 18:02**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269061** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00478	0.00020	0.005	0.000033	94.9	85-115	0			

MSD Sample ID **0711456-01DMSD** Units: **mg/L** Analysis Date: **11/25/07 18:04**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269062** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00519	0.00020	0.005	0.000033	103	85-115	0.00478	8.22	20	

DUP Sample ID **0711456-01DDUP** Units: **mg/L** Analysis Date: **11/25/07 17:57**
Client ID: Run ID: **MERCURY_071125C** SeqNo: **1269060** Prep Date: **11/24/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0.000033	0	20	

The following samples were analyzed in this batch: 0711312-01B

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID **SBLKW1-071116** Units: **µg/L** Analysis Date: **11/19/07 14:34**

Client ID: Run ID: **SV-3_071119B** SeqNo: **1266313** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*92.41*	5.0	*100*	0	*92.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*69.89*	5.0	*100*	0	*69.9*	*48-120*	0			
Surr: 2-Fluorophenol	*68.99*	5.0	*100*	0	*69*	*20-120*	0			
Surr: 4-Terphenyl-d14	*74.64*	5.0	*100*	0	*74.6*	*51-135*	0			
Surr: Nitrobenzene-d5	*71.66*	5.0	*100*	0	*71.7*	*41-120*	0			
Surr: Phenol-d6	*75.26*	5.0	*100*	0	*75.3*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID **SLCSW1-071116** Units: **µg/L** Analysis Date: **11/19/07 15:01**
Client ID: Run ID: **SV-3_071119B** SeqNo: **1266314** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	39.4	5.0	50	0	78.8	54-118	0			
2,4,5-Trichlorophenol	89.6	5.0	100	0	89.6	52-115	0			
2,4,6-Trichlorophenol	81.96	5.0	100	0	82	56-115	0			
2-Methylnaphthalene	42.93	5.0	50	0	85.9	46-117	0			
2-Methylphenol	83.45	5.0	100	0	83.4	53-115	0			
2-Nitroaniline	54.19	5.0	50	0	108	53-123	0			
2-Nitrophenol	78.88	5.0	100	0	78.9	53-115	0			
3&4-Methylphenol	125.9	5.0	150	0	83.9	48-115	0			
3-Nitroaniline	43.56	5.0	50	0	87.1	26-115	0			
4-Nitroaniline	52.68	5.0	50	0	105	47-115	0			
4-Nitrophenol	116	5.0	100	0	116	26-133	0			
Acenaphthene	45.42	5.0	50	0	90.8	57-115	0			
Acenaphthylene	45.59	5.0	50	0	91.2	57-118	0			
Aniline	30.91	5.0	50	0	61.8	36-115	0			
Anthracene	45.48	5.0	50	0	91	65-115	0			
Benz(a)anthracene	47.55	5.0	50	0	95.1	53-115	0			
Benzidine	30.52	5.0	50	0	61	10-115	0			
Hexachloroethane	37.97	5.0	50	0	75.9	54-115	0			
Indeno(1,2,3-cd)pyrene	45.31	5.0	50	0	90.6	51-115	0			
Isophorone	40.34	5.0	50	0	80.7	55-115	0			
N-Nitrosodi-n-propylamine	40.38	5.0	50	0	80.8	55-115	0			
N-Nitrosodimethylamine	43.16	5.0	50	0	86.3	42-115	0			
N-Nitrosodiphenylamine	39.58	5.0	50	0	79.2	52-115	0			
Naphthalene	41.89	5.0	50	0	83.8	55-115	0			
Nitrobenzene	40.24	5.0	50	0	80.5	40-124	0			
Pentachlorophenol	105.5	5.0	100	0	106	45-125	0			
Phenanthrene	44.7	5.0	50	0	89.4	57-115	0			
Phenol	84.22	5.0	100	0	84.2	38-115	0			
Pyrene	47.35	5.0	50	0	94.7	51-115	0			
Surr: 2,4,6-Tribromophenol	*96.31*	5.0	*100*	0	*96.3*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*69.86*	5.0	*100*	0	*69.9*	*48-120*	0			
Surr: 2-Fluorophenol	*73.12*	5.0	*100*	0	*73.1*	*20-120*	0			
Surr: 4-Terphenyl-d14	*75.81*	5.0	*100*	0	*75.8*	*51-135*	0			
Surr: Nitrobenzene-d5	*68.53*	5.0	*100*	0	*68.5*	*41-120*	0			
Surr: Phenol-d6	*77.13*	5.0	*100*	0	*77.1*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **26776** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID **SLCSDW1-071116** Units: **µg/L** Analysis Date: **11/19/07 15:28**
Client ID: Run ID: **SV-3_071119B** SeqNo: **1266315** Prep Date: **11/16/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.11	5.0	50	0	82.2	54-118	39.4	4.25	20	
2,4,5-Trichlorophenol	86.98	5.0	100	0	87	52-115	89.6	2.97	20	
2,4,6-Trichlorophenol	82.98	5.0	100	0	83	56-115	81.96	1.24	20	
2-Methylnaphthalene	45.1	5.0	50	0	90.2	46-117	42.93	4.93	20	
2-Methylphenol	83.41	5.0	100	0	83.4	53-115	83.45	0.0409	20	
2-Nitroaniline	51.42	5.0	50	0	103	53-123	54.19	5.26	20	
2-Nitrophenol	78.43	5.0	100	0	78.4	53-115	78.88	0.58	20	
3&4-Methylphenol	125.5	5.0	150	0	83.7	48-115	125.9	0.277	20	
3-Nitroaniline	44.89	5.0	50	0	89.8	26-115	43.56	3	20	
4-Nitroaniline	52.11	5.0	50	0	104	47-115	52.68	1.1	20	
4-Nitrophenol	115.8	5.0	100	0	116	26-133	116	0.18	20	
Acenaphthene	45.35	5.0	50	0	90.7	57-115	45.42	0.16	20	
Acenaphthylene	44.43	5.0	50	0	88.9	57-118	45.59	2.57	20	
Aniline	33.59	5.0	50	0	67.2	36-115	30.91	8.32	20	
Anthracene	45.52	5.0	50	0	91	65-115	45.48	0.0854	20	
Benz(a)anthracene	47.71	5.0	50	0	95.4	53-115	47.55	0.352	20	
Benzidine	38.73	5.0	50	0	77.5	10-115	30.52	23.7	20	R
Hexachloroethane	38.39	5.0	50	0	76.8	54-115	37.97	1.1	20	
Indeno(1,2,3-cd)pyrene	47.31	5.0	50	0	94.6	51-115	45.31	4.32	20	
Isophorone	43.3	5.0	50	0	86.6	55-115	40.34	7.06	20	
N-Nitrosodi-n-propylamine	40.39	5.0	50	0	80.8	55-115	40.38	0.0315	20	
N-Nitrosodimethylamine	45.31	5.0	50	0	90.6	42-115	43.16	4.87	20	
N-Nitrosodiphenylamine	40.7	5.0	50	0	81.4	52-115	39.58	2.79	20	
Naphthalene	43.92	5.0	50	0	87.8	55-115	41.89	4.71	20	
Nitrobenzene	40.55	5.0	50	0	81.1	40-124	40.24	0.773	20	
Pentachlorophenol	105.6	5.0	100	0	106	45-125	105.5	0.116	20	
Phenanthrene	45.06	5.0	50	0	90.1	57-115	44.7	0.812	20	
Phenol	86.8	5.0	100	0	86.8	38-115	84.22	3.02	20	
Pyrene	46.74	5.0	50	0	93.5	51-115	47.35	1.29	20	
Surr: 2,4,6-Tribromophenol	*94.74*	5.0	*100*	0	*94.7*	*42-124*	96.31	*1.64*	*20*	
Surr: 2-Fluorobiphenyl	*74.74*	5.0	*100*	0	*74.7*	*48-120*	69.86	*6.75*	*20*	
Surr: 2-Fluorophenol	*72.8*	5.0	*100*	0	*72.8*	*20-120*	73.12	*0.433*	*20*	
Surr: 4-Terphenyl-d14	*80.54*	5.0	*100*	0	*80.5*	*51-135*	75.81	*6.05*	*20*	
Surr: Nitrobenzene-d5	*76.56*	5.0	*100*	0	*76.6*	*41-120*	68.53	*11.1*	*20*	
Surr: Phenol-d6	*83.03*	5.0	*100*	0	*83*	*20-120*	77.13	*7.37*	*20*	

The following samples were analyzed in this batch: 0711312-01E

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID **VBLKW-112107** Units: **µg/L** Analysis Date: **11/21/07 12:49**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269780** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*42.59*	5.0	*50*	0	*85.2*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*50.37*	5.0	*50*	0	*101*	*72-125*	0			
Surr: Dibromofluoromethane	*48.48*	5.0	*50*	0	*97*	*71-125*	0			
Surr: Toluene-d8	*52.5*	5.0	*50*	0	*105*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID **VLCSW-112107** Units: **µg/L** Analysis Date: **11/21/07 14:55**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269782** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	55.83	5.0	50	0	112	80-120	0			
1,1,2,2-Tetrachloroethane	47.95	5.0	50	0	95.9	72-120	0			
1,1,2-Trichloroethane	45.77	5.0	50	0	91.5	80-120	0			
1,1-Dichloroethane	51.82	5.0	50	0	104	76-120	0			
1,1-Dichloroethene	53.78	5.0	50	0	108	73-124	0			
1,2-Dichloroethane	47.67	5.0	50	0	95.3	78-120	0			
2-Butanone	96.44	10	100	0	96.4	58-132	0			
2-Chloroethyl vinyl ether	77.45	10	100	0	77.4	74-120	0			
2-Hexanone	92.5	10	100	0	92.5	61-130	0			
4-Methyl-2-pentanone	105.7	10	100	0	106	65-127	0			
Acetone	100.1	10	100	0	100	59-137	0			
Benzene	47.01	5.0	50	0	94	73-121	0			
Bromodichloromethane	49.86	5.0	50	0	99.7	80-120	0			
Bromoform	45.58	5.0	50	0	91.2	79-120	0			
Bromomethane	52.49	5.0	50	0	105	66-137	0			
Carbon disulfide	102.6	10	100	0	103	68-141	0			
Carbon tetrachloride	49.23	5.0	50	0	98.5	75-124	0			
Chlorobenzene	49.24	5.0	50	0	98.5	80-120	0			
Chloroethane	50.21	5.0	50	0	100	76-121	0			
Chloroform	52.01	5.0	50	0	104	80-120	0			
Chloromethane	47.41	5.0	50	0	94.8	67-123	0			
cis-1,3-Dichloropropene	47.12	5.0	50	0	94.2	80-120	0			
Dibromochloromethane	52.13	5.0	50	0	104	80-120	0			
Ethylbenzene	51.73	5.0	50	0	103	80-120	0			
m,p-Xylene	98.1	10	100	0	98.1	78-121	0			
Methylene chloride	51.91	10	50	0	104	65-133	0			
Styrene	47.17	5.0	50	0	94.3	80-120	0			
Tetrachloroethene	47.43	5.0	50	0	94.9	79-120	0			
Toluene	52.88	5.0	50	0	106	80-120	0			
trans-1,3-Dichloropropene	49.9	5.0	50	0	99.8	80-120	0			
Trichloroethene	48.46	5.0	50	0	96.9	80-120	0			
Vinyl acetate	103.4	10	100	0	103	67-139	0			
Vinyl chloride	45.7	2.0	50	0	91.4	70-127	0			
Xylenes, Total	151.2	15	150	0	101	80-120	0			
Surr: 1,2-Dichloroethane-d4	*47.3*	5.0	*50*	0	*94.6*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*53.8*	5.0	*50*	0	*108*	*72-125*	0			
Surr: Dibromofluoromethane	*54.15*	5.0	*50*	0	*108*	*71-125*	0			
Surr: Toluene-d8	*57.23*	5.0	*50*	0	*114*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID **0711374-01AMS** Units: **µg/L** Analysis Date: **11/21/07 15:45**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269783** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.34	5.0	50	0	90.7	80-120	0			
1,1,2,2-Tetrachloroethane	50.58	5.0	50	0	101	72-120	0			
1,1,2-Trichloroethane	48.75	5.0	50	0	97.5	80-120	0			
1,1-Dichloroethane	48.63	5.0	50	0	97.3	76-120	0			
1,1-Dichloroethene	42.15	5.0	50	0	84.3	73-124	0			
1,2-Dichloroethane	47.99	5.0	50	0	96	78-120	0			
2-Butanone	91.89	10	100	0	91.9	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	95.1	10	100	0	95.1	61-130	0			
4-Methyl-2-pentanone	88.3	10	100	0	88.3	65-127	0			
Acetone	80.5	10	100	0	80.5	59-137	0			
Benzene	45.31	5.0	50	0	90.6	73-121	0			
Bromodichloromethane	48.38	5.0	50	0	96.8	80-120	0			
Bromoform	45.61	5.0	50	0	91.2	79-120	0			
Bromomethane	46.08	5.0	50	0	92.2	66-137	0			
Carbon disulfide	86.95	10	100	0	86.9	68-141	0			
Carbon tetrachloride	44.61	5.0	50	0	89.2	75-124	0			
Chlorobenzene	48.03	5.0	50	0	96.1	80-120	0			
Chloroethane	41.13	5.0	50	0	82.3	76-121	0			
Chloroform	46.71	5.0	50	0	93.4	80-120	0			
Chloromethane	43.96	5.0	50	0	87.9	67-123	0			
cis-1,3-Dichloropropene	49.34	5.0	50	0	98.7	80-120	0			
Dibromochloromethane	49.82	5.0	50	0	99.6	80-120	0			
Ethylbenzene	45.49	5.0	50	0	91	80-120	0			
m,p-Xylene	93.74	10	100	0	93.7	78-121	0			
Methylene chloride	47.25	10	50	0	94.5	65-133	0			
Styrene	45.63	5.0	50	0	91.3	80-120	0			
Tetrachloroethene	42.09	5.0	50	0	84.2	79-120	0			
Toluene	46.81	5.0	50	0	93.6	80-120	0			
trans-1,3-Dichloropropene	48.76	5.0	50	0	97.5	80-120	0			
Trichloroethene	42.4	5.0	50	0	84.8	80-120	0			
Vinyl acetate	95.18	10	100	0	95.2	67-139	0			
Vinyl chloride	38.53	2.0	50	0	77.1	70-127	0			
Xylenes, Total	141.8	15	150	0	94.5	80-120	0			
Surr: 1,2-Dichloroethane-d4	*45.18*	5.0	*50*	0	*90.4*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.35*	5.0	*50*	0	*109*	*72-125*	0			
Surr: Dibromofluoromethane	*49.56*	5.0	*50*	0	*99.1*	*71-125*	0			
Surr: Toluene-d8	*48.8*	5.0	*50*	0	*97.6*	*75-125*	0			

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
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P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57123** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID **0711374-01AMSD** Units: **µg/L** Analysis Date: **11/21/07 16:10**

Client ID: Run ID: **VOA1_071121A** SeqNo: **1269784** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	36.97	5.0	50	0	73.9	80-120	45.34	20.3	20	SR
1,1,2,2-Tetrachloroethane	46.06	5.0	50	0	92.1	72-120	50.58	9.35	20	
1,1,2-Trichloroethane	48.66	5.0	50	0	97.3	80-120	48.75	0.18	20	
1,1-Dichloroethane	43.48	5.0	50	0	87	76-120	48.63	11.2	20	
1,1-Dichloroethene	37.02	5.0	50	0	74	73-124	42.15	13	20	
1,2-Dichloroethane	39.89	5.0	50	0	79.8	78-120	47.99	18.4	20	
2-Butanone	91.95	10	100	0	91.9	58-132	91.89	0.0642	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	90.33	10	100	0	90.3	61-130	95.1	5.15	20	
4-Methyl-2-pentanone	102.6	10	100	0	103	65-127	88.3	14.9	20	
Acetone	84.77	10	100	0	84.8	59-137	80.5	5.17	20	
Benzene	45.96	5.0	50	0	91.9	73-121	45.31	1.43	20	
Bromodichloromethane	45.05	5.0	50	0	90.1	80-120	48.38	7.11	20	
Bromoform	47.11	5.0	50	0	94.2	79-120	45.61	3.24	20	
Bromomethane	42.14	5.0	50	0	84.3	66-137	46.08	8.93	20	
Carbon disulfide	82.75	10	100	0	82.8	68-141	86.95	4.94	20	
Carbon tetrachloride	40.68	5.0	50	0	81.4	75-124	44.61	9.22	20	
Chlorobenzene	48.73	5.0	50	0	97.5	80-120	48.03	1.44	20	
Chloroethane	35.91	5.0	50	0	71.8	76-121	41.13	13.6	20	S
Chloroform	42.13	5.0	50	0	84.3	80-120	46.71	10.3	20	
Chloromethane	37.08	5.0	50	0	74.2	67-123	43.96	17	20	
cis-1,3-Dichloropropene	43.91	5.0	50	0	87.8	80-120	49.34	11.7	20	
Dibromochloromethane	49.4	5.0	50	0	98.8	80-120	49.82	0.863	20	
Ethylbenzene	44.2	5.0	50	0	88.4	80-120	45.49	2.88	20	
m,p-Xylene	89.45	10	100	0	89.4	78-121	93.74	4.68	20	
Methylene chloride	42.99	10	50	0	86	65-133	47.25	9.45	20	
Styrene	42.78	5.0	50	0	85.6	80-120	45.63	6.45	20	
Tetrachloroethene	40.99	5.0	50	0	82	79-120	42.09	2.64	20	
Toluene	48.43	5.0	50	0	96.9	80-120	46.81	3.41	20	
trans-1,3-Dichloropropene	47.67	5.0	50	0	95.3	80-120	48.76	2.24	20	
Trichloroethene	44.91	5.0	50	0	89.8	80-120	42.4	5.76	20	
Vinyl acetate	83.17	10	100	0	83.2	67-139	95.18	13.5	20	
Vinyl chloride	32.62	2.0	50	0	65.2	70-127	38.53	16.6	20	S
Xylenes, Total	137.4	15	150	0	91.6	80-120	141.8	3.11	20	
Surr: 1,2-Dichloroethane-d4	*45.7*	5.0	*50*	0	*91.4*	*70-125*	45.18	*1.15*	*20*	
Surr: 4-Bromofluorobenzene	*53.77*	5.0	*50*	0	*108*	*72-125*	54.35	*1.06*	*20*	
Surr: Dibromofluoromethane	*47.75*	5.0	*50*	0	*95.5*	*71-125*	49.56	*3.72*	*20*	
Surr: Toluene-d8	*52.29*	5.0	*50*	0	*105*	*75-125*	48.8	*6.9*	*20*	

The following samples were analyzed in this batch: 0711312-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56779** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID **WLCSW1-111407** Units: **pH units** Analysis Date: **11/14/07 0:00**
Client ID: Run ID: **WETCHEM_071114H** SeqNo: **1261403** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.09	0.10	6	0	102	90-110	0			

DUP Sample ID **0711312-01DDUP** Units: **pH units** Analysis Date: **11/14/07 0:00**
Client ID: **Inj. Well** Run ID: **WETCHEM_071114H** SeqNo: **1261406** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.35	0.10	0	0	0	0-0	7.35	0	20	H

The following samples were analyzed in this batch: 0711312-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56807** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID **WLCSW1-111507** Units: **°F** Analysis Date: **11/15/07 0:00**
Client ID: Run ID: **WETCHEM_071115B** SeqNo: **1262473** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID **0711154-02ADUP** Units: **°F** Analysis Date: **11/15/07 0:00**
Client ID: Run ID: **WETCHEM_071115B** SeqNo: **1262478** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	145	50	0	0	0	0-0	145	0	25	

The following samples were analyzed in this batch: 0711312-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56853** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID **WBLKW1-111607** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: Run ID: **WETCHEM_071116C** SeqNo: **1263505** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID **WLCSW1-111607** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: Run ID: **WETCHEM_071116C** SeqNo: **1263506** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1426	1.0	1413	0	101	80-120	0			

DUP Sample ID **0711312-01CDUP** Units: **µmhos/cm** Analysis Date: **11/16/07 0:00**
Client ID: **Inj. Well** Run ID: **WETCHEM_071116C** SeqNo: **1263508** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	6050	1.0	0	0	0	0-0	5980	1.16	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56862** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID **BLANK** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263615** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID **LCS** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263616** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	968	10	1000	0	96.8	85-115	0			

DUP Sample ID **0711341-01EDUP** Units: **mg/L** Analysis Date: **11/15/07 15:00**
Client ID: Run ID: **BALANCE1_071115C** SeqNo: **1263614** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	12470	10	0	0	0	0-0	12930	3.61	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R56944** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID **WBLKW1-111907** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265713** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID **WLCSW1-111907** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265714** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1019	5.0	1000	0	102	80-120	0			
Alkalinity, Total (As CaCO3)	1019	5.0	1000	0	102	80-120	0			

DUP Sample ID **0711358-01ADUP** Units: **mg/L** Analysis Date: **11/19/07 16:00**
Client ID: Run ID: **WETCHEM_071119G** SeqNo: **1265732** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	740	5.0	0	0	0	0-0	740	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	740	5.0	0	0	0	0-0	740	0	20	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0711312
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R57038** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID **WBLKW1-112007** Units: **mg/L** Analysis Date: **11/20/07 13:01**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267862** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*5.461*	0.10	*5*	0	*109*	*85-115*	0			

LCS Sample ID **WLCSW1-112007** Units: **mg/L** Analysis Date: **11/20/07 13:24**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267863** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.27	0.50	20	0	96.3	90-110	0			
Sulfate	20.72	0.50	20	0	104	90-110	0			
Surr: Selenate (surr)	*5.413*	0.10	*5*	0	*108*	*85-115*	0			

MS Sample ID **0711459-01AMS** Units: **mg/L** Analysis Date: **11/20/07 14:34**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267866** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	52.76	0.50	10	43.85	89.1	80-120	0			EO
Sulfate	323.3	0.50	10	320.5	28.5	80-120	0			SEO
Surr: Selenate (surr)	*5.487*	0.10	*5*	0	*110*	*85-115*	0			

MSD Sample ID **0711459-01AMSD** Units: **mg/L** Analysis Date: **11/20/07 14:57**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267867** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	52.71	0.50	10	43.85	88.6	80-120	52.76	0.0834	20	EO
Sulfate	322.1	0.50	10	320.5	16.5	80-120	323.3	0.374	20	SEO
Surr: Selenate (surr)	*5.468*	0.10	*5*	0	*109*	*85-115*	5.487	*0.347*	*20*	

DUP Sample ID **0711459-01ADUP** Units: **mg/L** Analysis Date: **11/20/07 14:11**
Client ID: Run ID: **ICS3000_071120A** SeqNo: **1267865** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	43.6	0.50	0	0	0	0-0	43.85	0.556	20	
Sulfate	318.5	0.50	0	0	0	0-0	320.5	0.629	20	E
Surr: Selenate (surr)	*5.317*	0.10	*5*	0	*106*	*85-115*	5.347	*0.563*	*20*	

The following samples were analyzed in this batch: 0711312-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

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e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 7111312

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Quarterly	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Well	11/13/07	0915	L	4	9	X	X	X	X	X	X	X	X	X		
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: [signature]

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Other ☑ Std 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

	Date:	Time:		
Relinquished by: [signature]	11/13/07	1615	Received by:	
Relinquished by:	Date:	Time:	Received by (Laboratory): [signature]	11/14/07 09:20
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

Notes: 10 Day TAT.

e-Lab Analytical Cooler ID | Cooler Temp.

QC Package: (Check One Box Below)
- ☑ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other _____
- ☐ TRRP CheckList
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 11/14/2007 9:20:00 AM

Work Order Number 0711312 Received by: RNG

Checklist completed by [signature] 11/14/07 Reviewed by [initials] 11/14/07
Signature Date Initials Date

Matrix: W Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.9c	002	
Cooler(s)/Kit(s):	1993		
Water - VOA vials have zero headspace?	Yes ☐	No ☑	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes: Voa vials have excessive headspace. Trip blanks logged in work order 0711305 (received in same kit).

Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab Analytical, Inc

Date: *November 16, 2007*

CLIENT: e-Lab Analytical, Inc
Project: 0711312
Work Order: **0711346**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0711346-01	0711312-01F	Water		11/13/2007 09:15	11/16/2007 09:30	☐

e-Lab Analytical, Inc

Date: *November 16, 2007*

CLIENT: e-Lab Analytical, Inc
Work Order: 0711346
Project: 0711312
Lab ID: 0711346-01

Client Sample ID: 0711312-01F
Collection Date: 11/13/2007 9:15:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **DB**
Cyanide, Reactive	ND	40.0		mg/Kg	1	11/16/2007
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **DB**
Sulfide, Reactive	ND	40.0		mg/Kg	1	11/16/2007

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

NAVAJO REFINING COMPANY, LLC

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 ENV/PURCH/MKTG
(505) 746-5421 ENGINEERING

October 30, 2007

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 Third Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the third quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the 200 gallon tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2007 to September 30, 2007. We have disposed a total of 45,570,021 barrels of fluid into the two wells as of September 30, 2007. This is broken down as follows: 34,648,931 barrels into WDW-1 and 10,921,089 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Environmental Scientist

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

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2007 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	33,831,096
Jul-07	517	718	307	263	281	248	157	188	122	9,022	9,636	8,495	279,688	34,110,784
Aug-07	303	348	242	252	280	222	91	137	46	8,647	9,588	7,620	268,056	34,378,840
Sep-07	329	493	62	254	285	83	166	215	19	8,713	9,787	2,832	270,092	34,648,931
WDW-2													**Previous Quarter**	10,506,967
Jul-07	532	723	313	149	170	128	500	500	500	5,093	5,824	4,375	157,870	10,664,837
Aug-07	311	373	247	117	146	80	481	500	398	4,001	5,011	2,732	124,025	10,788,861
Sep-07	321	384	72	124	156	19	479	500	204	4,265	5,359	653	132,228	10,921,089
													Total Injected fluids:	45,570,021

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Received by OCD: 5/16/2022 2:12:41 PM

2007 THIRD QUARTER WEEKLY WHAMS LEVEL TABLE

	7/2/07	7/10/07	7/17/07	7/23/07	7/30/07	8/7/07	8/13/07	8/20/07	8/27/07	9/4/07	9/10/07	9/17/07	9/24/07
WDW -1	200	200	200	200	200	200	200	200	200	200	200	200	200
WDW-2	160	160	160	160	160	160	160	160	160	160	160	160	160

Page 5325 of 5828

October 09, 2007

Jeff Byrd
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Well Quarterly

Work Order : **0709522**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 2 samples on 9/27/2007 09:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 34.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Rebecca L. Hunt

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: **0709522**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0709522-01	Effluent	Water		9/26/2007 13:15	9/27/2007 09:00	☐
0709522-02	Trip Blank	Water		9/26/2007 13:15	9/27/2007 09:00	☐

e-Lab Analytical, Inc. **Date:** *October 09, 2007*

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0709522

Case Narrative

pH samples were received outside of the recommended holding time, but the samples were analyzed immediately upon receipt of the laboratory.

Batch 25842 Metals Duplicate RPD was an unrelated sample.

Batch's R55052 and R55288 Volatiles MS/MSD were unrelated samples.

Batch R54877 Anions MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **10/5/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	10/5/2007 3:58:46 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **10/1/2007**	Analyst: **SA**
Aluminum	**2.46**		**0.100**	**mg/L**	10	10/2/2007 1:28:00 PM
Arsenic	**0.135**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Barium	**0.0535**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Beryllium	ND		0.00400	mg/L	2	10/2/2007 1:34:00 PM
Boron	**0.202**		**0.0400**	**mg/L**	2	10/2/2007 1:34:00 PM
Cadmium	ND		0.00200	mg/L	1	10/2/2007 4:06:00 AM
Calcium	**101**		**5.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Chromium	**0.00503**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Cobalt	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Copper	**0.0130**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Iron	**2.87**		**0.200**	**mg/L**	1	10/2/2007 4:06:00 AM
Lead	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Magnesium	**36.7**		**0.200**	**mg/L**	1	10/2/2007 4:06:00 AM
Manganese	**0.0869**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Molybdenum	**0.104**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Nickel	**0.0141**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Potassium	**48.2**		**2.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Selenium	**0.388**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Silver	ND		0.00500	mg/L	1	10/2/2007 4:06:00 AM
Sodium	**1,220**		**2.00**	**mg/L**	10	10/2/2007 1:28:00 PM
Vanadium	**0.00709**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
Zinc	**0.192**		**0.00500**	**mg/L**	1	10/2/2007 4:06:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **10/2/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2,4,5-Trichlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2,4,6-Trichlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Methylnaphthalene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Methylphenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
2-Nitrophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
3&4-Methylphenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
3-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
4-Nitroaniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
4-Nitrophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Acenaphthene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Acenaphthylene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Anthracene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Benz(a)anthracene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Benzidine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Hexachloroethane	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Indeno(1,2,3-cd)pyrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Isophorone	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodi-n-propylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodimethylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
N-Nitrosodiphenylamine	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Naphthalene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Nitrobenzene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Pentachlorophenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Phenanthrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Phenol	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Pyrene	ND		5.0	µg/L	1	10/3/2007 2:31:00 PM
Surr: 2,4,6-Tribromophenol	*69.7*		*42-124*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 2-Fluorobiphenyl	*64.0*		*48-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 2-Fluorophenol	*61.1*		*20-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: 4-Terphenyl-d14	*71.6*		*51-135*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: Nitrobenzene-d5	*67.1*		*41-120*	*%REC*	1	10/3/2007 2:31:00 PM
Surr: Phenol-d6	*71.0*		*20-120*	*%REC*	1	10/3/2007 2:31:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
2-Butanone	**23**		**10**	**µg/L**	1	10/8/2007 3:07:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	10/8/2007 3:07:00 PM
2-Hexanone	ND		10	µg/L	1	10/8/2007 3:07:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Acetone	**110**		**10**	**µg/L**	1	10/8/2007 3:07:00 PM
Benzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromoform	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Bromomethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Carbon disulfide	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloroethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloroform	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Chloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Ethylbenzene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
m,p-Xylene	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Methylene chloride	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Styrene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Toluene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Trichloroethene	ND		5.0	µg/L	1	10/8/2007 3:07:00 PM
Vinyl acetate	ND		10	µg/L	1	10/8/2007 3:07:00 PM
Vinyl chloride	ND		2.0	µg/L	1	10/8/2007 3:07:00 PM
Xylenes, Total	ND		15	µg/L	1	10/8/2007 3:07:00 PM
Surr: 1,2-Dichloroethane-d4	*92.6*		*70-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: 4-Bromofluorobenzene	*96.6*		*72-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: Dibromofluoromethane	*95.9*		*71-125*	*%REC*	1	10/8/2007 3:07:00 PM
Surr: Toluene-d8	*104*		*75-125*	*%REC*	1	10/8/2007 3:07:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	10/4/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	10/4/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **RPM**
Chloride	**1,010**		**50.0**	**mg/L**	100	9/27/2007 8:01:00 PM
Sulfate	**1,660**		**50.0**	**mg/L**	100	9/27/2007 8:01:00 PM
Surr: Selenate (surr)	*106*		*85-115*	*%REC*	100	9/27/2007 8:01:00 PM
ALKALINITY			**E310.1**			Analyst: **DM**
Alkalinity, Bicarbonate (As CaCO3)	**243**		**5.00**	**mg/L**	1	10/1/2007 10:00:00 AM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	10/1/2007 10:00:00 AM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	10/1/2007 10:00:00 AM
Alkalinity, Total (As CaCO3)	**243**		**5.00**	**mg/L**	1	10/1/2007 10:00:00 AM
CONDUCTIVITY			**E120.1**			Analyst: **DM**
Specific Conductance	**6,620**		**1.00**	**µmhos/cm**	1	10/4/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>160**		**50.0**	**°F**	1	10/3/2007

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-01

Client Sample ID: Effluent
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	7.26	H	0.100	pH units	1	9/27/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	4,240		10.0	mg/L	1	9/28/2007 5:00:00 PM

Qualifiers:

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- P - Dual Column results percent difference > 40%
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- H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *October 09, 2007*

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly
Lab ID: 0709522-02

Client Sample ID: Trip Blank
Collection Date: 9/26/2007 1:15:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
2-Butanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	10/2/2007 9:11:00 PM
2-Hexanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Acetone	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Benzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromoform	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Bromomethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Carbon disulfide	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chlorobenzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloroethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloroform	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Chloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Ethylbenzene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
m,p-Xylene	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Methylene chloride	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Styrene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Toluene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Trichloroethene	ND		5.0	µg/L	1	10/2/2007 9:11:00 PM
Vinyl acetate	ND		10	µg/L	1	10/2/2007 9:11:00 PM
Vinyl chloride	ND		2.0	µg/L	1	10/2/2007 9:11:00 PM
Xylenes, Total	ND		15	µg/L	1	10/2/2007 9:11:00 PM
Surr: 1,2-Dichloroethane-d4	*93.2*		*70-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: 4-Bromofluorobenzene	*103*		*72-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: Dibromofluoromethane	*101*		*71-125*	*%REC*	1	10/2/2007 9:11:00 PM
Surr: Toluene-d8	*99.2*		*75-125*	*%REC*	1	10/2/2007 9:11:00 PM

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
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e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

Date: *Oct 09 2007*

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MBLK Sample ID: **MBLKW1-100107** Units: **mg/L** Analysis Date: **10/02/07 13:16**

Client ID: Run ID: **ICP7500_071002A** SeqNo: **1223370** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	0.02979	0.20								J
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

LCS Sample ID: **MLCSW1-100107** Units: **mg/L** Analysis Date: **10/02/07 2:02**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222688** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04977	0.0050	0.05	0	99.5	80-120	0			
Barium	0.05117	0.0050	0.05	0	102	80-120	0			
Beryllium	0.04988	0.0020	0.05	0	99.8	80-120	0			
Boron	0.5115	0.020	0.5	0	102	80-120	0			
Cadmium	0.05125	0.0020	0.05	0	102	80-120	0			
Calcium	5.686	0.50	5	0	114	80-120	0			
Chromium	0.05016	0.0050	0.05	0	100	80-120	0			
Cobalt	0.05384	0.0050	0.05	0	108	80-120	0			
Copper	0.04738	0.0050	0.05	0	94.8	80-120	0			
Iron	5.179	0.20	5	0	104	80-120	0			
Lead	0.05113	0.0050	0.05	0	102	80-120	0			
Magnesium	5.396	0.20	5	0	108	80-120	0			
Manganese	0.05067	0.0050	0.05	0	101	80-120	0			
Molybdenum	0.04869	0.0050	0.05	0	97.4	80-120	0			
Nickel	0.0503	0.0050	0.05	0	101	80-120	0			
Potassium	5.29	0.20	5	0	106	80-120	0			
Selenium	0.05047	0.0050	0.05	0	101	80-120	0			
Silver	0.05062	0.0050	0.05	0	101	80-120	0			
Sodium	5.267	0.20	5	0	105	80-120	0			
Vanadium	0.05116	0.0050	0.05	0	102	80-120	0			
Zinc	0.0518	0.0050	0.05	0	104	80-120	0			

LCS Sample ID: **MLCSW1-100107** Units: **mg/L** Analysis Date: **10/02/07 13:22**

Client ID: Run ID: **ICP7500_071002A** SeqNo: **1223371** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05671	0.010	0.05	0	113	80-120	0			

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MS Sample ID: **0709546-01CMS** Units: **mg/L** Analysis Date: **10/02/07 4:30**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222710** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05928	0.010	0.05	0.01003	98.5	80-120	0			
Arsenic	0.05069	0.0050	0.05	0.0002553	101	80-120	0			
Barium	0.05145	0.0050	0.05	0.00009868	103	80-120	0			
Beryllium	0.05116	0.0020	0.05	-0.00001769	102	80-120	0			
Boron	0.5303	0.020	0.5	0.0007129	106	80-120	0			
Cadmium	0.05218	0.0020	0.05	-0.00004231	104	80-120	0			
Calcium	5.928	0.50	5	0.1835	115	80-120	0			
Chromium	0.05106	0.0050	0.05	0.0002195	102	80-120	0			
Cobalt	0.05426	0.0050	0.05	-0.00003043	109	80-120	0			
Copper	0.04954	0.0050	0.05	-0.00257	104	80-120	0			
Iron	5.357	0.20	5	0.06073	106	80-120	0			
Lead	0.0523	0.0050	0.05	0.00004196	105	80-120	0			
Magnesium	5.389	0.20	5	0.03021	107	80-120	0			
Manganese	0.05263	0.0050	0.05	0.0005422	104	80-120	0			
Molybdenum	0.05117	0.0050	0.05	0.001057	100	80-120	0			
Nickel	0.0525	0.0050	0.05	-0.0005035	106	80-120	0			
Potassium	5.447	0.20	5	0.03845	108	80-120	0			
Selenium	0.05162	0.0050	0.05	0.0007415	102	80-120	0			
Silver	0.0526	0.0050	0.05	-0.0003616	106	80-120	0			
Sodium	5.548	0.20	5	0.7029	96.9	80-120	0			
Vanadium	0.05219	0.0050	0.05	0.00007382	104	80-120	0			
Zinc	0.05427	0.0050	0.05	0.001848	105	80-120	0			

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J - Analyte detected below quantitation limits
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not deteeted
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

MSD Sample ID: **0709546-01CMSD** Units: **mg/L** Analysis Date: **10/02/07 4:42**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222712** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.061	0.010	0.05	0.01003	102	80-120	0.05928	2.86	15	
Arsenic	0.04963	0.0050	0.05	0.0002553	98.7	80-120	0.05069	2.11	15	
Barium	0.05188	0.0050	0.05	0.00009868	104	80-120	0.05145	0.832	15	
Beryllium	0.05124	0.0020	0.05	-0.00001769	103	80-120	0.05116	0.156	15	
Boron	0.5277	0.020	0.5	0.0007129	105	80-120	0.5303	0.491	15	
Cadmium	0.0522	0.0020	0.05	-0.00004231	104	80-120	0.05218	0.0383	15	
Calcium	5.917	0.50	5	0.1835	115	80-120	5.928	0.186	15	
Chromium	0.05035	0.0050	0.05	0.0002195	100	80-120	0.05106	1.4	15	
Cobalt	0.05383	0.0050	0.05	-0.00003043	108	80-120	0.05426	0.796	15	
Copper	0.04969	0.0050	0.05	-0.00257	105	80-120	0.04954	0.302	15	
Iron	5.378	0.20	5	0.06073	106	80-120	5.357	0.391	15	
Lead	0.05116	0.0050	0.05	0.00004196	102	80-120	0.0523	2.2	15	
Magnesium	5.381	0.20	5	0.03021	107	80-120	5.389	0.149	15	
Manganese	0.05201	0.0050	0.05	0.0005422	103	80-120	0.05263	1.19	15	
Molybdenum	0.05122	0.0050	0.05	0.001057	100	80-120	0.05117	0.0977	15	
Nickel	0.05136	0.0050	0.05	-0.0005035	104	80-120	0.0525	2.2	15	
Potassium	5.405	0.20	5	0.03845	107	80-120	5.447	0.774	15	
Selenium	0.05111	0.0050	0.05	0.0007415	101	80-120	0.05162	0.993	15	
Silver	0.05207	0.0050	0.05	-0.0003616	105	80-120	0.0526	1.01	15	
Sodium	5.493	0.20	5	0.7029	95.8	80-120	5.548	0.996	15	
Vanadium	0.05168	0.0050	0.05	0.00007382	103	80-120	0.05219	0.982	15	
Zinc	0.05368	0.0050	0.05	0.001848	104	80-120	0.05427	1.09	15	

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25842** Instrument ID **ICP7500** Method: **SW6020**

DUP Sample ID: **0709546-01CDUP** Units: **mg/L** Analysis Date: **10/02/07 4:24**

Client ID: Run ID: **ICP7500_071001A** SeqNo: **1222709** Prep Date: **10/1/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.008914	0.010	0	0	0	0-0	0.01003	0	25	J
Arsenic	ND	0.0050	0	0	0	0-0	0.0002553	0	25	
Barium	ND	0.0050	0	0	0	0-0	0.00009868	0	25	
Beryllium	ND	0.0020	0	0	0	0-0	-0.00001769	0	25	
Boron	ND	0.020	0	0	0	0-0	0.0007129	0	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.00004231	0	25	
Calcium	0.1347	0.50	0	0	0	0-0	0.1835	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0002195	0	25	
Cobalt	ND	0.0050	0	0	0	0-0	-0.00003043	0	25	
Copper	ND	0.0050	0	0	0	0-0	-0.00257	0	25	
Iron	0.05713	0.20	0	0	0	0-0	0.06073	0	25	J
Lead	ND	0.0050	0	0	0	0-0	0.00004196	0	25	
Magnesium	ND	0.20	0	0	0	0-0	0.03021	0	25	
Manganese	ND	0.0050	0	0	0	0-0	0.0005422	0	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.001057	0	25	
Nickel	ND	0.0050	0	0	0	0-0	-0.0005035	0	25	
Potassium	ND	0.20	0	0	0	0-0	0.03845	0	25	
Selenium	ND	0.0050	0	0	0	0-0	0.0007415	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003616	0	25	
Sodium	0.3724	0.20	0	0	0	0-0	0.7029	61.5	25	R
Vanadium	ND	0.0050	0	0	0	0-0	0.00007382	0	25	
Zinc	ND	0.0050	0	0	0	0-0	0.001848	0	25	

The following samples were analyzed in this batch: 0709522-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25937** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:12**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226768** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:14**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226769** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00564	0.00020	0.005	0	113	85-115	0			

LCSD Sample ID: **GLCSDW1-100507** Units: **mg/L** Analysis Date: **10/05/07 15:16**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226770** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00558	0.00020	0.005	0	112	85-115	0.00564	1.07	20	

MS Sample ID: **0710043-01DMS** Units: **mg/L** Analysis Date: **10/05/07 15:25**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226773** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00547	0.00020	0.005	-0.000019	110	85-115	0			

MSD Sample ID: **0710043-01DMSD** Units: **mg/L** Analysis Date: **10/05/07 15:27**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226774** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0054	0.00020	0.005	-0.000019	108	85-115	0.00547	1.29	20	

DUP Sample ID: **0710043-01DDUP** Units: **mg/L** Analysis Date: **10/05/07 15:23**
Client ID: Run ID: **MERCURY_071005B** SeqNo: **1226772** Prep Date: **10/5/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000019	0	20	

The following samples were analyzed in this batch: 0709522-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKW2-071002** Units: **µg/L** Analysis Date: **10/03/07 13:13**

Client ID: Run ID: **SV-3_071003A** SeqNo: **1224776** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*70.36*	5.0	*100*	0	*70.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*81.07*	5.0	*100*	0	*81.1*	*48-120*	0			
Surr: 2-Fluorophenol	*72.2*	5.0	*100*	0	*72.2*	*20-120*	0			
Surr: 4-Terphenyl-d14	*84.88*	5.0	*100*	0	*84.9*	*51-135*	0			
Surr: Nitrobenzene-d5	*80.2*	5.0	*100*	0	*80.2*	*41-120*	0			
Surr: Phenol-d6	*78.44*	5.0	*100*	0	*78.4*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID: **SLCSW2-071002** Units: **µg/L** Analysis Date: **10/03/07 13:39**
Client ID: Run ID: **SV-3_071003A** SeqNo: **1224777** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	40.57	5.0	50	0	81.1	54-118	0			
2,4,5-Trichlorophenol	79.26	5.0	100	0	79.3	52-115	0			
2,4,6-Trichlorophenol	82.62	5.0	100	0	82.6	56-115	0			
2-Methylnaphthalene	41.13	5.0	50	0	82.3	46-117	0			
2-Methylphenol	83.9	5.0	100	0	83.9	53-115	0			
2-Nitroaniline	51.02	5.0	50	0	102	53-123	0			
2-Nitrophenol	80.37	5.0	100	0	80.4	53-115	0			
3&4-Methylphenol	121.7	5.0	150	0	81.1	48-115	0			
3-Nitroaniline	34.34	5.0	50	0	68.7	26-115	0			
4-Nitroaniline	40.81	5.0	50	0	81.6	47-115	0			
4-Nitrophenol	84.47	5.0	100	0	84.5	26-133	0			
Acenaphthene	42.71	5.0	50	0	85.4	57-115	0			
Acenaphthylene	42.99	5.0	50	0	86	57-118	0			
Aniline	32.19	5.0	50	0	64.4	36-115	0			
Anthracene	45.41	5.0	50	0	90.8	65-115	0			
Benz(a)anthracene	43.8	5.0	50	0	87.6	53-115	0			
Benzidine	37.43	5.0	50	0	74.9	10-115	0			
Hexachloroethane	41.72	5.0	50	0	83.4	54-115	0			
Indeno(1,2,3-cd)pyrene	43.31	5.0	50	0	86.6	51-115	0			
Isophorone	42.31	5.0	50	0	84.6	55-115	0			
N-Nitrosodi-n-propylamine	43.02	5.0	50	0	86	55-115	0			
N-Nitrosodimethylamine	44.13	5.0	50	0	88.3	42-115	0			
N-Nitrosodiphenylamine	46.03	5.0	50	0	92.1	52-115	0			
Naphthalene	41.17	5.0	50	0	82.3	55-115	0			
Nitrobenzene	41.52	5.0	50	0	83	40-124	0			
Pentachlorophenol	87.37	5.0	100	0	87.4	45-125	0			
Phenanthrene	44.76	5.0	50	0	89.5	57-115	0			
Phenol	77.8	5.0	100	0	77.8	38-115	0			
Pyrene	45.47	5.0	50	0	90.9	51-115	0			
Surr: 2,4,6-Tribromophenol	*73.07*	5.0	*100*	0	*73.1*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*78.63*	5.0	*100*	0	*78.6*	*48-120*	0			
Surr: 2-Fluorophenol	*76.86*	5.0	*100*	0	*76.9*	*20-120*	0			
Surr: 4-Terphenyl-d14	*82.95*	5.0	*100*	0	*82.9*	*51-135*	0			
Surr: Nitrobenzene-d5	*77.13*	5.0	*100*	0	*77.1*	*41-120*	0			
Surr: Phenol-d6	*82.83*	5.0	*100*	0	*82.8*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **25873** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-071002** Units: **µg/L** Analysis Date: **10/03/07 14:05**
Client ID: Run ID: **SV-3_071003A** SeqNo: **1224778** Prep Date: **10/2/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.1	5.0	50	0	86.2	54-118	40.57	6.06	20	
2,4,5-Trichlorophenol	84.74	5.0	100	0	84.7	52-115	79.26	6.68	20	
2,4,6-Trichlorophenol	82.76	5.0	100	0	82.8	56-115	82.62	0.165	20	
2-Methylnaphthalene	42.64	5.0	50	0	85.3	46-117	41.13	3.62	20	
2-Methylphenol	79.87	5.0	100	0	79.9	53-115	83.9	4.92	20	
2-Nitroaniline	55.31	5.0	50	0	111	53-123	51.02	8.07	20	
2-Nitrophenol	82.51	5.0	100	0	82.5	53-115	80.37	2.63	20	
3&4-Methylphenol	116.6	5.0	150	0	77.7	48-115	121.7	4.29	20	
3-Nitroaniline	34.18	5.0	50	0	68.4	26-115	34.34	0.475	20	
4-Nitroaniline	40	5.0	50	0	80	47-115	40.81	2.01	20	
4-Nitrophenol	85.01	5.0	100	0	85	26-133	84.47	0.637	20	
Acenaphthene	43.63	5.0	50	0	87.3	57-115	42.71	2.12	20	
Acenaphthylene	43.76	5.0	50	0	87.5	57-118	42.99	1.77	20	
Aniline	31.72	5.0	50	0	63.4	36-115	32.19	1.49	20	
Anthracene	44.26	5.0	50	0	88.5	65-115	45.41	2.57	20	
Benz(a)anthracene	43.37	5.0	50	0	86.7	53-115	43.8	0.974	20	
Benzidine	39.36	5.0	50	0	78.7	10-115	37.43	5.04	20	
Hexachloroethane	39.71	5.0	50	0	79.4	54-115	41.72	4.93	20	
Indeno(1,2,3-cd)pyrene	44.07	5.0	50	0	88.1	51-115	43.31	1.75	20	
Isophorone	43.22	5.0	50	0	86.4	55-115	42.31	2.13	20	
N-Nitrosodi-n-propylamine	41.5	5.0	50	0	83	55-115	43.02	3.59	20	
N-Nitrosodimethylamine	41.57	5.0	50	0	83.1	42-115	44.13	5.98	20	
N-Nitrosodiphenylamine	44.75	5.0	50	0	89.5	52-115	46.03	2.82	20	
Naphthalene	43.41	5.0	50	0	86.8	55-115	41.17	5.29	20	
Nitrobenzene	42.24	5.0	50	0	84.5	40-124	41.52	1.71	20	
Pentachlorophenol	84.38	5.0	100	0	84.4	45-125	87.37	3.48	20	
Phenanthrene	43.93	5.0	50	0	87.9	57-115	44.76	1.88	20	
Phenol	74.76	5.0	100	0	74.8	38-115	77.8	3.98	20	
Pyrene	44.4	5.0	50	0	88.8	51-115	45.47	2.38	20	
Surr: 2,4,6-Tribromophenol	*78.09*	5.0	*100*	0	*78.1*	*42-124*	73.07	*6.64*	*20*	
Surr: 2-Fluorobiphenyl	*80.06*	5.0	*100*	0	*80.1*	*48-120*	78.63	*1.8*	*20*	
Surr: 2-Fluorophenol	*76.52*	5.0	*100*	0	*76.5*	*20-120*	76.86	*0.439*	*20*	
Surr: 4-Terphenyl-d14	*84.19*	5.0	*100*	0	*84.2*	*51-135*	82.95	*1.48*	*20*	
Surr: Nitrobenzene-d5	*82.56*	5.0	*100*	0	*82.6*	*41-120*	77.13	*6.8*	*20*	
Surr: Phenol-d6	*81.29*	5.0	*100*	0	*81.3*	*20-120*	82.83	*1.87*	*20*	

The following samples were analyzed in this batch: 0709522-01E

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-100207** Units: **µg/L** Analysis Date: **10/02/07 11:55**
Client ID: Run ID: **VOA1_071002A** SeqNo: **1224017** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*46.56*	5.0	*50*	0	*93.1*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.31*	5.0	*50*	0	*109*	*72-125*	0			
Surr: Dibromofluoromethane	*49.81*	5.0	*50*	0	*99.6*	*71-125*	0			
Surr: Toluene-d8	*47.52*	5.0	*50*	0	*95*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-100207** Units: **µg/L** Analysis Date: **10/02/07 12:20**
Client ID: Run ID: **VOA1_071002A** SeqNo: **1224018** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.93	5.0	50	0	97.9	80-120	0			
1,1,2,2-Tetrachloroethane	47.7	5.0	50	0	95.4	72-120	0			
1,1,2-Trichloroethane	41.01	5.0	50	0	82	80-120	0			
1,1-Dichloroethane	46.59	5.0	50	0	93.2	76-120	0			
1,1-Dichloroethene	52.67	5.0	50	0	105	73-124	0			
1,2-Dichloroethane	47.28	5.0	50	0	94.6	78-120	0			
2-Butanone	94.24	10	100	0	94.2	58-132	0			
2-Chloroethyl vinyl ether	94.01	10	100	0	94	74-120	0			
2-Hexanone	90.75	10	100	0	90.7	61-130	0			
4-Methyl-2-pentanone	89.26	10	100	0	89.3	65-127	0			
Acetone	105.9	10	100	0	106	59-137	0			
Benzene	46.59	5.0	50	0	93.2	73-121	0			
Bromodichloromethane	47.71	5.0	50	0	95.4	80-120	0			
Bromoform	46.17	5.0	50	0	92.3	79-120	0			
Bromomethane	55.86	5.0	50	0	112	66-137	0			
Carbon disulfide	99.02	10	100	0	99	68-141	0			
Carbon tetrachloride	50.87	5.0	50	0	102	75-124	0			
Chlorobenzene	45.07	5.0	50	0	90.1	80-120	0			
Chloroethane	46.57	5.0	50	0	93.1	76-121	0			
Chloroform	47.49	5.0	50	0	95	80-120	0			
Chloromethane	42.38	5.0	50	0	84.8	67-123	0			
cis-1,3-Dichloropropene	47.68	5.0	50	0	95.4	80-120	0			
Dibromochloromethane	46.42	5.0	50	0	92.8	80-120	0			
Ethylbenzene	46.41	5.0	50	0	92.8	80-120	0			
m,p-Xylene	92.21	10	100	0	92.2	78-121	0			
Methylene chloride	48.44	10	50	0	96.9	65-133	0			
Styrene	49.6	5.0	50	0	99.2	80-120	0			
Tetrachloroethene	41.98	5.0	50	0	84	79-120	0			
Toluene	40.21	5.0	50	0	80.4	80-120	0			
trans-1,3-Dichloropropene	47.77	5.0	50	0	95.5	80-120	0			
Trichloroethene	47.94	5.0	50	0	95.9	80-120	0			
Vinyl acetate	105.4	10	100	0	105	67-139	0			
Vinyl chloride	48.49	2.0	50	0	97	74-122	0			
Xylenes, Total	140.1	15	150	0	93.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	*47.68*	5.0	*50*	0	*95.4*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*47.98*	5.0	*50*	0	*96*	*72-125*	0			
Surr: Dibromofluoromethane	*49.97*	5.0	*50*	0	*99.9*	*71-125*	0			
Surr: Toluene-d8	*43.91*	5.0	*50*	0	*87.8*	*75-125*	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0710031-02AMS** Units: **µg/L** Analysis Date: **10/02/07 15:17**

Client ID: Run ID: **VOA1_071002A** SeqNo: **1224026** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.87	5.0	50	0	89.7	80-120	0			
1,1,2,2-Tetrachloroethane	45.96	5.0	50	0	91.9	72-120	0			
1,1,2-Trichloroethane	44.46	5.0	50	0	88.9	80-120	0			
1,1-Dichloroethane	42.73	5.0	50	0	85.5	76-120	0			
1,1-Dichloroethene	38.74	5.0	50	0	77.5	73-124	0			
1,2-Dichloroethane	44.47	5.0	50	0	88.9	78-120	0			
2-Butanone	89.25	10	100	0	89.3	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	92.96	10	100	0	93	61-130	0			
4-Methyl-2-pentanone	92.63	10	100	0	92.6	65-127	0			
Acetone	81.48	10	100	0	81.5	59-137	0			
Benzene	41.84	5.0	50	0	83.7	73-121	0			
Bromodichloromethane	40.9	5.0	50	0	81.8	80-120	0			
Bromoform	50.46	5.0	50	0	101	79-120	0			
Bromomethane	46.42	5.0	50	0	92.8	66-137	0			
Carbon disulfide	78.45	10	100	0	78.5	68-141	0			
Carbon tetrachloride	43.78	5.0	50	0	87.6	75-124	0			
Chlorobenzene	45.71	5.0	50	0	91.4	80-120	0			
Chloroethane	38.42	5.0	50	0	76.8	76-121	0			
Chloroform	44.35	5.0	50	0	88.7	80-120	0			
Chloromethane	33.49	5.0	50	0	67	67-123	0			S
cis-1,3-Dichloropropene	40.56	5.0	50	0	81.1	80-120	0			
Dibromochloromethane	46.35	5.0	50	0	92.7	80-120	0			
Ethylbenzene	43.12	5.0	50	0.2648	85.7	80-120	0			
m,p-Xylene	94.64	10	100	0	94.6	78-121	0			
Methylene chloride	42.23	10	50	0	84.5	65-133	0			
Styrene	51.99	5.0	50	0	104	80-120	0			
Tetrachloroethene	43.57	5.0	50	0	87.1	79-120	0			
Toluene	40.4	5.0	50	0	80.8	80-120	0			
trans-1,3-Dichloropropene	42.81	5.0	50	0	85.6	80-120	0			
Trichloroethene	41.14	5.0	50	0	82.3	80-120	0			
Vinyl acetate	95.38	10	100	0	95.4	67-139	0			
Vinyl chloride	41.2	2.0	50	0	82.4	74-122	0			
Xylenes, Total	145.3	15	150	0	96.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	*46.41*	5.0	*50*	0	*92.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*55.24*	5.0	*50*	0	*110*	*72-125*	0			
Surr: Dibromofluoromethane	*50.03*	5.0	*50*	0	*100*	*71-125*	0			
Surr: Toluene-d8	*46.33*	5.0	*50*	0	*92.7*	*75-125*	0			

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55052** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0710031-02AMSD** Units: **µg/L** Analysis Date: **10/02/07 15:43**

Client ID: Run ID: **VOA1_071002A** SeqNo: **1224028** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	40.38	5.0	50	0	80.8	80-120	44.87	10.5	20	
1,1,2,2-Tetrachloroethane	49.43	5.0	50	0	98.9	72-120	45.96	7.28	20	
1,1,2-Trichloroethane	42.67	5.0	50	0	85.3	80-120	44.46	4.1	20	
1,1-Dichloroethane	40.39	5.0	50	0	80.8	76-120	42.73	5.62	20	
1,1-Dichloroethene	36.01	5.0	50	0	72	73-124	38.74	7.3	20	S
1,2-Dichloroethane	46.55	5.0	50	0	93.1	78-120	44.47	4.57	20	
2-Butanone	88.95	10	100	0	88.9	58-132	89.25	0.338	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	105.3	10	100	0	105	61-130	92.96	12.5	20	
4-Methyl-2-pentanone	101.8	10	100	0	102	65-127	92.63	9.42	20	
Acetone	84.42	10	100	0	84.4	59-137	81.48	3.55	20	
Benzene	44.88	5.0	50	0	89.8	73-121	41.84	7	20	
Bromodichloromethane	41.71	5.0	50	0	83.4	80-120	40.9	1.96	20	
Bromoform	49.95	5.0	50	0	99.9	79-120	50.46	1.02	20	
Bromomethane	45.06	5.0	50	0	90.1	66-137	46.42	2.97	20	
Carbon disulfide	74.77	10	100	0	74.8	68-141	78.45	4.81	20	
Carbon tetrachloride	41.11	5.0	50	0	82.2	75-124	43.78	6.28	20	
Chlorobenzene	45.07	5.0	50	0	90.1	80-120	45.71	1.4	20	
Chloroethane	38.48	5.0	50	0	77	76-121	38.42	0.153	20	
Chloroform	40.32	5.0	50	0	80.6	80-120	44.35	9.52	20	
Chloromethane	33.29	5.0	50	0	66.6	67-123	33.49	0.601	20	S
cis-1,3-Dichloropropene	43.02	5.0	50	0	86	80-120	40.56	5.9	20	
Dibromochloromethane	46.49	5.0	50	0	93	80-120	46.35	0.299	20	
Ethylbenzene	43.09	5.0	50	0.2648	85.7	80-120	43.12	0.0729	20	
m,p-Xylene	85.85	10	100	0	85.9	78-121	94.64	9.74	20	
Methylene chloride	39.68	10	50	0	79.4	65-133	42.23	6.21	20	
Styrene	49.34	5.0	50	0	98.7	80-120	51.99	5.22	20	
Tetrachloroethene	41.09	5.0	50	0	82.2	79-120	43.57	5.86	20	
Toluene	40.47	5.0	50	0	80.9	80-120	40.4	0.192	20	
trans-1,3-Dichloropropene	44.01	5.0	50	0	88	80-120	42.81	2.78	20	
Trichloroethene	42.87	5.0	50	0	85.7	80-120	41.14	4.13	20	
Vinyl acetate	96.85	10	100	0	96.8	67-139	95.38	1.53	20	
Vinyl chloride	37.49	2.0	50	0	75	74-122	41.2	9.43	20	
Xylenes, Total	132.7	15	150	0	88.5	80-120	145.3	9.03	20	
Surr: 1,2-Dichloroethane-d4	*43.35*	5.0	*50*	0	*86.7*	*70-125*	46.41	*6.8*	*20*	
Surr: 4-Bromofluorobenzene	*53.6*	5.0	*50*	0	*107*	*72-125*	55.24	*3.02*	*20*	
Surr: Dibromofluoromethane	*46.35*	5.0	*50*	0	*92.7*	*71-125*	50.03	*7.63*	*20*	
Surr: Toluene-d8	*46.85*	5.0	*50*	0	*93.7*	*75-125*	46.33	*1.12*	*20*	

The following samples were analyzed in this batch: 0709522-02A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-100807** Units: **µg/L** Analysis Date: **10/08/07 12:11**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229041** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*46.74*	5.0	*50*	0	*93.5*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*47.18*	5.0	*50*	0	*94.4*	*72-125*	0			
Surr: Dibromofluoromethane	*46.65*	5.0	*50*	0	*93.3*	*71-125*	0			
Surr: Toluene-d8	*50.14*	5.0	*50*	0	*100*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-100807** Units: **µg/L** Analysis Date: **10/08/07 11:21**
Client ID: Run ID: **VOA1_071008A** SeqNo: **1229040** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.58	5.0	50	0	103	80-120	0			
1,1,2,2-Tetrachloroethane	45.6	5.0	50	0	91.2	72-120	0			
1,1,2-Trichloroethane	45.17	5.0	50	0	90.3	80-120	0			
1,1-Dichloroethane	48.34	5.0	50	0	96.7	76-120	0			
1,1-Dichloroethene	45.07	5.0	50	0	90.1	73-124	0			
1,2-Dichloroethane	47.89	5.0	50	0	95.8	78-120	0			
2-Butanone	103.6	10	100	0	104	58-132	0			
2-Chloroethyl vinyl ether	95.96	10	100	0	96	74-120	0			
2-Hexanone	98.25	10	100	0	98.3	61-130	0			
4-Methyl-2-pentanone	95.73	10	100	0	95.7	65-127	0			
Acetone	97.54	10	100	0	97.5	59-137	0			
Benzene	46.98	5.0	50	0	94	73-121	0			
Bromodichloromethane	48.6	5.0	50	0	97.2	80-120	0			
Bromoform	47.79	5.0	50	0	95.6	79-120	0			
Bromomethane	41.9	5.0	50	0	83.8	66-137	0			
Carbon disulfide	90.43	10	100	0	90.4	68-141	0			
Carbon tetrachloride	46.7	5.0	50	0	93.4	75-124	0			
Chlorobenzene	48.47	5.0	50	0	96.9	80-120	0			
Chloroethane	46.05	5.0	50	0	92.1	76-121	0			
Chloroform	47.6	5.0	50	0	95.2	80-120	0			
Chloromethane	53.25	5.0	50	0	106	67-123	0			
cis-1,3-Dichloropropene	49.92	5.0	50	0	99.8	80-120	0			
Dibromochloromethane	49.38	5.0	50	0	98.8	80-120	0			
Ethylbenzene	44.73	5.0	50	0	89.5	80-120	0			
m,p-Xylene	89.94	10	100	0	89.9	78-121	0			
Methylene chloride	48.19	10	50	0	96.4	65-133	0			
Styrene	51.09	5.0	50	0	102	80-120	0			
Tetrachloroethene	50.09	5.0	50	0	100	79-120	0			
Toluene	46.47	5.0	50	0	92.9	80-120	0			
trans-1,3-Dichloropropene	47.75	5.0	50	0	95.5	80-120	0			
Trichloroethene	47.13	5.0	50	0	94.3	80-120	0			
Vinyl acetate	114.5	10	100	0	115	67-139	0			
Vinyl chloride	51.35	2.0	50	0	103	70-127	0			
Xylenes, Total	140.4	15	150	0	93.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	*48.01*	5.0	*50*	0	*96*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*46.24*	5.0	*50*	0	*92.5*	*72-125*	0			
Surr: Dibromofluoromethane	*49.62*	5.0	*50*	0	*99.2*	*71-125*	0			
Surr: Toluene-d8	*50.57*	5.0	*50*	0	*101*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0710089-05AMS** Units: **µg/L** Analysis Date: **10/08/07 15:33**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229044** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	43.71	5.0	50	0	87.4	80-120	0			
1,1,2,2-Tetrachloroethane	48.37	5.0	50	0	96.7	72-120	0			
1,1,2-Trichloroethane	51.72	5.0	50	0	103	80-120	0			
1,1-Dichloroethane	44.38	5.0	50	0	88.8	76-120	0			
1,1-Dichloroethene	39.51	5.0	50	0	79	73-124	0			
1,2-Dichloroethane	45.58	5.0	50	0	91.2	78-120	0			
2-Butanone	105.2	10	100	0	105	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	124.7	10	100	0	125	61-130	0			
4-Methyl-2-pentanone	117.9	10	100	0	118	65-127	0			
Acetone	90.25	10	100	0	90.2	59-137	0			
Benzene	43.71	5.0	50	0	87.4	73-121	0			
Bromodichloromethane	44.59	5.0	50	0	89.2	80-120	0			
Bromoform	51.49	5.0	50	0	103	79-120	0			
Bromomethane	27.69	5.0	50	0	55.4	66-137	0			S
Carbon disulfide	77.05	10	100	0	77	68-141	0			
Carbon tetrachloride	41.6	5.0	50	0	83.2	75-124	0			
Chlorobenzene	48.23	5.0	50	0	96.5	80-120	0			
Chloroethane	40.79	5.0	50	0	81.6	76-121	0			
Chloroform	46.76	5.0	50	0	93.5	80-120	0			
Chloromethane	42.22	5.0	50	0	84.4	67-123	0			
cis-1,3-Dichloropropene	47.43	5.0	50	0	94.9	80-120	0			
Dibromochloromethane	52.32	5.0	50	0	105	80-120	0			
Ethylbenzene	47.27	5.0	50	0	94.5	80-120	0			
m,p-Xylene	95.43	10	100	0	95.4	78-121	0			
Methylene chloride	44.6	10	50	0	89.2	65-133	0			
Styrene	49.37	5.0	50	0	98.7	80-120	0			
Tetrachloroethene	46.3	5.0	50	0	92.6	79-120	0			
Toluene	47.75	5.0	50	0	95.5	80-120	0			
trans-1,3-Dichloropropene	46.71	5.0	50	0	93.4	80-120	0			
Trichloroethene	44.21	5.0	50	0	88.4	80-120	0			
Vinyl acetate	109.2	10	100	0	109	67-139	0			
Vinyl chloride	43.32	2.0	50	0	86.6	70-127	0			
Xylenes, Total	140.9	15	150	0	94	80-120	0			
Surr: 1,2-Dichloroethane-d4	*44.42*	5.0	*50*	0	*88.8*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*51.65*	5.0	*50*	0	*103*	*72-125*	0			
Surr: Dibromofluoromethane	*47.12*	5.0	*50*	0	*94.2*	*71-125*	0			
Surr: Toluene-d8	*52.33*	5.0	*50*	0	*105*	*75-125*	0			

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55288** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0710089-05AMSD** Units: **µg/L** Analysis Date: **10/08/07 15:58**

Client ID: Run ID: **VOA1_071008A** SeqNo: **1229045** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.14	5.0	50	0	92.3	80-120	43.71	5.4	20	
1,1,2,2-Tetrachloroethane	50.59	5.0	50	0	101	72-120	48.37	4.48	20	
1,1,2-Trichloroethane	50.33	5.0	50	0	101	80-120	51.72	2.72	20	
1,1-Dichloroethane	45.29	5.0	50	0	90.6	76-120	44.38	2.02	20	
1,1-Dichloroethene	42.57	5.0	50	0	85.1	73-124	39.51	7.46	20	
1,2-Dichloroethane	49.29	5.0	50	0	98.6	78-120	45.58	7.82	20	
2-Butanone	121.7	10	100	0	122	58-132	105.2	14.5	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	126.8	10	100	0	127	61-130	124.7	1.67	20	
4-Methyl-2-pentanone	123	10	100	0	123	65-127	117.9	4.26	20	
Acetone	99.42	10	100	0	99.4	59-137	90.25	9.67	20	
Benzene	47.35	5.0	50	0	94.7	73-121	43.71	8	20	
Bromodichloromethane	47.59	5.0	50	0	95.2	80-120	44.59	6.5	20	
Bromoform	52.33	5.0	50	0	105	79-120	51.49	1.62	20	
Bromomethane	35.73	5.0	50	0	71.5	66-137	27.69	25.4	20	R
Carbon disulfide	83.89	10	100	0	83.9	68-141	77.05	8.5	20	
Carbon tetrachloride	42.59	5.0	50	0	85.2	75-124	41.6	2.36	20	
Chlorobenzene	50.01	5.0	50	0	100	80-120	48.23	3.63	20	
Chloroethane	43.82	5.0	50	0	87.6	76-121	40.79	7.15	20	
Chloroform	47.52	5.0	50	0	95	80-120	46.76	1.6	20	
Chloromethane	47.83	5.0	50	0	95.7	67-123	42.22	12.5	20	
cis-1,3-Dichloropropene	50.18	5.0	50	0	100	80-120	47.43	5.64	20	
Dibromochloromethane	54.06	5.0	50	0	108	80-120	52.32	3.27	20	
Ethylbenzene	47.95	5.0	50	0	95.9	80-120	47.27	1.43	20	
m,p-Xylene	92	10	100	0	92	78-121	95.43	3.65	20	
Methylene chloride	47.01	10	50	0	94	65-133	44.6	5.25	20	
Styrene	47.6	5.0	50	0	95.2	80-120	49.37	3.66	20	
Tetrachloroethene	47	5.0	50	0	94	79-120	46.3	1.52	20	
Toluene	50.3	5.0	50	0	101	80-120	47.75	5.19	20	
trans-1,3-Dichloropropene	51.33	5.0	50	0	103	80-120	46.71	9.42	20	
Trichloroethene	44.95	5.0	50	0	89.9	80-120	44.21	1.64	20	
Vinyl acetate	119.1	10	100	0	119	67-139	109.2	8.74	20	
Vinyl chloride	45.65	2.0	50	0	91.3	70-127	43.32	5.22	20	
Xylenes, Total	137.9	15	150	0	91.9	80-120	140.9	2.16	20	
Surr: 1,2-Dichloroethane-d4	*49.08*	5.0	*50*	0	*98.2*	*70-125*	44.42	*9.98*	*20*	
Surr: 4-Bromofluorobenzene	*49.11*	5.0	*50*	0	*98.2*	*72-125*	51.65	*5.04*	*20*	
Surr: Dibromofluoromethane	*49.13*	5.0	*50*	0	*98.3*	*71-125*	47.12	*4.17*	*20*	
Surr: Toluene-d8	*51.14*	5.0	*50*	0	*102*	*75-125*	52.33	*2.3*	*20*	

The following samples were analyzed in this batch: 0709522-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54877** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-092707** Units: **mg/L** Analysis Date: **09/27/07 14:45**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220057** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	*5.189*	0.10	*5*	0	*104*	*85-115*		0		

LCS Sample ID: **WLCSW1-092707** Units: **mg/L** Analysis Date: **09/27/07 15:09**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220058** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.38	0.50	20	0	102	90-110		0		
Sulfate	20.33	0.50	20	0	102	90-110		0		
Surr: Selenate (surr)	*5.072*	0.10	*5*	0	*101*	*85-115*		0		

MS Sample ID: **0709516-01BMS** Units: **mg/L** Analysis Date: **09/27/07 13:56**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220055** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	69.82	0.50	10	61.55	82.7	80-120		0		EO
Sulfate	342.8	0.50	10	340.2	26.4	80-120		0		SEO
Surr: Selenate (surr)	*5.168*	0.10	*5*	0	*103*	*85-115*		0		

MSD Sample ID: **0709516-01BMSD** Units: **mg/L** Analysis Date: **09/27/07 14:20**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220056** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	69.89	0.50	10	61.55	83.4	80-120	69.82	0.1	20	EO
Sulfate	343.2	0.50	10	340.2	30.8	80-120	342.8	0.126	20	SEO
Surr: Selenate (surr)	*5.176*	0.10	*5*	0	*104*	*85-115*	5.168	*0.155*	*20*	

DUP Sample ID: **0709516-01BDUP** Units: **mg/L** Analysis Date: **09/27/07 13:31**
Client ID: Run ID: **ICS3000_070927A** SeqNo: **1220054** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	61.49	0.50	0	0	0	0-0	61.55	0.101	20	E
Sulfate	339.8	0.50	0	0	0	0-0	340.2	0.109	20	E
Surr: Selenate (surr)	*5.213*	0.10	*5*	0	*104*	*85-115*	5.216	*0.0575*	*20*	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54887** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW3-092707** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: Run ID: **WETCHEM_070927I** SeqNo: **1220276** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.07	0.10	6	0	101	90-110	0			

DUP Sample ID: **0709520-20EDUP** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: Run ID: **WETCHEM_070927I** SeqNo: **1220293** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.22	0.10	0	0	0	0-0	7.25	0.415	20	H

DUP Sample ID: **0709522-01DDUP** Units: **pH units** Analysis Date: **09/27/07 0:00**
Client ID: **Effluent** Run ID: **WETCHEM_070927I** SeqNo: **1220294** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.27	0.10	0	0	0	0-0	7.26	0.138	20	H

The following samples were analyzed in this batch: 0709522-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54965** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-100107** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222179** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-100107** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222180** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1055	5.0	1000	0	106	80-120	0			
Alkalinity, Total (As CaCO3)	1055	5.0	1000	0	106	80-120	0			

DUP Sample ID: **0709520-02FDUP** Units: **mg/L** Analysis Date: **10/01/07 10:00**
Client ID: Run ID: **WETCHEM_071001B** SeqNo: **1222188** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	381.9	5.0	0	0	0	0-0	381.9	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	381.9	5.0	0	0	0	0-0	381.9	0	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R54971** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222279** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222280** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	928	10	1000	0	92.8	85-115	0			

DUP Sample ID: **0709529-16CDUP** Units: **mg/L** Analysis Date: **09/28/07 17:00**
Client ID: Run ID: **BALANCE1_070928F** SeqNo: **1222278** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	642	10	0	0	0	0-0	646	0.621	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55088** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-100307** Units: **°F** Analysis Date: **10/03/07 0:00**

Client ID: Run ID: **WETCHEM_071003H** SeqNo: **1224653** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120		0		

DUP Sample ID: **0709574-02EDUP** Units: **°F** Analysis Date: **10/03/07 0:00**

Client ID: Run ID: **WETCHEM_071003H** SeqNo: **1224657** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0		0	0	25	

The following samples were analyzed in this batch: 0709522-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0709522
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R55131** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **MBLKW1-100407** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225720** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-100407** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225721** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1425	1.0	1413	0	101	80-120	0			

DUP Sample ID: **0710048-01GDUP** Units: **µmhos/cm** Analysis Date: **10/04/07 0:00**
Client ID: Run ID: **WETCHEM_071004C** SeqNo: **1225724** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	3390	1.0	0	0	0	0-0	3400	0.295	20	

The following samples were analyzed in this batch: 0709522-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
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e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Chain of Custody Form

Page 1 of 1

e-Lab Project Manager: | e-Lab Work Order #: 5109522

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Well Quarterly	A	VOC (8260) Select
Work Order		Project Number		B	SVOC (8270) Select
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Total Metals (6020/7000) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions (300) Cl, SO4,
				F	Alkalinity
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	TDS
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Effluent	9/26/07	1315	L	Y	9	X	X	X	X	X	X	X	X	X		
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: [signature] B.E.D.

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☑ Std 10 WK Days ☐ 6 WK Days ☐ Other 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by: [signature] Date: 9/25/07 Time: 1615

Relinquished by: Date: Time:

Received by: 9/27/07

Received by (Laboratory): [signature] 1115

Notes: 10 Day TAT.

e-Lab Analytical Cooler ID: Cooler Temp.:

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Logged by (Laboratory): Date: Time: Checked by (Laboratory):

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 9/27/2007 9:00:00 AM

Work Order Number 0709522 Received by: RNG

Checklist completed by RMGM 9/27/07 (Signature / Date) Reviewed by QL 9/28/07 (Initials / Date)

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.3c	002	
Cooler(s)/Kit(s):	1447		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

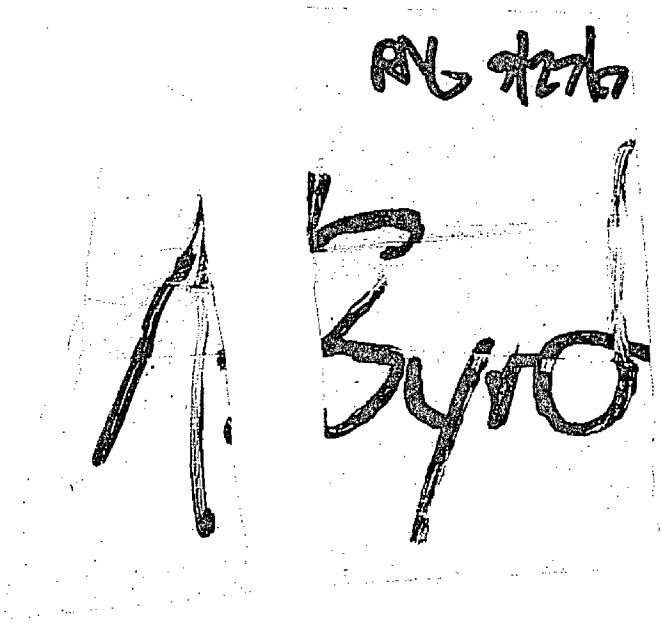
Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

P.O # 179522



NAVAJO REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P.O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
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FAX
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(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

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September 19, 2007

FedEx Overnight Delivery

Wayne Price
Environmental Bureau Chief
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Re: Navajo Refining Company, L.L.C., Class 1 Injection Well Discharge Permit WDW-3 UICCL-1-008-3 (I-008)

Dear Mr. Price:

Enclosed pursuant to your August 13, 2007 letter to Darrell Moore are (1) the signed copy of the above-referenced discharge permit for Navajo Refining Company, LLC ("Navajo") and (2) the permit fee in the amount of $4,500.00.

Navajo has agreed to sign the conditions listed in the permit based on your statements during our August 28, 2007 phone conversation that the conditions in the permit only apply to equipment at the site of the injection well covered by the permit (WDW-3), not the Artesia Refinery.

We strongly support your suggestion that we schedule a meeting with you and your staff to review the draft Navajo Refinery Discharge Permit that is currently in the renewal process to discuss certain conditions that may be included in the refinery permit which need further clarification and to address any concerns we may have prior to issuance of the final permit.

As we discussed, Navajo is concerned that the permit conditions, including conditions to retrofit storage tanks to include impermeable containment under all tanks and "bermed" areas, have not been thoroughly evaluated or discussed with Navajo prior to imposition. Navajo continues to believe that such evaluation and discussion prior to finalizing these conditions is necessary and appropriate.

Please contact me at 505-746-5490 if you have any questions.

Sincerely,

Johnny Lackey
Environmental Manager

Cc (w/enclosure): JER
Electronic cc (w/o enclosure): DGM, PLY
Environmental Files: REF.ART.07-4.A.02
(WDW-3 Discharge Permit)

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Check Date		09/13/2007
Check Amount	$	4,500.00
Vendor No		5102035
Payment Document		2000023164
Company Code		1020

Invoice Date	Invoice Number	Description	Invoice Amount	Discount Amount	Net Amount
08/13/2007	081307		4,500.00	0.00	4,500.00

Payment document	Check number	Date	Currency	Payment amount
2000023164	1000009940	09/13/2007	USD	*********4,500.00*

↓ PLEASE FOLD ON PERFORATION AND DETACH HERE ↓

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.
ANTI-FRAUD PROTECTION - PATENTS 5,197,765

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

64-1278/611
1000009940
09/13/2007

PAY EXACTLY
*********4,500.00*USD
VOID AFTER 180 DAYS

PAY *** FOUR THOUSAND FIVE HUNDRED and 00 /100 USD***

TO THE
ORDER OF WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Stephen D Wise
AUTHORIZED SIGNATURE

⑈1000009940⑈ ⑆061112788⑆ 329905321?⑈

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

August 13, 2007

Mr. Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company
501 East Main Street, P.O. Drawer 159
Artesia, New Mexico 88211-0159

Re: **Approval of Class I Injection Well Discharge Permit WDW-3 UICCL1-008-3 (I-008)**
Class I Non-Hazardous Oil Field Waste Disposal Well
WDW-3, API No. 30-015-26575
790 FSL and 2250 FWL UL: N Section 1, T 18 S, R 27 E
Eddy County, New Mexico

Dear Mr. Moore:

Pursuant to all applicable parts of the Water Quality Control Commission (WQCC) Regulations 20.6.2 NMAC and more specifically 20.6.2.3104 - 20.6.2.3999 discharge permit, and 20.6.2.5000-.5299 Underground Injection Control, the Oil Conservation Division (OCD), the applicant is hereby authorized to utilize its Navajo Refining Company Class I WDW-3 Waste Disposal Well (API No. 30-015-26575) located 790 feet from the South line and 2250 feet from the West line in the SE/4, SW/4 of Section 1, Township 18 South, and Range27 East, NMPM, Eddy County, New Mexico, under the conditions specified in the enclosed **Attachment To The Class I Injection Well Discharge Permit**.

Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the New Mexico Oil Conservation Division (OCD) Santa Fe Office within 30 working days of receipt of this letter-including permit fees.**

Please be advised that approval of this permit does not relieve the Navajo Refining Company of responsibility should operations result in pollution of surface water, ground water or the environment. Nor does approval of the permit relieve the Navajo Refining Company of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If you have any questions, please contact Carl Chavez of my staff at (505-476-3491) or E-mail address: carlj.chavez@state.nm.us. On behalf of the staff of the OCD, I wish to thank you and your staff for your cooperation during this discharge permit review.

Sincerely,

Wayne Price
Environmental Bureau Chief

LWP/cc
Attachments-1
xc: OCD District Office

Released to Imaging: 7/12/2024 10:49:45 AM

ATTACHMENT TO THE DISCHARGE PERMIT
Navajo Refining Company WDW-3 Class I Waste Disposal Well UICCL1-008-3 (I-008)
DISCHARGE PERMIT APPROVAL CONDITIONS

August 13, 2007

Please remit a check for $4,500.00 made payable to Water Quality Management Fund:

Water Quality Management Fund
C/o: Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, New Mexico 87505

1. **Payment of Discharge Plan Fees:** All discharge permits are subject to WQCC Regulations. Every billable facility that submits a discharge permit application will be assessed a filing fee of $100.00, plus a renewal flat fee (*see* WQCC Regulation 20.6.2.3114 NMAC). The Oil Conservation Division ("OCD") has received the required $100.00 filing fee and the Navajo Refining Company still owes the required $4500.00 permit fee. The total fee amount due is $4500 for the Class I Well.

2. **Permit Expiration and Renewal Conditions and Penalties:** Pursuant to WQCC Regulation 20.6.2.3109.H.4 NMAC, this permit is valid for a period of five years. **The permit will expire on June 1, 2012** and an application for renewal should be submitted no later than 120 days before that expiration date. Pursuant to WQCC Regulation 20.6.2.3106.F NMAC, if a discharger submits a discharge permit renewal application at least 120 days before the discharge permit expires and is in compliance with the approved permit, then the existing discharge permit will not expire until the application for renewal has been approved or disapproved. ***Expired permits are a violation of the Water Quality Act (Chapter 74, Article 6, NMSA 1978) and civil penalties may be assessed accordingly.***

3. **Permit Terms and Conditions:** Pursuant to WQCC Regulation 20.6.2.3104 NMAC, when a permit has been issued, the Navajo Refining Company must ensure that all discharges shall be consistent with the terms and conditions of the permit. In addition, all facilities shall abide by the applicable rules and regulations administered by the OCD pursuant to the Oil and Gas Act, NMSA 1978, Sections 70-2-1 through 70-2-38. All injection operations related to oil and natural gas production in New Mexico are regulated under the provisions of the Oil and Gas Act, NMSA 1978, Sections 70-2-1 *et seq.* and the Water Quality Act, NMSA 1978, Sections 74-6-1 *et seq.* These Acts delegate authority for enforcement of their provisions relating to oil and natural gas drilling, production, processing, and transportation to the Oil Conservation Division (OCD) of the New Mexico Energy, Minerals and Natural Resources Department, and to the Oil Conservation Commission (OCC) and the Water Quality Control Commission (WQCC). To carry out its authority, the OCC has promulgated rules (19 NMAC) and numerous orders. Navajo Refining Company shall comply with WQCC Regulations 20.6.2 *et seq.* NMAC relating to Class I Waste Disposal Wells.

4. **Navajo Refining Company Commitments:** The Navajo Refining Company shall abide by all commitments submitted in its June 28, 2006 Application for Permit to Drill, Re-enter, Deepen, Plug back or Add a Zone API No. 30-015-26575" including subsequent attachments and amendments; letters and conditions herein for approval. Permit applications that reference previously approved plans on file with the division shall

be incorporated in this permit and the Navajo Refining Company shall abide by all previous commitments of such plans and these conditions for approval.

5. Modifications: WQCC Regulation 20.6.2.3107.C, 20.6.2.3109 and 20.6.2.5101.I NMAC addresses possible future modifications of a permit. The Navajo Refining Company (discharger) shall notify the OCD of any facility expansion, production increase or process modification that would result in any significant modification in the discharge of water contaminants. The Division Director may require a permit modification if any water quality standard specified at 20.6.2.3103 NMAC is or will be exceeded, or if a toxic pollutants as defined in WQCC Regulation 20.6.2.7 NMAC is present in ground water at any place of withdrawal for present or reasonably foreseeable future use, or that the Water Quality Standards for Interstate and Intrastate streams as specified in 20.6.4 NMAC are being or may be violated in surface water in New Mexico.

6. Waste Disposal and Storage: Navajo Refining Company shall dispose of all other non-injected wastes at an OCD-approved facility. Only oil field RCRA-exempt wastes may be disposed of by injection in a Class I well. RCRA non-hazardous, exempt and non-exempt oil field wastes may be disposed of at an OCD-approved facility upon proper waste determination pursuant to 40 CFR Part 261. Any waste stream that is not listed in the discharge permit application must be approved by the OCD on a case-by-case basis.

A. OCD Rule 712 Waste: Pursuant to OCD Rule 712 (19.15.9.712 NMAC) disposal of certain non-domestic waste without notification to the OCD is allowed at NMED permitted solid waste facilities if the waste stream has been identified in the discharge permit and existing process knowledge of the waste stream does not change.

B. Waste Storage: The Navajo Refining Company shall store all waste in an impermeable bermed area, except waste generated during emergency response operations for up to 72 hours. All waste storage areas shall be identified in the discharge permit application. Any waste storage area not identified in the permit shall be approved on a case-by-case basis only. The Navajo Refining Company shall not store oil field waste on-site for more than 180 days unless approved by the OCD.

7. Drum Storage: The Navajo Refining Company must store all drums, including empty drums, containing materials other than fresh water on an impermeable pad with curbing. The Navajo Refining Company must store empty drums on their sides with the bungs in place and lined up on a horizontal plane. The Navajo Refining Company must store chemicals in other containers, such as tote tanks, sacks, or buckets on an impermeable pad with curbing.

8. Process, Maintenance and Yard Areas: The Navajo Refining Company shall either pave and curb or have some type of spill collection device incorporated into the design at all process, maintenance, and yard areas which show evidence that water contaminants from releases, leaks and spills have reached the ground surface.

9. Above Ground Tanks: The Navajo Refining Company shall ensure that all aboveground tanks have impermeable secondary containment (e.g., liners and berms), which will contain a volume of at least one-third greater than the total volume of the largest tank or all interconnected tanks. The Navajo Refining Company shall retrofit all existing tanks before discharge permit renewal. Tanks that contain fresh water or fluids that are gases at atmospheric temperature and pressure are exempt from this condition.

10. Labeling: The Navajo Refining Company shall clearly label all tanks, drums, and containers to identify their contents and other emergency notification information. The Navajo Refining Company may use a tank code numbering system, which is incorporated into their emergency response plans.

11. Below-Grade Tanks/Sumps and Pits/Ponds.

A. All below-grade tanks and sumps must be approved by the OCD prior to installation and must incorporate secondary containment with leak detection into the design. The Navajo Refining Company shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal. All existing below-grade tanks and sumps without secondary containment and leak detection must be tested annually or as specified herein. Systems that have secondary containment with leak detection shall have a monthly inspection of the leak detection system to determine if the primary containment is leaking. Small sumps or depressions in secondary containment systems used to facilitate fluid removal are exempt from these requirements if fluids are removed within 72 hours.

B. All pits and ponds, including modifications and retrofits, shall be designed by a certified registered professional engineer and approved by the OCD prior to installation. In general, all pits or ponds shall have approved hydrologic and geologic reports, location, foundation, liners, and secondary containment with leak detection, monitoring and closure plans. All pits or ponds shall be designed, constructed and operated so as to contain liquids and solids in a manner that will protect fresh water, public health, safety and the environment for the foreseeable future. The Navajo Refining Company shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal.

C. The Navajo Refining Company shall ensure that all exposed pits, including lined pits and open top tanks (8 feet in diameter or larger) shall be fenced, screened, netted, or otherwise rendered non-hazardous to wildlife, including migratory birds.

D. The Navajo Refining Company shall maintain the results of tests and inspections at the facility covered by this discharge permit and available for OCD inspection. The Navajo Refining Company shall report the discovery of any system which is found to be leaking or has lost integrity to the OCD within 15 days. The Navajo Refining Company may propose various methods for testing such as pressure testing to 3 pounds per square inch greater than normal operating pressure and/or visual inspection of cleaned tanks and/or sumps, or other OCD-approved methods. The Navajo Refining Company shall notify the OCD at least 72 hours prior to all testing.

12. Underground Process/Wastewater Lines:

A. The Navajo Refining Company shall test all underground process/wastewater pipelines at least once every five (5) years to demonstrate their mechanical integrity, except lines containing fresh water or fluids that are gases at atmospheric temperature and pressure. Pressure rated pipe shall be tested by pressuring up to one and one-half times the normal operating pressure, if possible, or for atmospheric drain systems, to 3 pounds per square inch greater than normal operating pressure, and pressure held for a minimum of 30 minutes with no more

than a 1% loss/gain in pressure. The Navajo Refining Company may use other methods for testing if approved by the OCD.

B. Navajo Refining Company shall maintain underground process and wastewater pipeline schematic diagrams or plans showing all drains, vents, risers, valves, underground piping, pipe type, rating, size, and approximate location. All new underground piping must be approved by the OCD prior to installation. The Navajo Refining Company shall report any leaks or loss of integrity to the OCD within 15 days of discovery.

Navajo Refining Company shall maintain the results of all tests at the facility covered by this discharge permit and they shall be available for OCD inspection. The Navajo Refining Company shall notify the OCD at least 72 hours prior to all testing.

13. Class V Wells: The Navajo Refining Company shall close all Class V wells (e.g., septic systems, leach fields, dry wells, etc.) that inject non-hazardous industrial wastes or a mixture of industrial wastes and domestic wastes unless it can be demonstrated that ground water will not be impacted in the reasonably foreseeable future. Leach fields and other wastewater disposal systems at OCD-regulated facilities that inject non-hazardous fluid into or above an underground source of drinking water are considered Class V Waste Disposal Wells under the EPA UIC program. Class V wells that inject domestic waste only, must be permitted by the New Mexico Environment Department (NMED).

14. Housekeeping: The Navajo Refining Company shall inspect all systems designed for spill collection/prevention and leak detection at least monthly to ensure proper operation and to prevent over topping or system failure. All spill collection and/or secondary containment devices shall be emptied of fluids within 72 hours of discovery. The Navajo Refining Company shall maintain all records at the facility and available for OCD inspection.

15. Spill Reporting: The Navajo Refining Company shall report all unauthorized discharges, spills, leaks and releases and conduct corrective action pursuant to WQCC Regulation 20.5.12.1203 NMAC and OCD Rule 116 (19.15.3.116 NMAC). The Navajo Refining Company shall notify both the OCD District Office and the Santa Fe Office within 24 hours and file a written report within 15 days.

16. OCD Inspections: The OCD may place additional requirements on the facility and modify the permit conditions based on well emergencies, OCD inspections, and/or quarterly reporting information.

17. Storm Water: The Navajo Refining Company shall implement and maintain run-on and runoff plans and controls. The Navajo Refining Company shall not discharge any water contaminant that exceeds the WQCC standards specified in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) including any oil sheen in any stormwater run-off. The Navajo Refining Company shall notify the OCD within 24 hours of discovery of any releases and shall take immediate corrective action(s) to stop the discharge.

18. Unauthorized Discharges: The Navajo Refining Company shall not allow or cause water pollution, discharge or release of any water contaminant that exceeds the WQCC standards listed in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) unless specifically listed in the permit application approved herein.

An unauthorized discharge is a violation of this permit.

19. Vadose Zone and Water Pollution: The Navajo Refining Company shall address any contamination through the discharge permit process or pursuant to WQCC 20.6.2.4000-.4116 NMAC (Prevention and Abatement of Water Pollution). The OCD may require the Navajo Refining Company to modify its permit for investigation, remediation, abatement, and monitoring requirements for any vadose zone or water pollution. Failure to perform any required investigation, remediation, abatement and submit subsequent reports will be a violation of the permit.

20. Additional Site Specific Conditions: The Navajo Refining Company shall notify the OCD within 24 hours after having knowledge of ground water pollution complaints or well problems within a 1-mile radius of WDW-3.

21. Class I Injection Well(s) Construction Conditions.
All wells, except those municipal wells injection of non-corrosive wastes, shall inject fluids through tubing with a packer set immediately above the injection zone.

A. Construction: The tubing and packer shall be designed and maintained for the duration of expected service.

B. Logs or tests required for the following situations:

a. For surface casing intended to protect underground sources of drinking water:
   i. Resistivity, spontaneous potential, and caliper logs before the casing is installed; and
   ii. A cement bond, temperature, or density log after the casing is set and cemented.

b. For intermediate and long strings of casing intended to facilitate injection:
   i. Resistivity, spontaneous potential, porosity, and gamma ray logs before the casing is installed.
   ii. Fracture finder logs; and
   iii. A cement bond, temperature, or density log after the casing is set and cemented.
   iv. At a minimum, the following information concerning the injection formation shall be determined or calculated for new Class I wells:
      1. Fluid pressure;
      2. Temperature;
      3. Fracture pressure;
      4. Other physical and chemical characteristics of the injection matrix; and
      5. Physical and chemical characteristics of the formation fluids.

22. Class I Injection Well(s) Identification, Operation, Monitoring, Bonding and Reporting.

A. Well Identification: API # 30-015-26575

B. Well Work Over Operations: OCD approval will be obtained prior to performing remedial work, pressure test or any other work. Approval will be requested on OCD Form C-103 "Sundry Notices and Reports on Wells" (OCD Rule 1103.A) with appropriate copies sent to the OCD Environmental Bureau and District Office.

C. Injection Formation, Interval & Waste: Injected refinery exempt/non-exempt non-hazardous wastes will be injected into the Lower-Wolfcamp Formation at the interval 7650 ft to 8450 ft and 8450 ft to 8620 ft. Tubing shall be surrounded by surface casing set to a depth protective of fresh ground water (< 10,000 ppm TDS). The owner/operator shall take all steps necessary to ensure that the injected waste enters only the above specified injection interval and is not permitted to escape to other formations or onto the surface. The operator shall provide written notice of the date of commencement of injection to the Santa Fe Office of the Division.

D. Well Injection Pressure Limits: The wellhead injection pressure on the well shall be limited to no more than 1530 psig. In addition, the injection well or system shall be equipped with a pressure limiting device in workable condition, which shall, at all times, limit surface injection pressure to the maximum allowable pressure for this well. The maximum operating surface injection and/or test pressure measured at the wellhead shall not exceed 1530 psig unless otherwise approved by the OCD. The pressure-limiting device shall monthly be demonstrated and reported quarterly to the OCD. Navajo Refining Company shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the ground surface. Any pressure that causes new fractures or propagation in existing fractures or causes damage to the system shall be reported to OCD within 24 hours of discovery.

The Director of the OCD may authorize an increase in injection pressure upon demonstration by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formation. Such demonstration shall consist of a valid step-rate test run in accordance with and acceptable to the OCD.

E. Mechanical Integrity Testing (MIT):

The owner/operator shall complete an annual casing-tubing annulus pressure test from the surface to the approved injection depth and below the depth of fresh ground water (< 10,000 ppm TDS) to assess casing and tubing integrity. The MIT shall consist of a 30-minute test at a minimum pressure from 300 to 500 psig measured at the surface. A Bradenhead test(s) shall also be performed annually along with the casing-tubing annulus test. A Bradenhead test(s) shall be performed in all annular spaces including surface casing if not cemented.

The owner/operator shall complete an annual pressure fall-off test to monitor the pressure buildup in the injection zone. The well shall be shut down for a period sufficient to conduct the test and shall be submitted to the OCD in the annual report (see Section 22K (11)).

All well testing shall be performed annually or shall also be performed whenever the tubing is pulled or the packer reseated or when the injection formation will be isolated from the casing/tubing annuals.

The operator shall notify the supervisor of the Santa Fe Office of the Division of the date, time and time of the installation of disposal equipment and of any MIT so that it may be inspected and witnessed.

1. General Requirements:

   a. If the testing requires a packer then casing-tubing annulus must be loaded with inert fluid 24 hours prior to testing.
   b. Have manpower and equipment available for pressure test. Wellhead shall be prepared for test and all valves and gauges should be in good working order.
   c. Pumps, tanks, external lines etc. must be isolated from the wellhead during test.
   d. A continuous recording pressure device with a maximum 4-hour clock shall be installed on the casing-tubing annulus. The pressure range shall not be greater than 500 psig. The operator must provide proof that the pressure-recording device has been calibrated within the past 6 months.
   e. A minimum of one pressure gauge shall be installed on the casing/tubing annulus.
   f. OCD must witness the beginning of test (putting chart on) and ending of test (removing chart). At the end of test, the operator may be required to bleed-off well pressure to demonstrate recorder and gauge response.
   g. The Operator shall supply the following information on the pressure chart that the inspector will file in the well records:
      1. Company Name, Well Name, API #, Legal Location.
      2. Test Procedure with "Pass/Fail" designation.
      3. Testing Media: Water, Gas, Oil, Etc.
      4. Date, time started and ending.
      5. Name (printed) and signature of company representative and OCD Inspector

2. Test Acceptance:

The OCD will use the following criteria in determining if a well has passed the Mechanical Integrity Test:

   a. Passes if Zero Bleed-Off during the test.
   b. Passes if Final Test Pressure is within ± 10% of Starting Pressure, if approved by the OCD inspector.
   c. Fails if any Final Test Pressure is greater than ± 10% of Starting Pressure. Operators must investigate for leaks and demonstrate that mechanical integrity of the well(s) by ensuring there are no leaks in the tubing, casing, or packer, and injected/produced fluids are confined within the piping and/or injection zones. Wells shall not resume operations until approved by OCD.

   Note: OCD recognizes that different operations, well designs, formation characteristics and field conditions may cause variations in the above procedures. If the operator wishes to make or discuss anticipate changes, please notify the OCD for approval. All operators are responsible to notify OCD of any procedure that may cause harm to the well system or formation. Please be advised that OCD approval does not relieve any operator of liability should operations result in pollution of surface water, groundwater, or the environment.

d. When the MIT is not witnessed by an OCD Representative and fails, the owner/operator shall notify the OCD within 24 hours after having knowledge of well MIT failure.

F. Loss of Mechanical Integrity: The operator shall report within 24 hours of discovery any failure of the casing, tubing or packer, or movement of fluids outside of the injection zone. The operator shall cease operations until proper repairs are made and receive OCD approval to re-start injection operations. In addition, any associated fresh ground water monitor wells, which exhibit anomalous static water levels, detection of elevated general chemistry constituents, public health issues, etc. shall be immediately reported to the OCD.

G. Injection Record Volumes and Pressures: The owner/operator shall submit quarterly reports of its disposal, operation and well workovers provided herein. The minimum, maximum, average flow waste injection volumes (including total volumes) and annular pressures of waste (oil field exempt/non-exempt non-hazardous waste) injected will be recorded monthly and submitted to the OCD Santa Fe Office on a quarterly basis.

The casing-tubing annulus shall contain fluid and be equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. Due to pressure fluctuations observed at Navajo's other two nearby Class I Injection Wells, WDW-3 shall be equipped with an expansion tank under constant 100 psig pressure connected to the casing-annulus and maintained under constant pressure. The expansion tank shall initially be filled half-full (250 gallon expansion tank) with an approved fluid to establish an equilibrium volume and fluid level. Weekly monitoring of fluid levels in the expansion tank coupled with documented additions/ removals of fluids into or out of the expansion tank is required to maintain the equilibrium volume. Any loss or gain of fluids in the expansion tank shall be recorded, and if significant, reported to the OCD within 24 hours of discovery. The owner/operator shall provide the following information on a quarterly basis: weekly expansion tank volume readings shall be provided in a table in the cover letter of each quarterly report. Navajo shall monitor, record and note any fluid volume additions or removals from the expansion tank on a quarterly basis. In addition, any well activity (i.e., plugging, changing injection intervals, etc.) shall be conducted in accordance with all applicable New Mexico Oil Conservation Division regulations.

H. Analysis of Injected Waste: Provide an analytical data or test results summary of the injection waste water with each annual report. The analytical testing shall be conducted on a quarterly basis with any exceedence reported to the OCD within 24 hours after having knowledge of an exceedence(s). Records shall be maintained at Navajo for the life of the well. The required analytical test methods are:

a. Aromatic and halogenated volatile hydrocarbon scan by EPA Method 8260C GC/MS. Semi-volatile Organics GC/MS EPA Method 8270B including 1 and 2-methylnaphthalene.
b. General water chemistry (Method 40 CFR 136.3) to include calcium, potassium, magnesium, sodium, bicarbonate, carbonate, chloride, sulfate, total dissolved solids (TDS), pH, and conductivity.

c. Heavy metals using the ICP scan (EPA Method 6010) and Arsenic and Mercury using atomic absorption (EPA Methods 7060 and 7470).
d. EPA RCRA Characteristics for Ignitability, Corrosivity and Reactivity (40 CFR part 261 Subpart C Sections 261.21 – 261.23, July 1, 1992).

I. Area of Review (AOR): The operator shall report within 24 hours of discovery of any new wells, conduits, or any other device that penetrates or may penetrate the injection zone within a 1-mile radius from the Class I Well. Documentation of new wells shall be added to the existing AOR information in the well file within 30 days of the discovery.

J. Bonding or Financial Assurance: The operator shall maintain at a minimum, a one well plugging bond in the amount of $95,000 or the actual amount required to plug/abandon the well pursuant to OCD and WQCC rules and regulations. If warranted, OCD may require additional financial assurance to ensure adequate funding to plug and abandon the well or for any corrective actions.

K. Annual Report: All operators shall submit an annual report due on January 31 of each year. The report shall include the following information:

1. Cover sheet marked as "Annual Class I Well Report, name of operator, permit #, API# of well(s), date of report, and person submitting report.
2. Brief summary of Class I Well(s) operations including description and reason for any remedial or major work on the well with a copy of OCD Form C-103.
3. Production volumes as required above in 22.G. including a running total should be carried over to each year. The maximum and average injection pressure.
4. A copy of the chemical analysis as required above in 22.H.
5. A copy of any mechanical integrity test chart, including the type of test, i.e. duration, gauge pressure, etc.
6. Brief explanation describing deviations from normal production methods.
7. A copy of any expansion tank monitoring pressure, fluid removals/additions, well problems, drinking water impacts, leaks and spills reports.
8. If applicable, results of any groundwater monitoring.
9. An Area of Review (AOR) update summary.
10. Sign-off requirements pursuant to WQCC Subsection G 20.6.2.5101.
11. A summary with interpretation of MITs, Fall-Off Tests, etc., with conclusion(s) and recommendation(s).
12. Annual facility training.

23. Transfer of Discharge Permit: Pursuant to WQCC 20.6.2.5101.H the Navajo Refining Company and any new owner/operator shall provide written notice of any transfer of the permit in accordance with WQCC 20.6.2.3104 (Discharge Permit Required), 20.6.2.3111 (Transfer of Discharge Permit), 20.6.2.5101 (Discharge Permit and Other Requirements for Class I Non-Hazardous Waste Waste Disposal Wells, and Class III Wells). Both parties shall sign the notice 30 days prior to any transfer of ownership, control or possession of a Class I Well with an approved discharge permit. In addition, the purchaser shall include a written commitment to comply with the terms and conditions of the previously approved discharge permit. OCD will not transfer Class I Well operations until: correspondence between the transferor and transferee is submitted along with a signed

certification of acceptance by the transferee, and proper bonding or financial assurance is in place and approved by the division. OCD reserves the right to require a major modification of the permit during the transfer process.

24. Training: All personnel associated with operations at the Navajo Class I disposal well shall have appropriate training in accepting, processing, and disposing of Class I non exempt non-hazardous refinery waste to insure proper disposal. Provide training documentation in annual report under Section 22K(12).

25. Closure: The Navajo Refining Company shall notify the OCD when operations of the facility are to be discontinued for a period in excess of six months. Prior to closure of the facility, the operator shall submit for OCD approval, a closure plan including a completed C-103 form for plugging and abandonment of the well(s). Closure and waste disposal shall be in accordance with the statutes, rules and regulations in effect at the time of closure.

26. Certification: Navajo Refining Company, by the officer whose signature appears below, accepts this permit and agrees to comply with all submitted commitments, including these terms and conditions contained here. **Navajo Refining Company** further acknowledges that the OCD may, for good cause shown, as necessary to protect fresh water, public health, safety, and the environment, change the conditions and requirements of this permit administratively.

Conditions accepted by: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

Navajo Refining Company- print name above

JAMES RESINGER

Company Representative- print name

Company Representative- signature

Title VP - NAVAJO REFINERY

Date: 9/18/07

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Check Date		09/13/2007
Check Amount	$	4,500.00
Vendor No		5102035
Payment Document		2000023164
Company Code		1020

Invoice Date	Invoice Number	Description	Invoice Amount	Discount Amount	Net Amount
08/13/2007	081307		4,500.00	0.00	4,500.00

Payment document	Check number	Date	Currency	Payment amount
2000023164	1000009940	09/13/2007	USD	*********4,500.00*

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. 1000009940 dated 9/13/07

or cash received on _____ in the amount of $ 4500 00

from Navajo Refining Co LP

for WDW-3 UICCL-1-008-3 (CI-008)

Submitted by: Lawrence Romero Date: 9/24/07

Submitted to ASD by: Lawrence Romero Date: 9/24/07

Received in ASD by: _____ Date: _____

Filing Fee _____ New Facility _____ Renewal _____

Modification _____ Other _____

Organization Code 521.07 Applicable FY 2004

To be deposited in the Water Quality Management Fund.

Full Payment ✓ or Annual Increment _____

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

NAVAJO REFINING COMPANY LP
100 Crescent Court, Suite 1600
Dallas TX 75201-6927

64-1278/611 1000009940
09/13/2007

PAY EXACTLY
*********4,500.00*USD

VOID AFTER 180 DAYS

PAY *** FOUR THOUSAND FIVE HUNDRED and 00 /100 USD***

TO THE ORDER OF WATER QUALITY MANAGEMENT FUND
OIL CONSERVATION DIVISION
1220 S SAINT FRANCIS DR
SANTA FE NM 87505-4000

Stephen D Wise
AUTHORIZED SIGNATURE

⑈1000009940⑈ ⑆111278833⑆ 29905321⑆

REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

April 25, 2007

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2007 First Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the first quarter of 2007 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the 200 gallon tanks located at the well head. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2007 to March 31, 2007. We have disposed a total of 32,545,353 barrels of fluid into the two wells as of March 31, 2007. This is broken down as follows: 22,038,386 barrels into WDW-1 and 10,506,967 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Sr. Environmental Specialist

Encl.

ecc: DGM
File; REF:ART: 4 A 02 D

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													**Previous Quarter**	21,268,940
Jan-07	374	417	339	199	263	40	82	143	33	6,821	9,002	1,370	211,459	21,480,399
Feb-07	290	388	222	250	351	17	250	381	38	8,574	12,032	580	265,809	21,746,208
Mar-07	284	340	221	275	295	234	427	500	319	9,425	10,101	8,019	292,178	22,038,386
WDW-2													**Previous Quarter**	10,091,491
Jan-07	223	455	28	119	129	105	0	2	0	4,090	4,415	3,583	126,789	10,218,280
Feb-07	315	500	0	123	158	75	0	0	0	4,219	5,410	2,556	130,779	10,349,059
Mar-07	36	188	0	149	170	124	0	0	0	5,094	5,819	4,238	157,907	10,506,967
													Total Injected fluids:	32,545,353

Page 5376 of 5828

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2007 FIRST QUARTER WEEKLY WHAMS LEVEL TABLE

	1/1/07	1/8/07	1/15/07	1/22/07	1/29/07	2/5/07	2/12/07	2/19/07	2/26/07	3/5/07	3/12/07	3/19/07	3/26/07
WDW -1	300	300	300	300	200[1]	200	200	200	200	200	200	200	200
WDW-2	250	250	250	250	160[1]	160	160	160	160	160	160	160	160

[1] Removed material to ensure tanks don't overflow.

Page 5377 of 5828

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 (281) 530-5656 Fax (281) 530-5887

April 24, 2007

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj. Well Work Order : **0704309**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 1 sample on 4/17/2007 8:40:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 37.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Jeffrey L Croston

Jeffrey L Croston
Project Manager

Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Project: Inj. Well
Work Order: **0704309**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0704309-01	Inj. Well	Water		4/16/2007 13:30	4/17/2007 08:40	☐

e-Lab Analytical, Inc. **Date:** *April 24, 2007*

CLIENT: Navajo Refining Company
Project: Inj. Well
Work Order: 0704309

Case Narrative

pH sample was analyzed within 24 hours of collection.

Batch 22974 Metals MS/MSD was an unrelated sample.collection.

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **4/19/2007**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	4/19/2007 5:03:37 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **4/19/2007**	Analyst: **ALR**
Aluminum	**2.63**		**1.00**	**mg/L**	100	4/20/2007 5:47:00 PM
Arsenic	**0.189**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Barium	**0.0462**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Beryllium	ND		0.00200	mg/L	1	4/20/2007 6:56:00 AM
Boron	**0.188**		**0.0200**	**mg/L**	1	4/20/2007 6:56:00 AM
Cadmium	ND		0.00200	mg/L	1	4/20/2007 6:56:00 AM
Calcium	**46.2**		**0.500**	**mg/L**	1	4/20/2007 6:56:00 AM
Chromium	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Cobalt	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Copper	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Iron	**0.286**		**0.200**	**mg/L**	1	4/20/2007 6:56:00 AM
Lead	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Magnesium	**43.0**		**1.00**	**mg/L**	5	4/23/2007 3:50:00 PM
Manganese	**0.0249**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Molybdenum	**0.0890**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Nickel	**0.00511**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Potassium	**82.8**		**1.00**	**mg/L**	5	4/23/2007 3:50:00 PM
Selenium	**0.170**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
Silver	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Sodium	**2,000**		**20.0**	**mg/L**	100	4/20/2007 5:47:00 PM
Vanadium	ND		0.00500	mg/L	1	4/20/2007 6:56:00 AM
Zinc	**0.0201**		**0.00500**	**mg/L**	1	4/20/2007 6:56:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **4/20/2007**	Analyst: **ACN**
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2,4,5-Trichlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2,4,6-Trichlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Methylnaphthalene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Methylphenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
2-Nitrophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
3&4-Methylphenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
3-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
4-Nitroaniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
4-Nitrophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Acenaphthene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Acenaphthylene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Anthracene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Benz(a)anthracene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Benzidine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Hexachloroethane	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Indeno(1,2,3-cd)pyrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Isophorone	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodi-n-propylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodimethylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
N-Nitrosodiphenylamine	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Naphthalene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Nitrobenzene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Pentachlorophenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Phenanthrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Phenol	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Pyrene	ND		5.0	µg/L	1	4/20/2007 3:25:00 PM
Surr: 2,4,6-Tribromophenol	*75.6*		*42-124*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 2-Fluorobiphenyl	*69.1*		*48-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 2-Fluorophenol	*65.6*		*20-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: 4-Terphenyl-d14	*72.1*		*51-135*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: Nitrobenzene-d5	*76.7*		*41-120*	*%REC*	1	4/20/2007 3:25:00 PM
Surr: Phenol-d6	*70.7*		*20-120*	*%REC*	1	4/20/2007 3:25:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
2-Butanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	4/20/2007 4:54:00 PM
2-Hexanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Acetone	**130**		**10**	**µg/L**	1	4/20/2007 4:54:00 PM
Benzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromoform	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Bromomethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Carbon disulfide	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM

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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloroethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloroform	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Chloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Ethylbenzene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
m,p-Xylene	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Methylene chloride	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Styrene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Toluene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Trichloroethene	ND		5.0	µg/L	1	4/20/2007 4:54:00 PM
Vinyl acetate	ND		10	µg/L	1	4/20/2007 4:54:00 PM
Vinyl chloride	ND		2.0	µg/L	1	4/20/2007 4:54:00 PM
Xylenes, Total	ND		15	µg/L	1	4/20/2007 4:54:00 PM
Surr: 1,2-Dichloroethane-d4	*98.9*		*70-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: 4-Bromofluorobenzene	*100*		*72-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: Dibromofluoromethane	*97.6*		*71-125*	*%REC*	1	4/20/2007 4:54:00 PM
Surr: Toluene-d8	*101*		*75-125*	*%REC*	1	4/20/2007 4:54:00 PM
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	4/18/2007
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	4/18/2007
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **LMD**
Chloride	**953**		**25.0**	**mg/L**	50	4/19/2007 12:47:00 AM
Sulfate	**2,420**		**50.0**	**mg/L**	50	4/19/2007 12:47:00 AM
Surr: Selenate (surr)	*100*		*85-115*	*%REC*	50	4/19/2007 12:47:00 AM
ALKALINITY			**E310.1**			Analyst: **PV**
Alkalinity, Bicarbonate (As CaCO3)	**846**		**5.00**	**mg/L**	1	4/18/2007
Alkalinity, Carbonate (As CaCO3)	**124**		**5.00**	**mg/L**	1	4/18/2007
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	4/18/2007
Alkalinity, Total (As CaCO3)	**970**		**5.00**	**mg/L**	1	4/18/2007
CONDUCTIVITY			**E120.1**			Analyst: **PV**
Specific Conductance	**8,030**		**1.00**	**µmhos/cm**	1	4/17/2007
FLASHPOINT			**SW1010**			Analyst: **MAM**
Ignitability	**>200**		**50.0**	**°F**	1	4/19/2007

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *April 24, 2007*

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well
Lab ID: 0704309-01

Client Sample ID: Inj. Well
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **MAM**
pH	**8.72**	H	**0.100**	**pH units**	1	4/17/2007
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	**6,740**		**10.0**	**mg/L**	1	4/17/2007

Qualifiers:

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J - Analyte detected below quantitation limits
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e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

Date: *Apr 24 2007*

QC BATCH REPORT

Batch ID: **22964** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:27**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095860** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:29**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095861** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00548	0.00020	0.005	0	110	85-115	0			

LCSD Sample ID: **GLCSDW2-041907** Units: **mg/L** Analysis Date: **04/19/07 16:31**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095862** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00553	0.00020	0.005	0	111	85-115	0.00548	0.908	20	

MS Sample ID: **0704314-01DMS** Units: **mg/L** Analysis Date: **04/19/07 16:41**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095865** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00536	0.00020	0.005	-0.000016	108	85-115	0			

MSD Sample ID: **0704314-01DMSD** Units: **mg/L** Analysis Date: **04/19/07 16:43**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095866** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00551	0.00020	0.005	-0.000016	111	85-115	0.00536	2.76	20	

DUP Sample ID: **0704314-01DDUP** Units: **mg/L** Analysis Date: **04/19/07 16:35**
Client ID: Run ID: **MERCURY_070419C** SeqNo: **1095864** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000016	0	20	

The following samples were analyzed in this batch: 0704309-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW2-041907** Units: **mg/L** Analysis Date: **04/20/07 6:43**
Client ID: Run ID: **ICPMS02_070419A** SeqNo: **1096355** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	0.153	0.50								J
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	0.0004649	0.0050								J
Iron	ND	0.20								
Lead	ND	0.0050								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

MBLK Sample ID: **MBLKW2-041907** Units: **mg/L** Analysis Date: **04/20/07 17:35**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097433** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002384	0.010								J
Magnesium	ND	0.20								
Potassium	ND	0.20								
Sodium	ND	0.20								

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW2-041907** Units: **mg/L** Analysis Date: **04/20/07 6:50**
Client ID: Run ID: **ICPMS02_070419A** SeqNo: **1096356** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04694	0.0050	0.05	0	93.9	80-120	0			
Barium	0.0492	0.0050	0.05	0	98.4	80-120	0			
Beryllium	0.04661	0.0020	0.05	0	93.2	80-120	0			
Boron	0.4886	0.020	0.5	0	97.7	80-120	0			
Cadmium	0.04819	0.0020	0.05	0	96.4	80-120	0			
Calcium	4.432	0.50	5	0	88.6	80-120	0			
Chromium	0.04374	0.0050	0.05	0	87.5	80-120	0			
Cobalt	0.04761	0.0050	0.05	0	95.2	80-120	0			
Copper	0.04604	0.0050	0.05	0	92.1	80-120	0			
Iron	4.78	0.20	5	0	95.6	80-120	0			
Lead	0.04708	0.0050	0.05	0	94.2	80-120	0			
Manganese	0.04577	0.0050	0.05	0	91.5	80-120	0			
Molybdenum	0.04668	0.0050	0.05	0	93.4	80-120	0			
Nickel	0.04595	0.0050	0.05	0	91.9	80-120	0			
Selenium	0.04865	0.0050	0.05	0	97.3	80-120	0			
Silver	0.04866	0.0050	0.05	0	97.3	80-120	0			
Vanadium	0.04467	0.0050	0.05	0	89.3	80-119	0			
Zinc	0.04782	0.0050	0.05	0	95.6	80-118	0			

LCS Sample ID: **MLCSW2-041907** Units: **mg/L** Analysis Date: **04/20/07 17:41**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097434** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.04611	0.010	0.05	0	92.2	80-120	0			
Magnesium	4.742	0.20	5	0	94.8	80-120	0			
Potassium	4.78	0.20	5	0	95.6	80-120	0			
Sodium	4.681	0.20	5	0	93.6	80-120	0			

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R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/20/07 23:33**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097709** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06546	0.0050	0.05	0.01224	106	80-120	0			
Barium	0.07401	0.0050	0.05	0.0219	104	80-120	0			
Cadmium	0.04766	0.0020	0.05	0.0003782	94.6	80-120	0			
Calcium	788.7	0.50	5	784.1	92	80-120	0			EO
Chromium	0.0485	0.0050	0.05	0.0001179	96.8	80-120	0			
Cobalt	0.04993	0.0050	0.05	-4.907E-05	100	80-120	0			
Copper	0.04552	0.0050	0.05	0.0001244	90.8	80-120	0			
Iron	7.65	0.20	5	2.781	97.4	80-120	0			
Lead	0.05079	0.0050	0.05	0.0001332	101	80-120	0			
Manganese	0.3215	0.0050	0.05	0.2683	106	80-120	0			O
Molybdenum	0.0586	0.0050	0.05	0.007029	103	80-120	0			
Nickel	0.04825	0.0050	0.05	0.0035	89.5	80-120	0			
Selenium	0.05793	0.0050	0.05	0.00277	110	80-120	0			
Silver	0.04486	0.0050	0.05	-0.0003654	90.5	80-120	0			
Sodium	ND	0.20	5	0	0	80-120	0			SX
Zinc	0.05858	0.0050	0.05	0.01406	89	80-118	0			

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/23/07 16:38**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098464** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04792	0.0040	0.05	-0.0001226	96.1	80-120	0			
Boron	1.713	0.040	0.5	1.21	100	80-120	0			
Vanadium	0.05208	0.010	0.05	-0.0005382	105	80-119	0			

MS Sample ID: **0704293-08DMS** Units: **mg/L** Analysis Date: **04/23/07 18:54**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098605** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06834	0.020	0.05	0.01825	100	80-120	0			
Magnesium	258	0.40	5	259.2	-24	80-120	0			SEO
Potassium	39.84	0.40	5	35.54	86	80-120	0			O

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/20/07 23:39**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097710** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.06506	0.0050	0.05	0.01224	106	80-120	0.06546	0.613	15	
Barium	0.07081	0.0050	0.05	0.0219	97.8	80-120	0.07401	4.42	15	
Cadmium	0.04533	0.0020	0.05	0.0003782	89.9	80-120	0.04766	5.01	15	
Calcium	751.3	0.50	5	784.1	-656	80-120	788.7	4.86	15	SEO
Chromium	0.04705	0.0050	0.05	0.0001179	93.9	80-120	0.0485	3.04	15	
Cobalt	0.04893	0.0050	0.05	-4.907E-05	98	80-120	0.04993	2.02	15	
Copper	0.04465	0.0050	0.05	0.0001244	89.1	80-120	0.04552	1.93	15	
Iron	7.313	0.20	5	2.781	90.6	80-120	7.65	4.5	15	
Lead	0.04983	0.0050	0.05	0.0001332	99.4	80-120	0.05079	1.91	15	
Manganese	0.3116	0.0050	0.05	0.2683	86.6	80-120	0.3215	3.13	15	O
Molybdenum	0.0569	0.0050	0.05	0.007029	99.7	80-120	0.0586	2.94	15	
Nickel	0.04624	0.0050	0.05	0.0035	85.5	80-120	0.04825	4.25	15	
Selenium	0.05633	0.0050	0.05	0.00277	107	80-120	0.05793	2.8	15	
Silver	0.04482	0.0050	0.05	-0.0003654	90.4	80-120	0.04486	0.0892	15	
Sodium	ND	0.20	5	0	0	80-120	0	0	15	SX
Zinc	0.04966	0.0050	0.05	0.01406	71.2	80-118	0.05858	16.5	15	SR

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/23/07 16:51**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098465** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04966	0.0040	0.05	-0.0001226	99.6	80-120	0.04792	3.57	15	
Boron	1.749	0.040	0.5	1.21	108	80-120	1.713	2.11	15	
Vanadium	0.05126	0.010	0.05	-0.0005382	104	80-119	0.05208	1.59	15	

MSD Sample ID: **0704293-08DMSD** Units: **mg/L** Analysis Date: **04/23/07 19:06**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098606** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.06672	0.020	0.05	0.01825	96.9	80-120	0.06834	2.4	15	
Magnesium	252.2	0.40	5	259.2	-140	80-120	258	2.27	15	SEO
Potassium	38.96	0.40	5	35.54	68.4	80-120	39.84	2.23	15	SO

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22974** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/20/07 18:18**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097442** Prep Date: **4/19/2007** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	746.2	50	0	0	0	0-0	738.2	1.08	25	
Magnesium	243.9	20	0	0	0	0-0	240.3	1.49	25	
Sodium	2752	20	0	0	0	0-0	2751	0.0363	25	

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/20/07 23:21**
Client ID: Run ID: **ICPMS02_070420A** SeqNo: **1097707** Prep Date: **4/19/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.01246	0.0050	0	0	0	0-0	0.01224	1.78	25	
Barium	0.02203	0.0050	0	0	0	0-0	0.0219	0.592	25	
Cadmium	0.0002431	0.0020	0	0	0	0-0	0.0003782	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0001179	0	25	
Cobalt	ND	0.0050	0	0	0	0-0	-4.907E-05	0	25	
Copper	ND	0.0050	0	0	0	0-0	0.0001244	0	25	
Iron	2.77	0.20	0	0	0	0-0	2.781	0.396	25	
Lead	ND	0.0050	0	0	0	0-0	0.0001332	0	25	
Manganese	0.2679	0.0050	0	0	0	0-0	0.2683	0.149	25	
Molybdenum	0.00692	0.0050	0	0	0	0-0	0.007029	1.56	25	
Nickel	0.003014	0.0050	0	0	0	0-0	0.0035	0	25	J
Selenium	0.002389	0.0050	0	0	0	0-0	0.00277	0	25	J
Silver	ND	0.0050	0	0	0	0-0	-0.0003654	0	25	
Zinc	0.005127	0.0050	0	0	0	0-0	0.01406	93.1	25	R

DUP Sample ID: **0704293-08DDUP** Units: **mg/L** Analysis Date: **04/23/07 16:07**
Client ID: Run ID: **ICPMS02_070423A** SeqNo: **1098409** Prep Date: **4/19/2007** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01785	0.020	0	0	0	0-0	0.01825	0	25	J
Beryllium	ND	0.0040	0	0	0	0-0	-0.0001226	0	25	
Boron	1.185	0.040	0	0	0	0-0	1.21	2.14	25	
Potassium	34.9	0.40	0	0	0	0-0	35.54	1.82	25	
Vanadium	ND	0.010	0	0	0	0-0	-0.0005382	0	25	

The following samples were analyzed in this batch: 0704309-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:09**

Client ID: Run ID: **SV-3_070420A** SeqNo: **1097700** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	*76.15*	5.0	*100*	0	*76.1*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*81.66*	5.0	*100*	0	*81.7*	*48-120*	0			
Surr: 2-Fluorophenol	*74.34*	5.0	*100*	0	*74.3*	*20-120*	0			
Surr: 4-Terphenyl-d14	*87.27*	5.0	*100*	0	*87.3*	*51-135*	0			
Surr: Nitrobenzene-d5	*81.15*	5.0	*100*	0	*81.2*	*41-120*	0			
Surr: Phenol-d6	*76.4*	5.0	*100*	0	*76.4*	*20-120*	0			

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B - Analyte detected in assoc. Method Blank
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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID: **SLCSW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:34**

Client ID: Run ID: **SV-3_070420A** SeqNo: **1097701** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	40.98	5.0	50	0	82	54-118	0			
2,4,5-Trichlorophenol	82.74	5.0	100	0	82.7	52-115	0			
2,4,6-Trichlorophenol	85.08	5.0	100	0	85.1	56-115	0			
2-Methylnaphthalene	43.85	5.0	50	0	87.7	46-117	0			
2-Methylphenol	81.32	5.0	100	0	81.3	53-115	0			
2-Nitroaniline	45.33	5.0	50	0	90.7	53-123	0			
2-Nitrophenol	79.93	5.0	100	0	79.9	53-115	0			
3&4-Methylphenol	118.5	5.0	150	0	79	48-115	0			
3-Nitroaniline	36.53	5.0	50	0	73.1	26-115	0			
4-Nitroaniline	41.73	5.0	50	0	83.5	47-115	0			
4-Nitrophenol	94.88	5.0	100	0	94.9	26-133	0			
Acenaphthene	43.38	5.0	50	0	86.8	57-115	0			
Acenaphthylene	45.78	5.0	50	0	91.6	57-118	0			
Aniline	32.26	5.0	50	0	64.5	36-115	0			
Anthracene	44.87	5.0	50	0	89.7	65-115	0			
Benz(a)anthracene	38.95	5.0	50	0	77.9	53-115	0			
Benzidine	15.57	5.0	50	0	31.1	10-115	0			
Hexachloroethane	41.99	5.0	50	0	84	54-115	0			
Indeno(1,2,3-cd)pyrene	42.04	5.0	50	0	84.1	51-115	0			
Isophorone	41.19	5.0	50	0	82.4	55-115	0			
N-Nitrosodi-n-propylamine	40.8	5.0	50	0	81.6	55-115	0			
N-Nitrosodimethylamine	37.08	5.0	50	0	74.2	42-115	0			
N-Nitrosodiphenylamine	44.27	5.0	50	0	88.5	52-115	0			
Naphthalene	42.77	5.0	50	0	85.5	55-115	0			
Nitrobenzene	40.53	5.0	50	0	81.1	40-124	0			
Pentachlorophenol	90.61	5.0	100	0	90.6	45-125	0			
Phenanthrene	44.33	5.0	50	0	88.7	57-115	0			
Phenol	77.82	5.0	100	0	77.8	38-115	0			
Pyrene	41.57	5.0	50	0	83.1	51-115	0			
Surr: 2,4,6-Tribromophenol	*84.37*	5.0	*100*	0	*84.4*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*83.81*	5.0	*100*	0	*83.8*	*48-120*	0			
Surr: 2-Fluorophenol	*76*	5.0	*100*	0	*76*	*20-120*	0			
Surr: 4-Terphenyl-d14	*78.04*	5.0	*100*	0	*78*	*51-135*	0			
Surr: Nitrobenzene-d5	*81.76*	5.0	*100*	0	*81.8*	*41-120*	0			
Surr: Phenol-d6	*79.46*	5.0	*100*	0	*79.5*	*20-120*	0			

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **22994** Instrument ID **SV-3** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-070420** Units: **µg/L** Analysis Date: **04/20/07 12:58**

Client ID: Run ID: **SV-3_070420A** SeqNo: **1097702** Prep Date: **4/20/2007** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	42.92	5.0	50	0	85.8	54-118	40.98	4.62	20	
2,4,5-Trichlorophenol	89.79	5.0	100	0	89.8	52-115	82.74	8.17	20	
2,4,6-Trichlorophenol	89.01	5.0	100	0	89	56-115	85.08	4.52	20	
2-Methylnaphthalene	45.67	5.0	50	0	91.3	46-117	43.85	4.07	20	
2-Methylphenol	85.68	5.0	100	0	85.7	53-115	81.32	5.22	20	
2-Nitroaniline	47.16	5.0	50	0	94.3	53-123	45.33	3.98	20	
2-Nitrophenol	86.43	5.0	100	0	86.4	53-115	79.93	7.81	20	
3&4-Methylphenol	126.7	5.0	150	0	84.5	48-115	118.5	6.72	20	
3-Nitroaniline	37.83	5.0	50	0	75.7	26-115	36.53	3.49	20	
4-Nitroaniline	42.27	5.0	50	0	84.5	47-115	41.73	1.29	20	
4-Nitrophenol	94.83	5.0	100	0	94.8	26-133	94.88	0.048	20	
Acenaphthene	45.32	5.0	50	0	90.6	57-115	43.38	4.39	20	
Acenaphthylene	48.52	5.0	50	0	97	57-118	45.78	5.82	20	
Aniline	36.05	5.0	50	0	72.1	36-115	32.26	11.1	20	
Anthracene	45.5	5.0	50	0	91	65-115	44.87	1.38	20	
Benz(a)anthracene	40.58	5.0	50	0	81.2	53-115	38.95	4.11	20	
Benzidine	18.35	5.0	50	0	36.7	10-115	15.57	16.4	20	
Hexachloroethane	44.99	5.0	50	0	90	54-115	41.99	6.9	20	
Indeno(1,2,3-cd)pyrene	44	5.0	50	0	88	51-115	42.04	4.55	20	
Isophorone	42.55	5.0	50	0	85.1	55-115	41.19	3.25	20	
N-Nitrosodi-n-propylamine	43.4	5.0	50	0	86.8	55-115	40.8	6.18	20	
N-Nitrosodimethylamine	41.08	5.0	50	0	82.2	42-115	37.08	10.2	20	
N-Nitrosodiphenylamine	46.04	5.0	50	0	92.1	52-115	44.27	3.92	20	
Naphthalene	45.39	5.0	50	0	90.8	55-115	42.77	5.93	20	
Nitrobenzene	42.89	5.0	50	0	85.8	40-124	40.53	5.65	20	
Pentachlorophenol	90.27	5.0	100	0	90.3	45-125	90.61	0.378	20	
Phenanthrene	45.7	5.0	50	0	91.4	57-115	44.33	3.04	20	
Phenol	82.62	5.0	100	0	82.6	38-115	77.82	5.98	20	
Pyrene	42.88	5.0	50	0	85.8	51-115	41.57	3.09	20	
Surr: 2,4,6-Tribromophenol	*81.47*	5.0	*100*	0	*81.5*	*42-124*	84.37	*3.5*	*20*	
Surr: 2-Fluorobiphenyl	*80.25*	5.0	*100*	0	*80.2*	*48-120*	83.81	*4.34*	*20*	
Surr: 2-Fluorophenol	*75.96*	5.0	*100*	0	*76*	*20-120*	76	*0.0635*	*20*	
Surr: 4-Terphenyl-d14	*74.62*	5.0	*100*	0	*74.6*	*51-135*	78.04	*4.48*	*20*	
Surr: Nitrobenzene-d5	*80.37*	5.0	*100*	0	*80.4*	*41-120*	81.76	*1.71*	*20*	
Surr: Phenol-d6	*83.42*	5.0	*100*	0	*83.4*	*20-120*	79.46	*4.86*	*20*	

The following samples were analyzed in this batch: 0704309-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-042007** Units: **µg/L** Analysis Date: **04/20/07 11:51**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096817** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*48.6*	5.0	*50*	0	*97.2*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*50.22*	5.0	*50*	0	*100*	*72-125*	0			
Surr: Dibromofluoromethane	*49.42*	5.0	*50*	0	*98.8*	*71-125*	0			
Surr: Toluene-d8	*50.95*	5.0	*50*	0	*102*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-042007** Units: **µg/L** Analysis Date: **04/20/07 11:00**
Client ID: Run ID: **VOA1_070420A** SeqNo: **1096816** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.57	5.0	50	0	97.1	80-120	0			
1,1,2,2-Tetrachloroethane	50.18	5.0	50	0	100	72-120	0			
1,1,2-Trichloroethane	50.68	5.0	50	0	101	80-120	0			
1,1-Dichloroethane	48.74	5.0	50	0	97.5	76-120	0			
1,1-Dichloroethene	47.27	5.0	50	0	94.5	73-124	0			
1,2-Dichloroethane	49.42	5.0	50	0	98.8	78-120	0			
2-Butanone	105.8	10	100	0	106	58-132	0			
2-Chloroethyl vinyl ether	105.8	10	100	0	106	74-120	0			
2-Hexanone	103.7	10	100	0	104	61-130	0			
4-Methyl-2-pentanone	107.1	10	100	0	107	65-127	0			
Acetone	98.11	10	100	0	98.1	59-137	0			
Benzene	48.83	5.0	50	0	97.7	73-121	0			
Bromodichloromethane	48.22	5.0	50	0	96.4	80-120	0			
Bromoform	46.52	5.0	50	0	93	79-120	0			
Bromomethane	47.32	5.0	50	0	94.6	66-137	0			
Carbon disulfide	94.62	10	100	0	94.6	68-141	0			
Carbon tetrachloride	46.42	5.0	50	0	92.8	75-124	0			
Chlorobenzene	48.72	5.0	50	0	97.4	80-120	0			
Chloroethane	47.15	5.0	50	0	94.3	76-121	0			
Chloroform	48.82	5.0	50	0	97.6	80-120	0			
Chloromethane	42.92	5.0	50	0	85.8	67-123	0			
cis-1,3-Dichloropropene	49.93	5.0	50	0	99.9	80-120	0			
Dibromochloromethane	50.55	5.0	50	0	101	80-120	0			
Ethylbenzene	48.19	5.0	50	0	96.4	80-120	0			
m,p-Xylene	95.22	10	100	0	95.2	78-121	0			
Methylene chloride	46.36	10	50	0	92.7	65-133	0			
Styrene	49.71	5.0	50	0	99.4	80-120	0			
Tetrachloroethene	47.21	5.0	50	0	94.4	79-120	0			
Toluene	47.98	5.0	50	0	96	80-120	0			
trans-1,3-Dichloropropene	50.69	5.0	50	0	101	80-120	0			
Trichloroethene	48.41	5.0	50	0	96.8	80-120	0			
Vinyl acetate	108.6	10	100	0	109	67-139	0			
Vinyl chloride	43.31	2.0	50	0	86.6	74-122	0			
Xylenes, Total	143.3	15	150	0	95.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	*50.26*	5.0	*50*	0	*101*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*51.33*	5.0	*50*	0	*103*	*72-125*	0			
Surr: Dibromofluoromethane	*50.99*	5.0	*50*	0	*102*	*71-125*	0			
Surr: Toluene-d8	*51.95*	5.0	*50*	0	*104*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0704367-01AMS** Units: **µg/L** Analysis Date: **04/20/07 12:41**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096823** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.57	5.0	50	0	93.1	80-120		0		
1,1,2,2-Tetrachloroethane	51.33	5.0	50	0	103	72-120		0		
1,1,2-Trichloroethane	51.95	5.0	50	0	104	80-120		0		
1,1-Dichloroethane	48.37	5.0	50	0	96.7	76-120		0		
1,1-Dichloroethene	45.82	5.0	50	0	91.6	73-124		0		
1,2-Dichloroethane	50.11	5.0	50	0	100	78-120		0		
2-Butanone	110.2	10	100	0	110	58-132		0		
2-Chloroethyl vinyl ether	109.7	10	100	0	110	74-120		0		
2-Hexanone	111.7	10	100	0	112	61-130		0		
4-Methyl-2-pentanone	112.1	10	100	0	112	65-127		0		
Acetone	103.2	10	100	0.8797	102	59-137		0		
Benzene	47.63	5.0	50	0	95.3	73-121		0		
Bromodichloromethane	49.95	5.0	50	0	99.9	80-120		0		
Bromoform	47.58	5.0	50	0	95.2	79-120		0		
Bromomethane	43.93	5.0	50	0	87.9	66-137		0		
Carbon disulfide	90.67	10	100	0	90.7	68-141		0		
Carbon tetrachloride	44.69	5.0	50	0	89.4	75-124		0		
Chlorobenzene	47.56	5.0	50	0	95.1	80-120		0		
Chloroethane	43.04	5.0	50	0	86.1	76-121		0		
Chloroform	49.18	5.0	50	0	98.4	80-120		0		
Chloromethane	41.05	5.0	50	0	82.1	67-123		0		
cis-1,3-Dichloropropene	50.92	5.0	50	0	102	80-120		0		
Dibromochloromethane	52.39	5.0	50	0	105	80-120		0		
Ethylbenzene	46.46	5.0	50	0	92.9	80-120		0		
m,p-Xylene	94.12	10	100	0	94.1	78-121		0		
Methylene chloride	45.96	10	50	0	91.9	65-133		0		
Styrene	48.39	5.0	50	0	96.8	80-120		0		
Tetrachloroethene	45.71	5.0	50	0	91.4	79-120		0		
Toluene	46.08	5.0	50	0	92.2	80-120		0		
trans-1,3-Dichloropropene	50.97	5.0	50	0	102	80-120		0		
Trichloroethene	47.15	5.0	50	0	94.3	80-120		0		
Vinyl acetate	111.9	10	100	0	112	67-139		0		
Vinyl chloride	40.33	2.0	50	0	80.7	74-122		0		
Xylenes, Total	141	15	150	0	94	80-120		0		
Surr: 1,2-Dichloroethane-d4	*50.37*	5.0	*50*	0	*101*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*50.31*	5.0	*50*	0	*101*	*72-125*		0		
Surr: Dibromofluoromethane	*51.6*	5.0	*50*	0	*103*	*71-125*		0		
Surr: Toluene-d8	*51.99*	5.0	*50*	0	*104*	*75-125*		0		

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48998** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0704367-01AMSD** Units: **µg/L** Analysis Date: **04/20/07 13:06**

Client ID: Run ID: **VOA1_070420A** SeqNo: **1096824** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	43.74	5.0	50	0	87.5	80-120	46.57	6.27	20	
1,1,2,2-Tetrachloroethane	53.33	5.0	50	0	107	72-120	51.33	3.81	20	
1,1,2-Trichloroethane	52.88	5.0	50	0	106	80-120	51.95	1.78	20	
1,1-Dichloroethane	47.37	5.0	50	0	94.7	76-120	48.37	2.09	20	
1,1-Dichloroethene	42.93	5.0	50	0	85.9	73-124	45.82	6.51	20	
1,2-Dichloroethane	48.84	5.0	50	0	97.7	78-120	50.11	2.57	20	
2-Butanone	110.9	10	100	0	111	58-132	110.2	0.693	20	
2-Chloroethyl vinyl ether	111.3	10	100	0	111	74-120	109.7	1.44	20	
2-Hexanone	113	10	100	0	113	61-130	111.7	1.13	20	
4-Methyl-2-pentanone	116.9	10	100	0	117	65-127	112.1	4.23	20	
Acetone	99.56	10	100	0.8797	98.7	59-137	103.2	3.57	20	
Benzene	46.66	5.0	50	0	93.3	73-121	47.63	2.07	20	
Bromodichloromethane	50.08	5.0	50	0	100	80-120	49.95	0.258	20	
Bromoform	48.99	5.0	50	0	98	79-120	47.58	2.93	20	
Bromomethane	45.06	5.0	50	0	90.1	66-137	43.93	2.54	20	
Carbon disulfide	86.9	10	100	0	86.9	68-141	90.67	4.25	20	
Carbon tetrachloride	41.85	5.0	50	0	83.7	75-124	44.69	6.56	20	
Chlorobenzene	46.5	5.0	50	0	93	80-120	47.56	2.24	20	
Chloroethane	41.73	5.0	50	0	83.5	76-121	43.04	3.07	20	
Chloroform	48.58	5.0	50	0	97.2	80-120	49.18	1.21	20	
Chloromethane	40.89	5.0	50	0	81.8	67-123	41.05	0.403	20	
cis-1,3-Dichloropropene	50.77	5.0	50	0	102	80-120	50.92	0.297	20	
Dibromochloromethane	52.86	5.0	50	0	106	80-120	52.39	0.889	20	
Ethylbenzene	43.35	5.0	50	0	86.7	80-120	46.46	6.94	20	
m,p-Xylene	91.01	10	100	0	91	78-121	94.12	3.37	20	
Methylene chloride	46.2	10	50	0	92.4	65-133	45.96	0.53	20	
Styrene	47.29	5.0	50	0	94.6	80-120	48.39	2.29	20	
Tetrachloroethene	42.07	5.0	50	0	84.1	79-120	45.71	8.3	20	
Toluene	45.9	5.0	50	0	91.8	80-120	46.08	0.395	20	
trans-1,3-Dichloropropene	52.11	5.0	50	0	104	80-120	50.97	2.22	20	
Trichloroethene	45.17	5.0	50	0	90.3	80-120	47.15	4.29	20	
Vinyl acetate	108.9	10	100	0	109	67-139	111.9	2.66	20	
Vinyl chloride	38.59	2.0	50	0	77.2	74-122	40.33	4.41	20	
Xylenes, Total	135.2	15	150	0	90.1	80-120	141	4.21	20	
Surr: 1,2-Dichloroethane-d4	*49.77*	5.0	*50*	0	*99.5*	*70-125*	50.37	*1.18*	*20*	
Surr: 4-Bromofluorobenzene	*49.34*	5.0	*50*	0	*98.7*	*72-125*	50.31	*1.96*	*20*	
Surr: Dibromofluoromethane	*50.41*	5.0	*50*	0	*101*	*71-125*	51.6	*2.33*	*20*	
Surr: Toluene-d8	*50.95*	5.0	*50*	0	*102*	*75-125*	51.99	*2.03*	*20*	

The following samples were analyzed in this batch: 0704309-01A

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CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48864** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-041707** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093574** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-041707** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093575** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1410	1.0	1413	0	99.8	80-120		0		

DUP Sample ID: **0704241-01BDUP** Units: **µmhos/cm** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417E** SeqNo: **1093581** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	42.93	1.0	0	0	0	0-0	43.13	0.465	20	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48869** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-041707** Units: **pH units** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417G** SeqNo: **1093613** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.02	0.10	6	0	100	90-110	0			

DUP Sample ID: **0704322-01ADUP** Units: **pH units** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417G** SeqNo: **1093616** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.71	0.10	0	0	0	0-0	7.69	0.26	20	H

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48897** Instrument ID **Balance1** Method: **E160.1** **(Dissolve)**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094263** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094264** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	971	10	1000	0	97.1	85-115		0		

DUP Sample ID: **0704293-18CDUP** Units: **mg/L** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **BALANCE1_070417B** SeqNo: **1094254** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1422	10	0	0	0	0-0	1347	5.42	20	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48926** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-041807** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094851** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-041807** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094852** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1006	5.0	1000	0	101	80-120	0			

DUP Sample ID: **0704260-04FDUP** Units: **mg/L** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070418J** SeqNo: **1094866** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	371.5	5.0	0	0	0	0-0	356	4.26	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	371.5	5.0	0	0	0	0-0	356	4.26	20	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48945** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-041907** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095481** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID: **0704158-01EDUP** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095487** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

DUP Sample ID: **0704338-01ADUP** Units: **°F** Analysis Date: **04/19/07 0:00**
Client ID: Run ID: **WETCHEM_070419A** SeqNo: **1095488** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48972** Instrument ID **ICS3000** Method: **E300**

MBLK Sample ID: **WBLKW1-041707** Units: **mg/L** Analysis Date: **04/17/07 21:23**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096082** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Selenate (surr)	*4.803*	0.10	*5*	0	*96.1*	*85-115*		0		

LCS Sample ID: **WLCSW1-041707/** Units: **mg/L** Analysis Date: **04/17/07 21:47**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096083** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.12	0.50	20	0	101	90-110		0		
Sulfate	20.19	1.0	20	0	101	90-110		0		
Surr: Selenate (surr)	*5.152*	0.10	*5*	0	*103*	*85-115*		0		

MS Sample ID: **0704301-01FMS** Units: **mg/L** Analysis Date: **04/17/07 23:00**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096086** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	53.34	0.50	10	44.17	91.7	80-120		0		EO
Sulfate	87.46	1.0	10	78.84	86.2	80-120		0		EO
Surr: Selenate (surr)	*4.848*	0.10	*5*	0	*97*	*85-115*		0		

MSD Sample ID: **0704301-01FMSD** Units: **mg/L** Analysis Date: **04/17/07 23:25**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096087** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	53.3	0.50	10	44.17	91.3	80-120	53.34	0.0731	20	EO
Sulfate	87.29	1.0	10	78.84	84.5	80-120	87.46	0.195	20	EO
Surr: Selenate (surr)	*4.833*	0.10	*5*	0	*96.7*	*85-115*	4.848	*0.31*	*20*	

DUP Sample ID: **0704301-01FDUP** Units: **mg/L** Analysis Date: **04/17/07 22:36**
Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096085** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	44.13	0.50	0	0	0	0-0	44.17	0.0861	20	
Sulfate	78.82	1.0	0	0	0	0-0	78.84	0.019	20	E
Surr: Selenate (surr)	*4.843*	0.10	*5*	0	*96.9*	*85-115*	4.847	*0.0826*	*20*	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0704309
Project: Inj. Well

QC BATCH REPORT

Batch ID: **R48972** Instrument ID **ICS3000** Method: **E300**

DUP Sample ID: **0704301-01FDUP** Units: **mg/L** Analysis Date: **04/18/07 9:33**

Client ID: Run ID: **ICS3000_070417A** SeqNo: **1096131** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	43.19	5.0	0	0	0	0-0	43.34	0.337	20	
Sulfate	76.4	10	0	0	0	0-0	76.35	0.0615	20	
Surr: Selenate (surr)	*48.09*	1.0	*50*	0	*96.2*	*85-115*	47.96	*0.273*	*20*	

The following samples were analyzed in this batch: 0704309-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab
QUALITY • INTEGRITY • SERVICE

☐ e-Lab Analytical, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

The Chain of Custody is a Legal Document. All information must be completed accurately.

☐ e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 0704309

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Well	A	Injection Well Quarterly
Work Order		Project Number		B	
Company Name	Navajo Refining	Bill To Company	Same	C	
Send Report To	Jeff Byrd	Invoice Attn		D	
Address		Address		E	
				F	
City/State/Zip	Artesia	City/State/Zip		G	
Phone		Phone		H	
Fax		Fax		I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. well	4/16/07	1330	L	Y	8	X										
2	Trip blank						X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Jeff Byrd

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Other ☐ STD-10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour

Results Due Date:

Relinquished by: Jeff Byrd	Date: 4/16/07	Time: 1615	Received by:	Notes:	
Relinquished by:	Date:	Time:	Received by (Laboratory): 4/17/07 08:46	e-Lab Analytical Cooler ID	Trip Blank Number
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name: NAVAJO REFINING Date/Time Received: 4/17/2007 8:40:00 AM

Work Order Number 0704309 Received by: RNG

Checklist completed by RMR 4-17-07 Reviewed by 9L 4/18/07

Signature Date Initials Date

Matrix: Liquid Carrier name: E-Lab

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.7c	002	
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

FedEx
Emp# 520550 01:01 17APR07

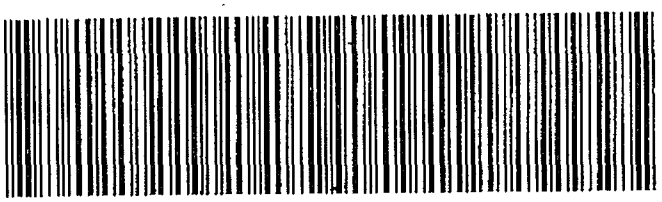
STANDARD OVERNIGHT TUE

Deliver By:
17APR07

TRK# 9046 7991 1241 FORM 0201

IAH

77099 -TX-US XH JGQA



e-Lab Analytical, Inc.
10460 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.6887

CUSTOD
Date: 4/16/07
Name:
Company:

DY SEAL
me: 1615

Seal Broken By:
Date: 4/17/07

e-Lab Analytical, Inc

Date: *April 20, 2007*

CLIENT: e-Lab Analytical, Inc
Project: 0704309
Work Order: **0704354**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0704354-01	0704309-01E	Water		4/16/2007 13:30	4/18/2007 10:00	☐

e-Lab Analytical, Inc

Date: *April 20, 2007*

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309
Lab ID: 0704354-01

Client Sample ID: 0704309-01E
Collection Date: 4/16/2007 1:30:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **RAR**
Cyanide, Reactive	ND	40.0		mg/Kg	1	4/18/2007
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **RAR**
Sulfide, Reactive	ND	40.0		mg/Kg	1	4/18/2007

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- P - Dual Column results percent difference > 40%
- E - Value above quantitation range
- H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309

Date: *Apr 20 2007*

QC BATCH REPORT

Batch ID: **R48120** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID **WBLKW1-041707** Units: **mg/Kg** Analysis Date: **04/18/07 0:00**

Client ID: Run ID: **WETCHEM_070417P** SeqNo: **764493** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0704354-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0704354
Project: 0704309

QC BATCH REPORT

Batch ID: **R48121** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID **WBLKW1-041707** Units: **mg/Kg** Analysis Date: **04/18/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764522** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID **WLCSW1-041707** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764531** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	190.8	40	619	0	30.8	2.8-70	0			

LCSD Sample ID **WLCSDW1-04170** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764530** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	194.5	40	619	0	31.4	2.8-70	190.8	1.92	35	

MS Sample ID **0704315-01A MS** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764532** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	157	40	619	0	25.4	2.8-70	0			

MSD Sample ID **0704315-01A MSD** Units: **mg/Kg** Analysis Date: **04/17/07 0:00**
Client ID: Run ID: **WETCHEM_070417Q** SeqNo: **764533** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	131	40	619	0	21.2	2.8-70	157	18.1	35	

The following samples were analyzed in this batch: 0704354-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

0704354

Subcontractor:
e-Lab Analytical, Inc.
3352 128th Ave.
Holland, MI 49424
TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

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CHAIN-OF-CUSTODY RECORD

Date: Apr 17, 2007
COC ID: 4918
Due Date 4/23/2007

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	0704309	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jcroston@elabi.com	eMail CC	oelliston@elabi.com	J

Sample ID	Matrix	Collection Date	Bottle	A	B	C	D	E	F	G	H	I	J
0704309-01E (Inj. Well)	Water	4/16/2007 13:30	(1) 1LPNEAT	X	X								

Comments:

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
					Std
Relinquished by:	Date/Time	Received by:	Date/Time		
UPS	4-17-07/UPS 4/18/07 1000	UPS	4/17/07 4/18/07 1000		

e-Lab Analytical, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 4/18/2007 10:00:00 AM

Work Order Number 0704354 Received by: AJK

Checklist completed by Signature 4/18/07 Date Reviewed by Initials 4/18/07 Date

Matrix: Water Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.2 C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

UPS Next Day Air Saver

Ship Via: UPS Document

WEIGHT: 1 LBS | DIMENSIONAL WEIGHT | LARGE AIR PACKAGE | SHIPPER RELEASE

Saver

SHIPMENT FROM

UPS ACCOUNT NO: 698174

REFERENCE NUMBER: SUB R2 SANCHEZ

TELEPHONE: 281-530-5656

E-LAB, INC.

10450 STANCLIFF RD STE #210

HOUSTON TX 77099

MI 495 9-04

UPS Next Day Air Saver 1P

DELIVER TO

TELEPHONE: 616-399-6070

RECEIVING

E-LAB, INC.

3352 128TH AVE

HOLLAND MI 49424

1Z 678 17[illegible] 23 1002 7565

(URC v.48.0A 10/2005)
0201952542609 1:05 S

United Parcel Service, Louisville, KY

SHIPMENT ID NUMBER: 6981 7479 [illegible]

e-Lab Analytical, Inc.

10450 Stancliff Rd., Suite 210

Houston, Texas 77099

Tel: 281.530.5656

Fax: 281.530.5887

QUALITY - INTEGRITY

CUSTODY SEAL

Date: 4-11-07

Time: [illegible]

Signature: [illegible]

0704350

OK cc. 5/17/07 Sam Actions

NAVAJO REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

April 16, 2006

RECEIVED

APR 19 2007

Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

Mr. Wayne Price
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2006 Fourth Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Mr. Price,

Enclosed, please find sampling results for the fourth quarter of 2006 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2006 to December 31, 2006. We have disposed a total of 31,360,431 barrels of fluid into the two wells as of December 31, 2006. This is broken down as follows: 21,268,940 barrels into WDW-1 and 10,091,491 barrels into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Jefferson L. Byrd
Sr. Environmental Specialist

Encl.

ccc: DGM
File; REF:ART: 4 A 02 D

Released to Imaging: 7/12/2024 10:49:45 AM

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

2006 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1													Previous Quarter	20,500,126
Oct-06	229	353	7	242	312	125	241	349	154	8,311	10,708	4,296	257,630	20,757,756
Nov-06	279	368	36	248	298	122	267	325	130	8,491	10,221	4,189	263,211	21,020,967
Dec-06	349	402	294	233	342	129	157	232	102	7,999	11,712	4,420	247,973	21,268,940
WDW-2													Previous Quarter	9,745,400
Oct-06	481	500	358	94	150	0	0	0	0	3,237	5,160	0	100,352	9,845,752
Nov-06	497	500	447	109	154	0	0	0	0	3,735	5,291	0	115,797	9,961,549
Dec-06	406	500	205	122	140	69	0	0	0	4,192	4,799	2,382	129,942	10,091,491
													Total Injected fluids:	31,360,431

Page 5416 of 5828

2006 FOURTH QUARTER WEEKLY WHAMS LEVEL TABLE

	12/4/06	12/11/06	12/18/06	12/25/06
	Gallons	Gallons	Gallons	Gallons
WDW-1	300	300	300	300
WDW-2	250	250	250	250

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 (281) 530-5656 Fax (281) 530-5887

December 29, 2006

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Wells Work Order : **0612199**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 2 samples on 12/12/2006 10:35:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 45.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Odette E. Elliston

Jeffrey L Croston
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Certificate No: T104704231-06-TX

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: **0612199**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0612199-01	Injection Wells	Water		12/11/2006 13:30	12/12/2006 10:35	☐
0612199-02	Trip Blank 1338	Trip Blank		12/11/2006	12/12/2006 10:35	☑

e-Lab Analytical, Inc. **Date:** *December 29, 2006*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0612199

Case Narrative

Batch's 21185 and 21217 Metals MS/MSD were unrelated samples.

Batch's R44863 and R45027 Volatiles MS/MSD were unrelated samples.

Batch R44808 Anions (sample Injection Wells) MS/MSD recoveries were below the control limits for Sulfate (76.4% and 64.8%). Recoveries were E/O-flagged.

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL			**SW7470**		Prep Date: **12/18/2006**	Analyst: **JCJ**
Mercury	ND		0.000200	mg/L	1	12/18/2006 5:21:59 PM
ICP METALS, TOTAL			**SW6020**		Prep Date: **12/13/2006**	Analyst: **ALR**
Aluminum	**1.27**		**0.0100**	**mg/L**	1	12/15/2006 12:10:00 AM
Arsenic	**0.159**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Barium	**0.0250**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Beryllium	ND		0.00200	mg/L	1	12/15/2006 12:10:00 AM
Boron	**0.237**		**0.0200**	**mg/L**	1	12/19/2006 8:58:00 AM
Cadmium	ND		0.00100	mg/L	1	12/15/2006 12:10:00 AM
Calcium	**121**		**0.500**	**mg/L**	1	12/15/2006 12:10:00 AM
Chromium	**0.00234**		**0.00200**	**mg/L**	1	12/15/2006 12:10:00 AM
Cobalt	ND		0.00200	mg/L	1	12/15/2006 12:10:00 AM
Copper	**0.00417**		**0.00200**	**mg/L**	1	12/15/2006 12:10:00 AM
Iron	**0.802**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Lead	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Magnesium	**25.0**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Manganese	**0.0726**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Molybdenum	**0.0925**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Nickel	**0.0103**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Potassium	**18.8**		**0.200**	**mg/L**	1	12/15/2006 12:10:00 AM
Selenium	**0.344**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
Silver	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Sodium	**1,400**		**40.0**	**mg/L**	200	12/15/2006 4:58:00 PM
Vanadium	ND		0.00500	mg/L	1	12/15/2006 12:10:00 AM
Zinc	**0.159**		**0.00500**	**mg/L**	1	12/15/2006 12:10:00 AM
SEMIVOLATILE ORGANICS BY GC/MS			**SW8270**		Prep Date: **12/13/2006**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2,4,5-Trichlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2,4,6-Trichlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Methylnaphthalene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Methylphenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
2-Nitrophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
3&4-Methylphenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
3-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
4-Nitroaniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
4-Nitrophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Acenaphthene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Acenaphthylene	ND		10	µg/L	1	12/14/2006 5:22:00 PM

Qualifiers:

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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Anthracene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Benz(a)anthracene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Benzidine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Hexachloroethane	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Indeno(1,2,3-cd)pyrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Isophorone	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodi-n-propylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodimethylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
N-Nitrosodiphenylamine	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Naphthalene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Nitrobenzene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Pentachlorophenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Phenanthrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Phenol	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Pyrene	ND		10	µg/L	1	12/14/2006 5:22:00 PM
Surr: 2,4,6-Tribromophenol	*69.3*		*42-124*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 2-Fluorobiphenyl	*65.2*		*48-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 2-Fluorophenol	*53.3*		*20-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: 4-Terphenyl-d14	*66.0*		*51-135*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: Nitrobenzene-d5	*62.9*		*41-120*	*%REC*	1	12/14/2006 5:22:00 PM
Surr: Phenol-d6	*61.1*		*20-120*	*%REC*	1	12/14/2006 5:22:00 PM
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
2-Butanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	12/18/2006 7:17:00 PM
2-Hexanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Acetone	**53**		**10**	**µg/L**	1	12/18/2006 7:17:00 PM
Benzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromoform	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Bromomethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Carbon disulfide	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloroethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloroform	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Chloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Ethylbenzene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
m,p-Xylene	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Methylene chloride	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Styrene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Toluene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Trichloroethene	ND		5.0	µg/L	1	12/18/2006 7:17:00 PM
Vinyl acetate	ND		10	µg/L	1	12/18/2006 7:17:00 PM
Vinyl chloride	ND		2.0	µg/L	1	12/18/2006 7:17:00 PM
Xylenes, Total	ND		15	µg/L	1	12/18/2006 7:17:00 PM
Surr: 1,2-Dichloroethane-d4	*107*		*70-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: 4-Bromofluorobenzene	*116*		*72.4-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: Dibromofluoromethane	*121*		*71.2-125*	*%REC*	1	12/18/2006 7:17:00 PM
Surr: Toluene-d8	*123*		*75-125*	*%REC*	1	12/18/2006 7:17:00 PM
FLASHPOINT			**SW1010**			Analyst: **MAG**
Ignitability	**>180**		**50.0**	**°F**	1	12/15/2006
CYANIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Cyanide	ND		40.0	mg/Kg	1	12/15/2006
SULFIDE, REACTIVE			**SW-846**			Analyst: **MAG**
Reactive Sulfide	ND		40.0	mg/Kg	1	12/15/2006
ANIONS BY ION CHROMATOGRAPHY			**E300**			Analyst: **LMD**
Chloride	**907**		**25.0**	**mg/L**	50	12/13/2006 12:38:00 AM
Sulfate	**1,810**		**50.0**	**mg/L**	50	12/13/2006 12:38:00 AM
Surr: Selenate (surr)	*92.9*		*80-120*	*%REC*	50	12/13/2006 12:38:00 AM
ALKALINITY			**E310.1**			Analyst: **PV**
Alkalinity, Bicarbonate (As CaCO3)	**224**		**5.00**	**mg/L**	1	12/18/2006
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	12/18/2006
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	12/18/2006
Alkalinity, Total (As CaCO3)	**224**		**5.00**	**mg/L**	1	12/18/2006
CONDUCTIVITY			**E120.1**			Analyst: **RPM**
Specific Conductance	**5,800**		**1.00**	**µmhos/cm**	1	12/12/2006

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-01

Client Sample ID: Injection Wells
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **RPM**
pH	7.32		0.100	pH units	1	12/12/2006
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **MAM**
Total Dissolved Solids (Residue, Filterable)	4,530		10.0	mg/L	1	12/13/2006

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *December 29, 2006*

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells
Lab ID: 0612199-02

Client Sample ID: Trip Blank 1338
Collection Date: 12/11/2006
Matrix: TRIP BLANK

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILES BY GC/MS			**SW8260**			Analyst: **PC**
1,1,1-Trichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1-Dichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,1-Dichloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
1,2-Dichloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
2-Butanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
2-Chloroethyl vinyl ether	ND		10	µg/L	1	12/13/2006 8:56:00 PM
2-Hexanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
4-Methyl-2-pentanone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Acetone	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Benzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromodichloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromoform	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Bromomethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Carbon disulfide	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Carbon tetrachloride	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chlorobenzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloroethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloroform	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Chloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Dibromochloromethane	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Ethylbenzene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
m,p-Xylene	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Methylene chloride	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Styrene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Tetrachloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Toluene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Trichloroethene	ND		5.0	µg/L	1	12/13/2006 8:56:00 PM
Vinyl acetate	ND		10	µg/L	1	12/13/2006 8:56:00 PM
Vinyl chloride	ND		2.0	µg/L	1	12/13/2006 8:56:00 PM
Xylenes, Total	ND		15	µg/L	1	12/13/2006 8:56:00 PM
Surr: 1,2-Dichloroethane-d4	*104*		*70-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: 4-Bromofluorobenzene	*80.6*		*72.4-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: Dibromofluoromethane	*99.8*		*71.2-125*	*%REC*	1	12/13/2006 8:56:00 PM
Surr: Toluene-d8	*91.4*		*75-125*	*%REC*	1	12/13/2006 8:56:00 PM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- P - Dual Column results percent difference > 40%
- E - Value above quantitation range
- H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

Date: *Dec 29 2006*

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW1-121306** Units: **mg/L** Analysis Date: **12/14/06 14:44**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014550** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	ND	0.0050								

MBLK Sample ID: **MBLKW1-121306** Units: **mg/L** Analysis Date: **12/14/06 18:48**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014885** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	0.02435	0.20								J
Selenium	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	0.00299	0.0050								J

LCS Sample ID: **MLCSW1-121306** Units: **mg/L** Analysis Date: **12/14/06 14:50**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014551** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	0.04857	0.0050	0.05	0	97.1	80-117		0		

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

LCS Sample ID: **MLCSW1-121306** Units: **mg/L** Analysis Date: **12/14/06 18:54**

Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014886** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05627	0.010	0.05	0	113	79-126	0			
Arsenic	0.0495	0.0050	0.05	0	99	80-121	0			
Barium	0.05205	0.0050	0.05	0	104	79.8-119	0			
Beryllium	0.04927	0.0020	0.05	0	98.5	78.9-120	0			
Cadmium	0.05273	0.0020	0.05	0	105	79.1-119	0			
Calcium	5.374	0.50	5	0	107	80-121	0			
Chromium	0.05011	0.0050	0.05	0	100	79.3-121	0			
Cobalt	0.0542	0.0050	0.05	0	108	82-121	0			
Copper	0.04994	0.0050	0.05	0	99.9	81-120	0			
Iron	5.01	0.20	5	0	100	80-120	0			
Lead	0.0496	0.0050	0.05	0	99.2	80-118	0			
Magnesium	4.874	0.20	5	0	97.5	80-120	0			
Manganese	0.05128	0.0050	0.05	0	103	82-119	0			
Molybdenum	0.04974	0.0050	0.05	0	99.5	81-116	0			
Nickel	0.05207	0.0050	0.05	0	104	82-120	0			
Potassium	4.844	0.20	5	0	96.9	80-120	0			
Selenium	0.04976	0.0050	0.05	0	99.5	79.2-118	0			
Sodium	4.873	0.20	5	0	97.5	80.6-119	0			
Vanadium	0.05329	0.0050	0.05	0	107	82.1-119	0			
Zinc	0.05312	0.0050	0.05	0	106	79-118	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/14/06 6:12**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014199** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05019	0.0050	0.05	0.003835	92.7	80-121	0			
Barium	0.2575	0.0050	0.05	0.2123	90.4	79.8-119	0			O
Cadmium	0.04615	0.0020	0.05	-0.0003191	92.9	79.1-119	0			
Calcium	110.8	0.50	5	102.6	164	80-121	0			SO
Chromium	0.05279	0.0050	0.05	0.002521	101	79.3-121	0			
Cobalt	0.05119	0.0050	0.05	-0.0001729	103	82-121	0			
Copper	0.06686	0.0050	0.05	0.02236	89	80-120	0			
Iron	4.641	0.20	5	0.03176	92.2	80-120	0			
Lead	0.04808	0.0050	0.05	-0.00005234	96.3	80-118	0			
Manganese	0.04835	0.0050	0.05	-0.0001617	97	82-119	0			
Molybdenum	0.04822	0.0050	0.05	0.00133	93.8	81-116	0			
Nickel	0.04771	0.0050	0.05	0.0005055	94.4	82-120	0			
Potassium	87.71	0.20	5	79.47	165	80-120	0			SO
Selenium	0.04355	0.0050	0.05	0.001252	84.6	79.2-118	0			
Silver	0.04151	0.0050	0.05	-0.0003545	83.7	80-117	0			
Sodium	1377	0.20	5	1299	1560	80.6-119	0			SEO
Vanadium	0.06184	0.0050	0.05	0.008266	107	82.1-119	0			
Zinc	0.06342	0.0050	0.05	0.01872	89.4	79-118	0			

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/14/06 22:05**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014913** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04543	0.0020	0.05	0.00003426	90.8	78.9-120	0			

MS Sample ID: **0612207-03AMS** Units: **mg/L** Analysis Date: **12/15/06 15:39**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015920** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.0583	0.010	0.05	0.007915	101	79-126	0			
Magnesium	7.084	0.20	5	2.247	96.7	80-120	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/14/06 6:42**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014202** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05268	0.0050	0.05	0.003835	97.7	80-121	0.05019	4.84	15	
Barium	0.2609	0.0050	0.05	0.2123	97.2	79.8-119	0.2575	1.31	15	O
Cadmium	0.04664	0.0020	0.05	-0.0003191	93.9	79.1-119	0.04615	1.06	15	
Calcium	111.3	0.50	5	102.6	174	80-121	110.8	0.45	15	SO
Chromium	0.05392	0.0050	0.05	0.002521	103	79.3-121	0.05279	2.12	15	
Cobalt	0.05257	0.0050	0.05	-0.0001729	105	82-121	0.05119	2.66	15	
Copper	0.06723	0.0050	0.05	0.02236	89.7	81-120	0.06686	0.552	15	
Iron	4.76	0.20	5	0.03176	94.6	80-120	4.641	2.53	15	
Lead	0.04907	0.0050	0.05	-0.00005234	98.2	80-118	0.04808	2.04	15	
Manganese	0.04982	0.0050	0.05	-0.0001617	100	82-119	0.04835	2.99	15	
Molybdenum	0.05058	0.0050	0.05	0.00133	98.5	81-116	0.04822	4.78	15	
Nickel	0.04836	0.0050	0.05	0.0005055	95.7	82-120	0.04771	1.35	15	
Potassium	88.86	0.20	5	79.47	188	80-120	87.71	1.3	15	SO
Selenium	0.04557	0.0050	0.05	0.001252	88.6	79.2-118	0.04355	4.53	15	
Silver	0.04232	0.0050	0.05	-0.0003545	85.3	80-117	0.04151	1.93	15	
Sodium	1368	0.20	5	1299	1380	80.6-119	1377	0.656	15	SEO
Vanadium	0.06322	0.0050	0.05	0.008266	110	82.1-119	0.06184	2.21	15	
Zinc	0.06534	0.0050	0.05	0.01872	93.2	79-118	0.06342	2.98	15	

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/14/06 22:11**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014914** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04628	0.0020	0.05	0.00003426	92.5	78.9-120	0.04543	1.85	15	

MSD Sample ID: **0612207-03AMSD** Units: **mg/L** Analysis Date: **12/15/06 15:45**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015921** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05953	0.010	0.05	0.007915	103	79-126	0.0583	2.09	15	
Magnesium	7.342	0.20	5	2.247	102	80-120	7.084	3.58	15	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21185** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 6:00**
Client ID: Run ID: **ICPMS02_061213A** SeqNo: **1014197** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.003896	0.0050	0	0	0	0-0	0.003835	0	25	J
Barium	0.2164	0.0050	0	0	0	0-0	0.2123	1.91	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.0003191	0	25	
Calcium	108.1	0.50	0	0	0	0-0	102.6	5.22	25	
Chromium	0.002547	0.0050	0	0	0	0-0	0.002521	0	25	J
Cobalt	ND	0.0050	0	0	0	0-0	-0.0001729	0	25	
Copper	0.02359	0.0050	0	0	0	0-0	0.02236	5.35	25	
Iron	ND	0.20	0	0	0	0-0	0.03176	0	25	
Lead	ND	0.0050	0	0	0	0-0	-0.00005234	0	25	
Manganese	ND	0.0050	0	0	0	0-0	-0.0001617	0	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.00133	0	25	
Nickel	ND	0.0050	0	0	0	0-0	0.0005055	0	25	
Potassium	84.36	0.20	0	0	0	0-0	79.47	5.97	25	
Selenium	ND	0.0050	0	0	0	0-0	0.001252	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003545	0	25	
Vanadium	0.008473	0.0050	0	0	0	0-0	0.008266	2.47	25	
Zinc	0.01981	0.0050	0	0	0	0-0	0.01872	5.66	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 19:12**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014889** Prep Date: **12/13/2006** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	1115	20	0	0	0	0-0	1159	3.87	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/14/06 21:53**
Client ID: Run ID: **ICPMS02_061214A** SeqNo: **1014911** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	ND	0.0020	0	0	0	0-0	0.00003426	0	25	

DUP Sample ID: **0612207-03ADUP** Units: **mg/L** Analysis Date: **12/15/06 15:09**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1015916** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.008813	0.010	0	0	0	0-0	0.007915	0	25	J
Magnesium	2.464	0.20	0	0	0	0-0	2.247	9.21	25	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

MBLK Sample ID: **MBLKW2-121406** Units: **mg/L** Analysis Date: **12/15/06 23:07**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016132** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Boron	ND	0.020								
Selenium	ND	0.0050								
Silver	ND	0.0050								

MBLK Sample ID: **MBLKW2-121406** Units: **mg/L** Analysis Date: **12/19/06 7:35**
Client ID: Run ID: **ICPMS02_061218A** SeqNo: **1017633** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.001537	0.0050								J
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Manganese	ND	0.0050								

LCS Sample ID: **MLCSW2-121406** Units: **mg/L** Analysis Date: **12/15/06 23:13**
Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016133** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04677	0.0050	0.05	0	93.5	80-121	0			
Boron	0.4806	0.020	0.5	0	96.1	80-120	0			
Selenium	0.04586	0.0050	0.05	0	91.7	79.2-118	0			
Silver	0.04708	0.0050	0.05	0	94.2	80-117	0			

LCS Sample ID: **MLCSW2-121406** Units: **mg/L** Analysis Date: **12/19/06 7:41**
Client ID: Run ID: **ICPMS02_061218A** SeqNo: **1017634** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.04922	0.0050	0.05	0	98.4	79.8-119	0			
Cadmium	0.05144	0.0020	0.05	0	103	79.1-119	0			
Chromium	0.04955	0.0050	0.05	0	99.1	79.3-121	0			
Iron	4.899	0.20	5	0	98	80-120	0			
Lead	0.04956	0.0050	0.05	0	99.1	80-118	0			
Manganese	0.04994	0.0050	0.05	0	99.9	82-119	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

MS Sample ID: **0612242-05CMS** Units: **mg/L** Analysis Date: **12/15/06 23:43**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016138** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05464	0.0050	0.05	0.004181	101	80-121	0			
Barium	0.3228	0.0050	0.05	0.2688	108	79.8-119	0			O
Boron	0.65	0.020	0.5	0.1409	102	80-120	0			
Cadmium	0.05025	0.0020	0.05	0.0001167	100	79.1-119	0			
Chromium	0.06074	0.0050	0.05	0.00971	102	79.3-121	0			
Iron	5.036	0.20	5	0.1981	96.8	80-120	0			
Lead	0.05276	0.0050	0.05	0.0009405	104	80-118	0			
Manganese	0.6335	0.0050	0.05	0.554	159	82-119	0			SO
Selenium	0.05114	0.0050	0.05	0.00048	101	79.2-118	0			
Silver	0.04824	0.0050	0.05	-0.0003112	97.1	80-117	0			

MSD Sample ID: **0612242-05CMSD** Units: **mg/L** Analysis Date: **12/15/06 23:49**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016139** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05287	0.0050	0.05	0.004181	97.4	80-121	0.05464	3.29	15	
Barium	0.307	0.0050	0.05	0.2688	76.4	79.8-119	0.3228	5.02	15	SO
Boron	0.6264	0.020	0.5	0.1409	97.1	80-120	0.65	3.7	15	
Cadmium	0.04894	0.0020	0.05	0.0001167	97.6	79.1-119	0.05025	2.64	15	
Chromium	0.05741	0.0050	0.05	0.00971	95.4	79.3-121	0.06074	5.64	15	
Iron	4.782	0.20	5	0.1981	91.7	80-120	5.036	5.17	15	
Lead	0.05067	0.0050	0.05	0.0009405	99.5	80-118	0.05276	4.04	15	
Manganese	0.5899	0.0050	0.05	0.554	71.8	82-119	0.6335	7.13	15	SO
Selenium	0.04877	0.0050	0.05	0.00048	96.6	79.2-118	0.05114	4.74	15	
Silver	0.04559	0.0050	0.05	-0.0003112	91.8	80-117	0.04824	5.65	15	

ND - Not Dctected at the Reporting Limit
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21217** Instrument ID **ICPMS02** Method: **SW6020**

DUP Sample ID: **0612242-05CDUP** Units: **mg/L** Analysis Date: **12/15/06 23:31**

Client ID: Run ID: **ICPMS02_061215A** SeqNo: **1016136** Prep Date: **12/14/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.003997	0.0050	0	0	0	0-0	0.004181	0	25	J
Barium	0.257	0.0050	0	0	0	0-0	0.2688	4.49	25	
Boron	0.1321	0.020	0	0	0	0-0	0.1409	6.45	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.0001167	0	25	
Chromium	0.009143	0.0050	0	0	0	0-0	0.00971	6.01	25	
Iron	0.1797	0.20	0	0	0	0-0	0.1981	0	25	J
Lead	0.0008973	0.0050	0	0	0	0-0	0.0009405	0	25	J
Manganese	0.5385	0.0050	0	0	0	0-0	0.554	2.84	25	
Selenium	ND	0.0050	0	0	0	0-0	0.00048	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0003112	0	25	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21263** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:07**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017389** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:09**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017390** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	0	101	85-115	0			

LCSD Sample ID: **GLCSDW2-121806** Units: **mg/L** Analysis Date: **12/18/06 17:11**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017391** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00527	0.00020	0.005	0	105	85-115	0.00506	4.07	20	

MS Sample ID: **0612163-01DMS** Units: **mg/L** Analysis Date: **12/18/06 17:17**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017394** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	-0.000011	101	85-115	0			

MSD Sample ID: **0612163-01DMSD** Units: **mg/L** Analysis Date: **12/18/06 17:19**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017395** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00532	0.00020	0.005	-0.000011	107	85-115	0.00506	5.01	20	

DUP Sample ID: **0612163-01DDUP** Units: **mg/L** Analysis Date: **12/18/06 17:15**
Client ID: Run ID: **MERCURY_061218B** SeqNo: **1017393** Prep Date: **12/18/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000011	0	20	

The following samples were analyzed in this batch: 0612199-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

MBLK Sample ID: **SBLKW2-061213** Units: **µg/L** Analysis Date: **12/14/06 9:34**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015216** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3&4-Methylphenol	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Surr: 2,4,6-Tribromophenol	*91.62*	10	*100*	0	*91.6*	*42-124*		0		
Surr: 2-Fluorobiphenyl	*91.9*	10	*100*	0	*91.9*	*48-120*		0		
Surr: 2-Fluorophenol	*79.87*	10	*100*	0	*79.9*	*20-120*		0		
Surr: 4-Terphenyl-d14	*94.4*	10	*100*	0	*94.4*	*51-135*		0		
Surr: Nitrobenzene-d5	*91.1*	10	*100*	0	*91.1*	*41-120*		0		
Surr: Phenol-d6	*85.53*	10	*100*	0	*85.5*	*20-120*		0		

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

LCS Sample ID: **SLCSW2-061213** Units: **µg/L** Analysis Date: **12/14/06 10:59**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015220** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	49.76	10	50	0	99.5	54-118	0			
2,4,5-Trichlorophenol	100.5	10	100	0	101	52-115	0			
2,4,6-Trichlorophenol	98.68	10	100	0	98.7	56-115	0			
2-Methylnaphthalene	48.02	10	50	0	96	46-117	0			
2-Methylphenol	88.15	10	100	0	88.2	53-115	0			
2-Nitroaniline	50.67	10	50	0	101	53-123	0			
2-Nitrophenol	96.62	10	100	0	96.6	53-115	0			
3&4-Methylphenol	131.3	10	150	0	87.5	48-115	0			
3-Nitroaniline	26.98	10	50	0	54	26-115	0			
4-Nitroaniline	47.99	10	50	0	96	47-115	0			
4-Nitrophenol	100.4	10	100	0	100	26-133	0			
Acenaphthene	50.39	10	50	0	101	57-115	0			
Acenaphthylene	50.97	10	50	0	102	57-118	0			
Aniline	27.7	10	50	0	55.4	36-115	0			
Anthracene	49.9	10	50	0	99.8	65-115	0			
Benz(a)anthracene	50.43	10	50	0	101	53-115	0			
Benzidine	16.61	10	50	0	33.2	10-115	0			
Hexachloroethane	46.18	10	50	0	92.4	54-115	0			
Indeno(1,2,3-cd)pyrene	49.6	10	50	0	99.2	51-115	0			
Isophorone	45.9	10	50	0	91.8	55-115	0			
N-Nitrosodi-n-propylamine	43.38	10	50	0	86.8	55-115	0			
N-Nitrosodimethylamine	37.69	10	50	0	75.4	42-115	0			
N-Nitrosodiphenylamine	50.13	10	50	0	100	52-115	0			
Naphthalene	47.53	10	50	0	95.1	55-115	0			
Nitrobenzene	48.39	10	50	0	96.8	40-124	0			
Pentachlorophenol	85.2	10	100	0	85.2	45-125	0			
Phenanthrene	50.15	10	50	0	100	57-115	0			
Phenol	91.85	10	100	0	91.8	38-115	0			
Pyrene	51.73	10	50	0	103	51-115	0			
Surr: 2,4,6-Tribromophenol	*99.22*	10	*100*	0	*99.2*	*42-124*	0			
Surr: 2-Fluorobiphenyl	*90.57*	10	*100*	0	*90.6*	*48-120*	0			
Surr: 2-Fluorophenol	*87.64*	10	*100*	0	*87.6*	*20-120*	0			
Surr: 4-Terphenyl-d14	*95.5*	10	*100*	0	*95.5*	*51-135*	0			
Surr: Nitrobenzene-d5	*91.29*	10	*100*	0	*91.3*	*41-120*	0			
Surr: Phenol-d6	*90.94*	10	*100*	0	*90.9*	*20-120*	0			

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **21195** Instrument ID **SV-5** Method: **SW8270**

LCSD Sample ID: **SLCSDW2-061213** Units: **µg/L** Analysis Date: **12/14/06 11:24**

Client ID: Run ID: **SV-5_061214A** SeqNo: **1015222** Prep Date: **12/13/2006** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.01	10	50	0	86	54-118	49.76	14.5	20	
2,4,5-Trichlorophenol	89.8	10	100	0	89.8	52-115	100.5	11.3	20	
2,4,6-Trichlorophenol	92.36	10	100	0	92.4	56-115	98.68	6.62	20	
2-Methylnaphthalene	42.9	10	50	0	85.8	46-117	48.02	11.3	20	
2-Methylphenol	82.74	10	100	0	82.7	53-115	88.15	6.34	20	
2-Nitroaniline	46.15	10	50	0	92.3	53-123	50.67	9.35	20	
2-Nitrophenol	87.51	10	100	0	87.5	53-115	96.62	9.9	20	
3&4-Methylphenol	123.9	10	150	0	82.6	48-115	131.3	5.8	20	
3-Nitroaniline	24.38	10	50	0	48.8	26-115	26.98	10.1	20	
4-Nitroaniline	44.16	10	50	0	88.3	47-115	47.99	8.32	20	
4-Nitrophenol	91.73	10	100	0	91.7	26-133	100.4	9.03	20	
Acenaphthene	45.07	10	50	0	90.1	57-115	50.39	11.1	20	
Acenaphthylene	46.98	10	50	0	94	57-118	50.97	8.16	20	
Aniline	29.08	10	50	0	58.2	36-115	27.7	4.86	20	
Anthracene	43.31	10	50	0	86.6	65-115	49.9	14.1	20	
Benz(a)anthracene	44.44	10	50	0	88.9	53-115	50.43	12.6	20	
Benzidine	17.87	10	50	0	35.7	10-115	16.61	7.28	20	
Hexachloroethane	39.9	10	50	0	79.8	54-115	46.18	14.6	20	
Indeno(1,2,3-cd)pyrene	44.07	10	50	0	88.1	51-115	49.6	11.8	20	
Isophorone	39.52	10	50	0	79	55-115	45.9	14.9	20	
N-Nitrosodi-n-propylamine	41.77	10	50	0	83.5	55-115	43.38	3.8	20	
N-Nitrosodimethylamine	35.66	10	50	0	71.3	42-115	37.69	5.52	20	
N-Nitrosodiphenylamine	43.9	10	50	0	87.8	52-115	50.13	13.3	20	
Naphthalene	41.66	10	50	0	83.3	55-115	47.53	13.2	20	
Nitrobenzene	41.58	10	50	0	83.2	40-124	48.39	15.1	20	
Pentachlorophenol	83.42	10	100	0	83.4	45-125	85.2	2.11	20	
Phenanthrene	43.9	10	50	0	87.8	57-115	50.15	13.3	20	
Phenol	83.92	10	100	0	83.9	38-115	91.85	9.02	20	
Pyrene	44.47	10	50	0	88.9	51-115	51.73	15.1	20	
Surr: 2,4,6-Tribromophenol	*84.73*	10	*100*	0	*84.7*	*42-124*	99.22	*15.8*	*20*	
Surr: 2-Fluorobiphenyl	*81.48*	10	*100*	0	*81.5*	*48-120*	90.57	*10.6*	*20*	
Surr: 2-Fluorophenol	*80.36*	10	*100*	0	*80.4*	*20-120*	87.64	*8.67*	*20*	
Surr: 4-Terphenyl-d14	*81.65*	10	*100*	0	*81.6*	*51-135*	95.5	*15.6*	*20*	
Surr: Nitrobenzene-d5	*80.37*	10	*100*	0	*80.4*	*41-120*	91.29	*12.7*	*20*	
Surr: Phenol-d6	*85.36*	10	*100*	0	*85.4*	*20-120*	90.94	*6.33*	*20*	

The following samples were analyzed in this batch: 0612199-01D

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MBLK Sample ID: **VBLKW-061213** Units: **µg/L** Analysis Date: **12/13/06 13:50**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014211** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*53.04*	5.0	*50*	0	*106*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*45.6*	5.0	*50*	0	*91.2*	*72.4-125*	0			
Surr: Dibromofluoromethane	*48.61*	5.0	*50*	0	*97.2*	*71.2-125*	0			
Surr: Toluene-d8	*45.8*	5.0	*50*	0	*91.6*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

LCS Sample ID: **VLCSW-061213** Units: **µg/L** Analysis Date: **12/13/06 12:58**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014210** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.96	5.0	50	0	108	79.6-120		0		
1,1,2,2-Tetrachloroethane	52.48	5.0	50	0	105	78.9-121		0		
1,1,2-Trichloroethane	51.25	5.0	50	0	103	80-120		0		
1,1-Dichloroethane	54.29	5.0	50	0	109	74.2-122		0		
1,1-Dichloroethene	55.19	5.0	50	0	110	75.8-122		0		
1,2-Dichloroethane	51.56	5.0	50	0	103	78.8-120		0		
2-Butanone	107.9	10	100	0	108	69.2-131		0		
2-Chloroethyl vinyl ether	110.7	10	100	0	111	60.6-128		0		
2-Hexanone	119	10	100	0	119	59.1-135		0		
4-Methyl-2-pentanone	115.7	10	100	0	116	71.6-124		0		
Acetone	125.8	10	100	0	126	60.1-141		0		
Benzene	51.03	5.0	50	0	102	80-120		0		
Bromodichloromethane	52.32	5.0	50	0	105	80-120		0		
Bromoform	55.1	5.0	50	0	110	78.1-120		0		
Bromomethane	50.42	5.0	50	0	101	52.8-147		0		
Carbon disulfide	110.6	10	100	0	111	78.8-120		0		
Carbon tetrachloride	46.71	5.0	50	0	93.4	76.8-120		0		
Chlorobenzene	49.19	5.0	50	0	98.4	80-120		0		
Chloroethane	55.82	5.0	50	0	112	74.2-120		0		
Chloroform	51.51	5.0	50	0	103	80-120		0		
Chloromethane	50.21	5.0	50	0	100	63.5-133		0		
cis-1,3-Dichloropropene	51.04	5.0	50	0	102	80-120		0		
Dibromochloromethane	53.73	5.0	50	0	107	80-120		0		
Ethylbenzene	53.35	5.0	50	0	107	80-120		0		
m,p-Xylene	100.4	10	100	0	100	80-120		0		
Methylene chloride	55.38	10	50	0	111	74.7-120		0		
Styrene	50.76	5.0	50	0	102	80-120		0		
Tetrachloroethene	49.54	5.0	50	0	99.1	80-120		0		
Toluene	52.61	5.0	50	0	105	80-120		0		
trans-1,3-Dichloropropene	52	5.0	50	0	104	80-120		0		
Trichloroethene	50.53	5.0	50	0	101	80-120		0		
Vinyl acetate	120	10	100	0	120	61.1-148		0		
Vinyl chloride	54.01	2.0	50	0	108	76.2-121		0		
Xylenes, Total	151.2	15	150	0	101	80-120		0		
Surr: 1,2-Dichloroethane-d4	*47.29*	5.0	*50*	0	*94.6*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*48.35*	5.0	*50*	0	*96.7*	*72.4-125*		0		
Surr: Dibromofluoromethane	*46.28*	5.0	*50*	0	*92.6*	*71.2-125*		0		
Surr: Toluene-d8	*44.74*	5.0	*50*	0	*89.5*	*75-125*		0		

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MS Sample ID: **0612207-06AMS** Units: **µg/L** Analysis Date: **12/13/06 15:31**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014213** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.13	5.0	50	0	94.3	79.6-120	0			
1,1,2,2-Tetrachloroethane	49.71	5.0	50	0	99.4	78.9-121	0			
1,1,2-Trichloroethane	49.93	5.0	50	0	99.9	80-120	0			
1,1-Dichloroethane	49.68	5.0	50	0	99.4	74.2-122	0			
1,1-Dichloroethene	42.37	5.0	50	0	84.7	75.8-122	0			
1,2-Dichloroethane	53.32	5.0	50	0	107	78.8-120	0			
2-Butanone	89.06	10	100	0	89.1	69.2-131	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0			S
2-Hexanone	99.21	10	100	0	99.2	59.1-135	0			
4-Methyl-2-pentanone	100.2	10	100	0	100	71.6-124	0			
Acetone	105.1	10	100	0	105	60.1-141	0			
Benzene	48.83	5.0	50	0	97.7	80-120	0			
Bromodichloromethane	57.77	5.0	50	0	116	80-120	0			
Bromoform	51.22	5.0	50	0	102	78.1-120	0			
Bromomethane	31.91	5.0	50	0	63.8	52.8-147	0			
Carbon disulfide	82.89	10	100	0	82.9	78.8-120	0			
Carbon tetrachloride	40.65	5.0	50	0	81.3	76.8-120	0			
Chlorobenzene	47.12	5.0	50	0	94.2	80-120	0			
Chloroethane	47.21	5.0	50	0	94.4	74.2-120	0			
Chloroform	66.8	5.0	50	15.69	102	80-120	0			
Chloromethane	68.5	5.0	50	0	137	63.5-133	0			S
cis-1,3-Dichloropropene	49.23	5.0	50	0	98.5	80-120	0			
Dibromochloromethane	54.19	5.0	50	0	108	80-120	0			
Ethylbenzene	47.77	5.0	50	0	95.5	80-120	0			
m,p-Xylene	88.72	10	100	0	88.7	80-120	0			
Methylene chloride	51.8	10	50	0	104	74.7-120	0			
Styrene	2.286	5.0	50	0	4.57	80-120	0			JS
Tetrachloroethene	41.24	5.0	50	0	82.5	80-120	0			
Toluene	48.44	5.0	50	0	96.9	80-120	0			
trans-1,3-Dichloropropene	50.31	5.0	50	0	101	80-120	0			
Trichloroethene	47.47	5.0	50	0	94.9	80-120	0			
Vinyl acetate	93.51	10	100	0	93.5	61.1-148	0			
Vinyl chloride	42.79	2.0	50	0	85.6	76.2-121	0			
Xylenes, Total	134.1	15	150	0	89.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	*48.63*	5.0	*50*	0	*97.3*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*45.72*	5.0	*50*	0	*91.4*	*72.4-125*	0			
Surr: Dibromofluoromethane	*48.38*	5.0	*50*	0	*96.8*	*71.2-125*	0			
Surr: Toluene-d8	*44.7*	5.0	*50*	0	*89.4*	*75-125*	*0*			

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44863** Instrument ID **VOA2** Method: **SW8260**

MSD Sample ID: **0612207-06AMSD** Units: **µg/L** Analysis Date: **12/13/06 15:56**

Client ID: Run ID: **VOA2_061213A** SeqNo: **1014214** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.53	5.0	50	0	89.1	79.6-120	47.13	5.67	20	
1,1,2,2-Tetrachloroethane	47.84	5.0	50	0	95.7	78.9-121	49.71	3.83	20	
1,1,2-Trichloroethane	47.76	5.0	50	0	95.5	80-120	49.93	4.44	20	
1,1-Dichloroethane	48.57	5.0	50	0	97.1	74.2-122	49.68	2.25	20	
1,1-Dichloroethene	42.69	5.0	50	0	85.4	75.8-122	42.37	0.752	20	
1,2-Dichloroethane	50.65	5.0	50	0	101	78.8-120	53.32	5.13	20	
2-Butanone	91.28	10	100	0	91.3	69.2-131	89.06	2.47	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0	0	20	S
2-Hexanone	100.9	10	100	0	101	59.1-135	99.21	1.67	20	
4-Methyl-2-pentanone	98.83	10	100	0	98.8	71.6-124	100.2	1.41	20	
Acetone	109.4	10	100	0	109	60.1-141	105.1	4.06	20	
Benzene	49.12	5.0	50	0	98.2	80-120	48.83	0.601	20	
Bromodichloromethane	55.5	5.0	50	0	111	80-120	57.77	4	20	
Bromoform	49.93	5.0	50	0	99.9	78.1-120	51.22	2.54	20	
Bromomethane	36.1	5.0	50	0	72.2	52.8-147	31.91	12.3	20	
Carbon disulfide	83.36	10	100	0	83.4	78.8-120	82.89	0.565	20	
Carbon tetrachloride	40.16	5.0	50	0	80.3	76.8-120	40.65	1.2	20	
Chlorobenzene	47.19	5.0	50	0	94.4	80-120	47.12	0.141	20	
Chloroethane	47.51	5.0	50	0	95	74.2-120	47.21	0.645	20	
Chloroform	63.04	5.0	50	15.69	94.7	80-120	66.8	5.79	20	
Chloromethane	68.53	5.0	50	0	137	63.5-133	68.5	0.0443	20	S
cis-1,3-Dichloropropene	48.1	5.0	50	0	96.2	80-120	49.23	2.32	20	
Dibromochloromethane	52.7	5.0	50	0	105	80-120	54.19	2.79	20	
Ethylbenzene	49.24	5.0	50	0	98.5	80-120	47.77	3.04	20	
m,p-Xylene	90.84	10	100	0	90.8	80-120	88.72	2.36	20	
Methylene chloride	51.51	10	50	0	103	74.7-120	51.8	0.573	20	
Styrene	2.426	5.0	50	0	4.85	80-120	2.286	0	20	JS
Tetrachloroethene	43.42	5.0	50	0	86.8	80-120	41.24	5.17	20	
Toluene	49.39	5.0	50	0	98.8	80-120	48.44	1.95	20	
trans-1,3-Dichloropropene	49.57	5.0	50	0	99.1	80-120	50.31	1.48	20	
Trichloroethene	47.31	5.0	50	0	94.6	80-120	47.47	0.332	20	
Vinyl acetate	90.54	10	100	0	90.5	61.1-148	93.51	3.24	20	
Vinyl chloride	42.98	2.0	50	0	86	76.2-121	42.79	0.425	20	
Xylenes, Total	137.6	15	150	0	91.7	80-120	134.1	2.57	20	
Surr: 1,2-Dichloroethane-d4	*45.53*	5.0	*50*	0	*91.1*	*70-125*	48.63	*6.6*	*20*	
Surr: 4-Bromofluorobenzene	*45.59*	5.0	*50*	0	*91.2*	*72.4-125*	45.72	*0.305*	*20*	
Surr: Dibromofluoromethane	*46.89*	5.0	*50*	0	*93.8*	*71.2-125*	48.38	*3.13*	*20*	
Surr: Toluene-d8	*43.92*	5.0	*50*	0	*87.8*	*75-125*	44.7	*1.76*	*20*	

The following samples were analyzed in this batch: 0612199-02A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
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R - RPD outside accepted recovery limits
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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-061218** Units: **µg/L** Analysis Date: **12/18/06 11:35**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017955** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	*49.84*	5.0	*50*	0	*99.7*	*70-125*		0		
Surr: 4-Bromofluorobenzene	*48.43*	5.0	*50*	0	*96.9*	*72.4-125*		0		
Surr: Dibromofluoromethane	*55.4*	5.0	*50*	0	*111*	*71.2-125*		0		
Surr: Toluene-d8	*57.8*	5.0	*50*	0	*116*	*75-125*		0		

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-061218** Units: **µg/L** Analysis Date: **12/18/06 10:40**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017953** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.59	5.0	50	0	99.2	79.6-120	0			
1,1,2,2-Tetrachloroethane	46.95	5.0	50	0	93.9	78.9-121	0			
1,1,2-Trichloroethane	51.26	5.0	50	0	103	80-120	0			
1,1-Dichloroethane	50.01	5.0	50	0	100	74.2-122	0			
1,1-Dichloroethene	53.61	5.0	50	0	107	75.8-122	0			
1,2-Dichloroethane	50.67	5.0	50	0	101	78.8-120	0			
2-Butanone	108.4	10	100	0	108	69.2-131	0			
2-Chloroethyl vinyl ether	90.4	10	100	0	90.4	60.6-128	0			
2-Hexanone	96.82	10	100	0	96.8	59.1-135	0			
4-Methyl-2-pentanone	96.74	10	100	0	96.7	71.6-124	0			
Acetone	89.55	10	100	0	89.5	60.1-141	0			
Benzene	51.45	5.0	50	0	103	80-120	0			
Bromodichloromethane	52.4	5.0	50	0	105	80-120	0			
Bromoform	48.04	5.0	50	0	96.1	78.1-120	0			
Bromomethane	51.57	5.0	50	0	103	52.8-147	0			
Carbon disulfide	108.1	10	100	0	108	78.8-120	0			
Carbon tetrachloride	48.27	5.0	50	0	96.5	76.8-120	0			
Chlorobenzene	47.1	5.0	50	0	94.2	80-120	0			
Chloroethane	51.32	5.0	50	0	103	74.2-120	0			
Chloroform	50.1	5.0	50	0	100	80-120	0			
Chloromethane	50.91	5.0	50	0	102	63.5-133	0			
cis-1,3-Dichloropropene	51.02	5.0	50	0	102	80-120	0			
Dibromochloromethane	52.41	5.0	50	0	105	80-120	0			
Ethylbenzene	45.9	5.0	50	0	91.8	80-120	0			
m,p-Xylene	100.4	10	100	0	100	80-120	0			
Methylene chloride	46.84	10	50	0	93.7	74.7-120	0			
Styrene	48.4	5.0	50	0	96.8	80-120	0			
Tetrachloroethene	48.76	5.0	50	0	97.5	80-120	0			
Toluene	49.54	5.0	50	0	99.1	80-120	0			
trans-1,3-Dichloropropene	51.89	5.0	50	0	104	80-120	0			
Trichloroethene	50.07	5.0	50	0	100	80-120	0			
Vinyl acetate	117.2	10	100	0	117	61.1-148	0			
Vinyl chloride	47.07	2.0	50	0	94.1	76.2-121	0			
Xylenes, Total	148.2	15	150	0	98.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	*53.68*	5.0	*50*	0	*107*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*54.89*	5.0	*50*	0	*110*	*72.4-125*	0			
Surr: Dibromofluoromethane	*56.87*	5.0	*50*	0	*114*	*71.2-125*	0			
Surr: Toluene-d8	*58.04*	5.0	*50*	0	*116*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **0612221-63AMS** Units: **µg/L** Analysis Date: **12/18/06 12:56**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.74	5.0	50	0	93.5	79.6-120	0			
1,1,2,2-Tetrachloroethane	51.25	5.0	50	0	103	78.9-121	0			
1,1,2-Trichloroethane	53.81	5.0	50	0	108	80-120	0			
1,1-Dichloroethane	50.99	5.0	50	0	102	74.2-122	0			
1,1-Dichloroethene	46.61	5.0	50	0	93.2	75.8-122	0			
1,2-Dichloroethane	49.45	5.0	50	0	98.9	78.8-120	0			
2-Butanone	118.5	10	100	0	118	69.2-131	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0			S
2-Hexanone	102.1	10	100	0	102	59.1-135	0			
4-Methyl-2-pentanone	113.1	10	100	0	113	71.6-124	0			
Acetone	99.9	10	100	0	99.9	60.1-141	0			
Benzene	50.89	5.0	50	0	102	80-120	0			
Bromodichloromethane	53.44	5.0	50	0	107	80-120	0			
Bromoform	48.91	5.0	50	0	97.8	78.1-120	0			
Bromomethane	47.75	5.0	50	0	95.5	52.8-147	0			
Carbon disulfide	105.7	10	100	0	106	78.8-120	0			
Carbon tetrachloride	76.78	5.0	50	26.11	101	76.8-120	0			
Chlorobenzene	47.77	5.0	50	0	95.5	80-120	0			
Chloroethane	48.53	5.0	50	0	97.1	74.2-120	0			
Chloroform	63.44	5.0	50	7.131	113	80-120	0			
Chloromethane	50.17	5.0	50	0	100	63.5-133	0			
cis-1,3-Dichloropropene	50.82	5.0	50	0	102	80-120	0			
Dibromochloromethane	51.3	5.0	50	0	103	80-120	0			
Ethylbenzene	44.98	5.0	50	0	90	80-120	0			
m,p-Xylene	85.39	10	100	0	85.4	80-120	0			
Methylene chloride	47.78	10	50	0	95.6	74.7-120	0			
Styrene	47.68	5.0	50	0	95.4	80-120	0			
Tetrachloroethene	48.1	5.0	50	2.298	91.6	80-120	0			
Toluene	49.69	5.0	50	0	99.4	80-120	0			
trans-1,3-Dichloropropene	53.57	5.0	50	0	107	80-120	0			
Trichloroethene	113.9	5.0	50	43.84	140	80-120	0			S
Vinyl acetate	124.3	10	100	0	124	61.1-148	0			
Vinyl chloride	48.86	2.0	50	0	97.7	76.2-121	0			
Xylenes, Total	133.6	15	150	0	89.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	*55.76*	5.0	*50*	0	*112*	*70-125*	0			
Surr: 4-Bromofluorobenzene	*53.17*	5.0	*50*	0	*106*	*72.4-125*	0			
Surr: Dibromofluoromethane	*55.85*	5.0	*50*	0	*112*	*71.2-125*	0			
Surr: Toluene-d8	*56.03*	5.0	*50*	0	*112*	*75-125*	0			

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CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45027** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **0612221-63AMSD** Units: **µg/L** Analysis Date: **12/18/06 13:24**

Client ID: Run ID: **VOA1_061218A** SeqNo: **1017962** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.56	5.0	50	0	91.1	79.6-120	46.74	2.56	20	
1,1,2,2-Tetrachloroethane	55.93	5.0	50	0	112	78.9-121	51.25	8.73	20	
1,1,2-Trichloroethane	51.55	5.0	50	0	103	80-120	53.81	4.3	20	
1,1-Dichloroethane	52.46	5.0	50	0	105	74.2-122	50.99	2.85	20	
1,1-Dichloroethene	45.52	5.0	50	0	91	75.8-122	46.61	2.36	20	
1,2-Dichloroethane	50.89	5.0	50	0	102	78.8-120	49.45	2.87	20	
2-Butanone	122.1	10	100	0	122	69.2-131	118.5	2.99	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	60.6-128	0	0	20	S
2-Hexanone	104.3	10	100	0	104	59.1-135	102.1	2.07	20	
4-Methyl-2-pentanone	109.3	10	100	0	109	71.6-124	113.1	3.41	20	
Acetone	100.5	10	100	0	100	60.1-141	99.9	0.578	20	
Benzene	50.54	5.0	50	0	101	80-120	50.89	0.682	20	
Bromodichloromethane	50.75	5.0	50	0	101	80-120	53.44	5.17	20	
Bromoform	49.36	5.0	50	0	98.7	78.1-120	48.91	0.928	20	
Bromomethane	51.95	5.0	50	0	104	52.8-147	47.75	8.42	20	
Carbon disulfide	93.83	10	100	0	93.8	78.8-120	105.7	11.9	20	
Carbon tetrachloride	67.89	5.0	50	26.11	83.6	76.8-120	76.78	12.3	20	
Chlorobenzene	44.62	5.0	50	0	89.2	80-120	47.77	6.81	20	
Chloroethane	45.72	5.0	50	0	91.4	74.2-120	48.53	5.96	20	
Chloroform	59.96	5.0	50	7.131	106	80-120	63.44	5.65	20	
Chloromethane	47.45	5.0	50	0	94.9	63.5-133	50.17	5.58	20	
cis-1,3-Dichloropropene	51.8	5.0	50	0	104	80-120	50.82	1.9	20	
Dibromochloromethane	51.93	5.0	50	0	104	80-120	51.3	1.22	20	
Ethylbenzene	45.1	5.0	50	0	90.2	80-120	44.98	0.265	20	
m,p-Xylene	83.89	10	100	0	83.9	80-120	85.39	1.77	20	
Methylene chloride	50.37	10	50	0	101	74.7-120	47.78	5.29	20	
Styrene	46.6	5.0	50	0	93.2	80-120	47.68	2.29	20	
Tetrachloroethene	46.42	5.0	50	2.298	88.2	80-120	48.1	3.54	20	
Toluene	48.96	5.0	50	0	97.9	80-120	49.69	1.47	20	
trans-1,3-Dichloropropene	50.1	5.0	50	0	100	80-120	53.57	6.7	20	
Trichloroethene	96.42	5.0	50	43.84	105	80-120	113.9	16.7	20	
Vinyl acetate	112.7	10	100	0	113	61.1-148	124.3	9.8	20	
Vinyl chloride	44.32	2.0	50	0	88.6	76.2-121	48.86	9.74	20	
Xylenes, Total	129.1	15	150	0	86.1	80-120	133.6	3.42	20	
Surr: 1,2-Dichloroethane-d4	*56.27*	5.0	*50*	0	*113*	*70-125*	55.76	*0.915*	*20*	
Surr: 4-Bromofluorobenzene	*55.09*	5.0	*50*	0	*110*	*72.4-125*	53.17	*3.54*	*20*	
Surr: Dibromofluoromethane	*57.56*	5.0	*50*	0	*115*	*71.2-125*	55.85	*3.02*	*20*	
Surr: Toluene-d8	*57.05*	5.0	*50*	0	*114*	*75-125*	56.03	*1.8*	*20*	

The following samples were analyzed in this batch: 0612199-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44782** Instrument ID **WetChem** Method: **E150.1**

LCS Sample ID: **WLCSW1-121206** Units: **pH units** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212C** SeqNo: **1012683** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	90-110	0			

DUP Sample ID: **0612199-01BDUP** Units: **pH units** Analysis Date: **12/12/06 0:00**
Client ID: **Injection Wells** Run ID: **WETCHEM_061212C** SeqNo: **1012685** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.34	0.10	0	0	0	0-0	7.32	0.273	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44783** Instrument ID **WetChem** Method: **E120.1**

MBLK Sample ID: **WBLKW1-121206** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012794** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-121206** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012795** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1413	1.0	1413	0	100	80-120	0			

DUP Sample ID: **0612142-01CDUP** Units: **µmhos/cm** Analysis Date: **12/12/06 0:00**
Client ID: Run ID: **WETCHEM_061212D** SeqNo: **1012800** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	767.3	1.0	0	0	0	0-0	765.3	0.261	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44808** Instrument ID **IC201** Method: **E300**

MBLK Sample ID: **WBLKW1-121206** Units: **mg/L** Analysis Date: **12/12/06 20:15**
Client ID: Run ID: **IC201_061212A** SeqNo: **1013297** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Selenate (surr)	*4.903*	0.10	*5*	0	*98.1*	*85-115*		0		

LCS Sample ID: **WLCSW1-364-33-** Units: **mg/L** Analysis Date: **12/12/06 20:37**
Client ID: Run ID: **IC201_061212A** SeqNo: **1013299** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.14	0.50	20	0	101	90-110		0		
Sulfate	20.12	1.0	20	0	101	90-110		0		
Surr: Selenate (surr)	*5.006*	0.10	*5*	0	*100*	*85-115*		0		

MS Sample ID: **0612199-01BMS** Units: **mg/L** Analysis Date: **12/12/06 23:54**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013307** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1005	5.0	100	916.6	88.5	80-120		0		EO
Sulfate	1888	10	100	1812	76.4	80-120		0		SEO
Surr: Selenate (surr)	*47.8*	1.0	*50*	0	*95.6*	*80-120*		0		

MSD Sample ID: **0612199-01BMSD** Units: **mg/L** Analysis Date: **12/13/06 0:16**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013308** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1011	5.0	100	916.6	94.4	80-120	1005	0.594	20	EO
Sulfate	1877	10	100	1812	64.8	80-120	1888	0.613	20	SEO
Surr: Selenate (surr)	*47.92*	1.0	*50*	0	*95.8*	*80-120*	47.8	*0.247*	*20*	

DUP Sample ID: **0612199-01BDUP** Units: **mg/L** Analysis Date: **12/12/06 23:32**
Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013305** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	924.3	5.0	0	0	0	0-0	916.6	0.835	20	E
Sulfate	1808	10	0	0	0	0-0	1812	0.23	20	E
Surr: Selenate (surr)	*47.29*	1.0	*50*	0	*94.6*	*80-120*	47.18	*0.231*	*20*	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44808** Instrument ID **IC201** Method: **E300**

DUP Sample ID: **0612199-01BDUP** Units: **mg/L** Analysis Date: **12/13/06 1:00**

Client ID: **Injection Wells** Run ID: **IC201_061212A** SeqNo: **1013310** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	933.2	25	0	0	0	0-0	907.3	2.82	20	
Sulfate	1816	50	0	0	0	0-0	1811	0.274	20	
Surr: Selenate (surr)	*233.6*	5.0	*250*	0	*93.5*	*80-120*	232.3	*0.586*	*20*	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R44894** Instrument ID **Balance1** Method: **E160.1**

MBLK Sample ID: **BLANK** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014727** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014728** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	934	10	1000	0	93.4	85-115	0			

DUP Sample ID: **0612223-01DDUP** Units: **mg/L** Analysis Date: **12/13/06 0:00**
Client ID: Run ID: **BALANCE1_061213D** SeqNo: **1014710** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1658	10	0	0	0	0-0	1483	11.1	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0612199
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R45013** Instrument ID **WetChem** Method: **E310.1**

MBLK Sample ID: **WBLKW1-R45013** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017499** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-R45013** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017500** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1012	5.0	1000	0	101	80-120	0			

DUP Sample ID: **0612285-01DDUP** Units: **mg/L** Analysis Date: **12/18/06 0:00**
Client ID: Run ID: **WETCHEM_061218H** SeqNo: **1017520** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	276.9	5.0	0	0	0	0-0	276.9	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	276.9	5.0	0	0	0	0-0	276.9	0	20	

The following samples were analyzed in this batch: 0612199-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical
QUALITY • INTEGRITY • SERVICE

10450 Stancliff Rd. #210
Houston, Texas 77099
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(Fax) 281.530.5887

3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Chain of Custody Form

Page 1 of 1

e-Lab Project Manager:

e-Lab Work Order #: 0612199

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	Injection Well Qrtly	A VOC (8260) Select
Work Order		Project Number		B Total Metals (6020/7000)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C SVOC (8270) Select
Send Report To	Jeff Byrd	Invoice Attn	Jeff Byrd	D Anions (300) Chloride, Sulfate
Address	PO Box 159	Address	PO Box 159	E Alkalinity
				F pH
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211	G Conductivity
Phone	(505) 748-3311	Phone	(505) 748-3311	H TDS
Fax	(505) 746-5421	Fax	(505) 746-5421	I RCI Profile
e-Mail Address		e-Mail Address		J

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Wells	12/11/06	1330	L	4		X	X	X	X	X	X	X	X	X		
2	Trip blank			L	4	2	X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Tyler Hall

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☑ Std 10 WK Days ☐ 5 WK Days ☐ Other ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by: Tyler Hall Date: 12/11/06 Time: 16:15 Received by:

Relinquished by: Date: Time: Received by (Laboratory): 12/12/06 1085

Logged by (Laboratory): Date: Time: Checked by (Laboratory):

Notes:

e-Lab Analytical Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

ote: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.
2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 12/12/2006 10:35:00 AM

Work Order Number 0612199 Received by: RSZ

Checklist completed by Signature 12/12/06 Date Reviewed by Initials 12/13/06 Date

Matrix: Liquid Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.5 C	002	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? Checked by

Login Notes:

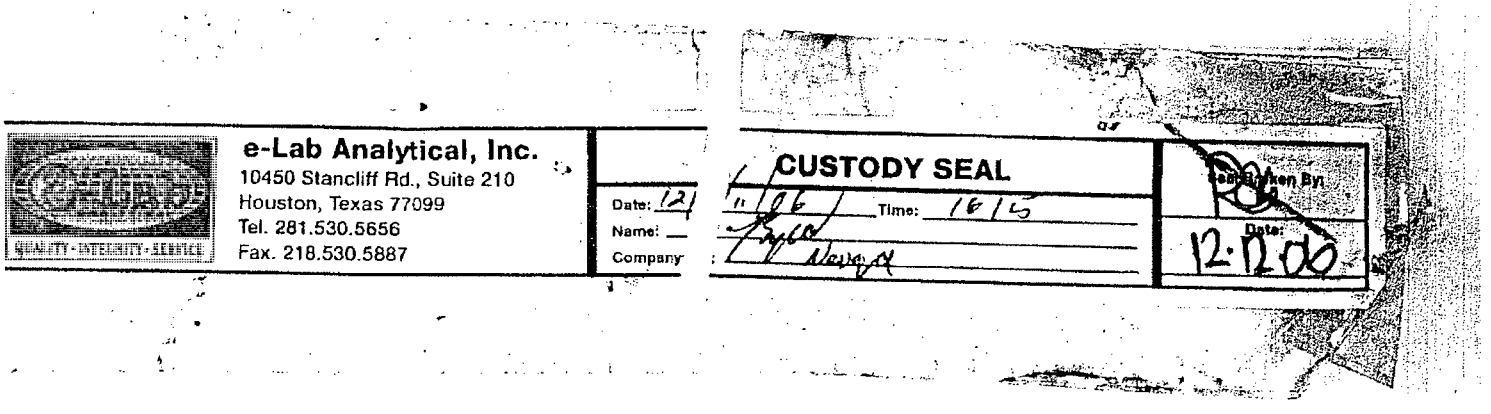
Client contacted: Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action:

062199



e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

Date: 12/
Name:
Company:

CUSTODY SEAL

Time: 1615

Date: 12.12.00

e-Lab Analytical, Inc

Date: *December 21, 2006*

CLIENT: e-Lab Analytical, Inc
Project: 0612199
Work Order: **0612274**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0612274-01	0612199-01E	Water		12/11/2006 13:30	12/13/2006 11:00	☐

e-Lab Analytical, Inc

Date: *December 21, 2006*

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199
Lab ID: 0612274-01

Client Sample ID: 0612199-01E
Collection Date: 12/11/2006 1:30:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			**EPA 7.3.3.2**			Analyst: **CES**
Cyanide, Reactive	ND	40.0		mg/Kg	1	12/15/2006
FLASHPOINT, P-M CLOSED-CUP			**ASTM D93**			Analyst: **CES**
Flashpoint, P-M Closed-cup	**>180**			**°F**	1	12/15/2006
SULFIDE, REACTIVE			**EPA 7.3.4.2**			Analyst: **CES**
Sulfide, Reactive	ND	40.0		mg/Kg	1	12/15/2006

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

Date: *Dec 21 2006*

QC BATCH REPORT

Batch ID: **R44830** Instrument ID **WETCHEM** Method: **EPA 7.3.3.2**

MBLK Sample ID **WBLKW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704189** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID **WLCSW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704190** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	293.6	40	619	0	47.4	2.8-70	0			

LCSD Sample ID **WLCSDW1-12150** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: Run ID: **WETCHEM_061215D** SeqNo: **704196** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	337.7	40	619	0	54.6	2.8-70	293.6	14	35	

MS Sample ID **0612274-01A MS** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: **0612199-01E** Run ID: **WETCHEM_061215D** SeqNo: **704193** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	176.2	40	619	0	28.5	2.8-70	0			

MSD Sample ID **0612274-01A MSD** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**
Client ID: **0612199-01E** Run ID: **WETCHEM_061215D** SeqNo: **704194** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	205.5	40	619	0	33.2	2.8-70	176.2	15.4	35	

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

QC BATCH REPORT

Batch ID: **R44831** Instrument ID **WETCHEM** Method: **EPA 7.3.4.2**

MBLK Sample ID **WBLKW1-121506** Units: **mg/Kg** Analysis Date: **12/15/06 0:00**

Client ID: Run ID: **WETCHEM_061215E** SeqNo: **704197** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0612274
Project: 0612199

QC BATCH REPORT

Batch ID: **R44839** Instrument ID **WETCHEM** Method: **ASTM D93**

LCS Sample ID **WLCSW1-121506** Units: **°F** Analysis Date: **12/15/06 0:00**

Client ID: Run ID: **WETCHEM_061215I** SeqNo: **704314** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	81	0	81	0	100	97-103		0		

The following samples were analyzed in this batch: 0612274-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab Analytical, Inc
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: Dec 12, 2006
COC ID: 4464
Due Date 12/22/2006

0612274

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order	2111061	Project Name	0612199	A Cyanide, Reactive (SW-846)
Work Order		Project Number		B Sulfide, Reactive (SW-846)
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.	C Flashpoint (SW1010)
Send Report To	Jeffrey L Croston	Inv Attn	Accounts Payable	D
Address	10450 Stancliff Rd. Suite 210	Address	10450 Stancliff Rd, Suite 210	E
				F
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G
Phone	(281) 530-5656	Phone	(281) 530-5656	H
Fax	(281) 530-5887	Fax	(281) 530-5887	I
eMail Address	jcroston@elabi.com	eMail CC	oelliston@elabi.com	J

Sample ID	Matrix	Collection Date	Bottle	A	B	C	D	E	F	G	H	I	J
0612199-01E (Inj. Well)	Water	12/11/2006 13:30	(2) 1LPNEAT	X	X	X							

Comments

Please analyze for Reactive Cyanide, Reactive Sulfide, and Ignitability. Results needed by 12/22/06. Please email results to Jeff Croston- jcroston@elabi.com and CC: O. Elliston- oelliston@elabi.com

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
			12/13/06 1100		Std
Relinquished by:	Date/Time	Received by:	Date/Time		

Page 5460 of 5828

e-Lab Analytical, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 12/13/2006 11:00:00 AM

Work Order Number 0612274 Received by: WJC

Checklist completed by Signature 12/13/06 Date Reviewed by Initials 12/13/06 Date

Matrix: Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.6 C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked b _____

Login Notes:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Released to Imaging: 7/12/2024 10:49:45 AM

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01200
004795_P1
16594091
222 of 300

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UPS ACCOUNT NO. 698174

REFERENCE NUMBER SUB

TELEPHONE 281.530.5656

E-LAB, INC.

10450 STANCLIFF RD STE #210

HOUSTON TX 77099

SETEX SCC

SETEX SCC

MI 495 9-04

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TELEPHONE 616-399-6070

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E-LAB, INC.

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HOLLAND MI 49424

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e-Lab

QUALITY · INTEGRITY · RESULTS

e-Lab Analytical, Inc.
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5656
Fax. 218.530.5887

CUSTODY SEAL

Date: 12/2/20 Time: 1600

Name: [illegible]

Company: E-LAB

Seal Broken By:

Date:

Page 5462 of 5828

REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
OCT 25 2004
OIL CONSERVATION DIVISION

October 21, 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2004 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2004 to September 30, 2004. We have disposed a total of 20,939,501 bbls. of fluid into the two wells as of September 30, 2004. This is broken down as follows: 14,224,878 bbls. into WDW-1 and 6,714,623 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

2004 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jul-04	146	238	102	207	263	172	238	286	192	7110	9021	5901	220,420
Aug-04	175	250	51	216	269	124	254	345	143	7411	9221	4259	229,735
Sep-04	139	154	120	190	201	175	184.9	233.2	101.4	6509	6894	6003	201,778
WDW-2													
Jul-04	156	253	110	127	169	95	441	500	320	4362	5801	3244	135,207
Aug-04	185	266	47	131	176	32	469	500	225	4497	6045	1082	139,421
Sep-04	152	170	129	121	134	103.0	440	498	242	4154	4604	3532	128,764

e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5887

July 23, 2004

Darrell Moore
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5281
Fax: (505) 746-5421

Re: Injection Wells Work Order : **0407074**

Dear Darrell Moore,

e-Lab Analytical, Inc. received 2 samples on 7/8/2004 8:40:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. The total number of pages in this report is 38.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Patrina A. Dathorne

Jeffrey L Croston

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0407074

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0407074-01	Inj Wells	Water		7/7/2004 09:00	7/8/2004 08:40	☐
0407074-02	Trip Blank	Water		7/7/2004	7/8/2004 08:40	☐

e-Lab Analytical, Inc. **Date:** *July 23, 2004*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0407074

Case Narrative

Semivolatile (sample Inj. Wells) Surrogates were outside of control limits due to a matrix interference. Sample was re-extracted and re-analyzed and surrogates recoveries were confirmed.

Batch 9539 Metals MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL		**SW7470**			Prep Date: **7/17/2004**	Analyst: **JCJ**
Mercury	ND	0.000200		mg/L	1	7/17/2004 6:08:25 PM
ICP METALS, TOTAL		**SW6020**			Prep Date: **7/9/2004**	Analyst: **ALR**
Aluminum	0.556	0.100		mg/L	10	7/9/2004 10:24:00 PM
Arsenic	0.171	0.0500		mg/L	10	7/9/2004 10:24:00 PM
Barium	0.0354	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Beryllium	ND	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Boron	0.240	0.200		mg/L	10	7/9/2004 10:24:00 PM
Cadmium	ND	0.00200		mg/L	2	7/23/2004 2:11:00 PM
Calcium	216	25.0		mg/L	50	7/9/2004 9:39:00 PM
Chromium	0.00818	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Cobalt	ND	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Copper	0.00655	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Iron	4.42	0.400		mg/L	2	7/23/2004 12:23:00 AM
Lead	ND	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Magnesium	34.1	2.00		mg/L	10	7/9/2004 10:24:00 PM
Manganese	0.116	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Molybdenum	ND	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Nickel	0.0195	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Potassium	24.9	0.400		mg/L	2	7/23/2004 12:23:00 AM
Selenium	0.432	0.0500		mg/L	10	7/9/2004 10:24:00 PM
Silver	ND	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Sodium	1,580	10.0		mg/L	50	7/9/2004 9:39:00 PM
Vanadium	ND	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Zinc	0.0677	0.0100		mg/L	2	7/23/2004 12:23:00 AM
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **7/12/2004**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2,4,5-Trichlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2,4,6-Trichlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Methylnaphthalene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Methylphenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Nitrophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
3-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Methylphenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Nitrophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Acenaphthene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Acenaphthylene	ND	12		µg/L	1	7/15/2004 1:53:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Aniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Anthracene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Benz(a)anthracene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Benzidine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Hexachloroethane	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Indeno(1,2,3-cd)pyrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Isophorone	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodi-n-propylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodimethylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodiphenylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Naphthalene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Nitrobenzene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Pentachlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Phenanthrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Phenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Pyrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Surr: 2,4,6-Tribromophenol	28.6	39-153	S	%REC	1	7/15/2004 1:53:00 AM
Surr: 2-Fluorobiphenyl	45.7	40-147		%REC	1	7/15/2004 1:53:00 AM
Surr: 2-Fluorophenol	12.1	21-110	S	%REC	1	7/15/2004 1:53:00 AM
Surr: 4-Terphenyl-d14	40.9	39-141		%REC	1	7/15/2004 1:53:00 AM
Surr: Nitrobenzene-d5	40.8	37-140		%REC	1	7/15/2004 1:53:00 AM
Surr: Phenol-d6	7.92	11-100	S	%REC	1	7/15/2004 1:53:00 AM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
2-Butanone	16	10		µg/L	1	7/19/2004 2:58:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	7/19/2004 2:58:00 PM
2-Hexanone	ND	10		µg/L	1	7/19/2004 2:58:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Acetone	87	10		µg/L	1	7/19/2004 2:58:00 PM
Benzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromoform	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromomethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Carbon disulfide	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloroform	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Ethylbenzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
m,p-Xylene	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Methylene chloride	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Styrene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Toluene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Trichloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Vinyl acetate	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Vinyl chloride	ND	2.0		µg/L	1	7/19/2004 2:58:00 PM
Xylenes, Total	ND	15		µg/L	1	7/19/2004 2:58:00 PM
Surr: 1,2-Dichloroethane-d4	85.9	71-126		%REC	1	7/19/2004 2:58:00 PM
Surr: 4-Bromofluorobenzene	93.8	74-125		%REC	1	7/19/2004 2:58:00 PM
Surr: Dibromofluoromethane	89.3	73-126		%REC	1	7/19/2004 2:58:00 PM
Surr: Toluene-d8	89.9	75-125		%REC	1	7/19/2004 2:58:00 PM
FLASHPOINT		**SW1010**				Analyst: **MAG**
Ignitability	>200	50		°F	1	7/16/2004
CYANIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Cyanide	ND	0.0300		mg/L	1	7/16/2004
SULFIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Sulfide	ND	40.0		mg/L	1	7/16/2004
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **MG**
Chloride	992	50.0		mg/L	100	7/13/2004 3:25:00 AM
Sulfate	2,270	100		mg/L	100	7/13/2004 3:25:00 AM
Surr: Dichloroacetic acid (surr)	107	80-120		%REC	100	7/13/2004 3:25:00 AM
ALKALINITY		**E310.1**				Analyst: **HDO**
Alkalinity, Bicarbonate (As CaCO3)	157	5.00		mg/L	1	7/12/2004
Alkalinity, Carbonate (As CaCO3)	ND	5.00		mg/L	1	7/12/2004
Alkalinity, Hydroxide (As CaCO3)	ND	5.00		mg/L	1	7/12/2004
Alkalinity, Total (As CaCO3)	157	5.00		mg/L	1	7/12/2004
CONDUCTIVITY		**E120.1**				Analyst: **HDO**
Specific Conductance	7,200	1.00		µmhos/cm	1	7/12/2004

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **LMD**
pH	6.92	0.100		pH units	1	7/8/2004
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **LMD**
Total Dissolved Solids (Residue, Filterable)	4,960	10.0		mg/L	1	7/8/2004

Qualifiers:

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

Date: *Jul 23 2004*

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MBLK Sample ID: **MBLKW3-070904** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/09/04 21:25**

Client ID: Run ID: **ICP4500_040709A** SeqNo: **505844** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.003459	0.010								J
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

LCS Sample ID: **MLCSW3-070904** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/09/04 21:29**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505845** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.04844	0.010	0.05	0	96.9	79-126	0			
Arsenic	0.04766	0.0050	0.05	0	95.3	80-121	0			
Barium	0.04274	0.0050	0.05	0	85.5	79.8-119	0			
Beryllium	0.04529	0.0020	0.05	0	90.6	78.9-120	0			
Boron	0.4936	0.020	0.5	0	98.7	80-120	0			
Cadmium	0.04849	0.0020	0.05	0	97	79.1-119	0			
Calcium	4.804	0.50	5	0	96.1	80-121	0			
Chromium	0.04798	0.0050	0.05	0	96	79.3-121	0			
Cobalt	0.04761	0.0050	0.05	0	95.2	82-121	0			
Copper	0.04535	0.0050	0.05	0	90.7	83-121	0			
Iron	4.902	0.20	5	0	98	80-120	0			
Lead	0.04454	0.0050	0.05	0	89.1	80-118	0			
Magnesium	5.139	0.20	5	0	103	80-120	0			
Manganese	0.04778	0.0050	0.05	0	95.6	82-119	0			
Molybdenum	0.04486	0.0050	0.05	0	89.7	84.6-115	0			
Nickel	0.04723	0.0050	0.05	0	94.5	85-120	0			
Potassium	4.953	0.20	5	0	99.1	80-120	0			
Selenium	0.0466	0.0050	0.05	0	93.2	79.2-118	0			
Silver	0.04787	0.0050	0.05	0	95.7	83-117	0			
Sodium	5.081	0.20	5	0	102	82.4-120	0			
Vanadium	0.04735	0.0050	0.05	0	94.7	82.1-119	0			
Zinc	0.04587	0.0050	0.05	0	91.7	83-118	0			

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MS Sample ID: **0407028-83CMS** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:14**

Client ID: Run ID: **ICP4500_040709A** SeqNo: **505874** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05038	0.010	0.05	0.002733	95.3	79-126	0			
Arsenic	0.04968	0.0050	0.05	0.003932	91.5	80-121	0			
Barium	0.07232	0.0050	0.05	0.02595	92.7	79.8-119	0			
Beryllium	0.0509	0.0020	0.05	0.0005094	101	78.9-120	0			
Boron	0.623	0.020	0.5	0.09092	106	80-120	0			
Cadmium	0.04574	0.0020	0.05	0.0003332	90.8	79.1-119	0			
Calcium	90.82	0.50	5	84.69	123	80-121	0			SEO
Chromium	0.04515	0.0050	0.05	0	90.3	79.3-121	0			
Cobalt	0.04827	0.0050	0.05	0.004039	88.5	82-121	0			
Copper	0.04228	0.0050	0.05	0.0009502	82.7	83-121	0			S
Iron	5.002	0.20	5	0.2496	95	80-120	0			
Lead	0.04748	0.0050	0.05	0	95	80-118	0			
Magnesium	28.5	0.20	5	23.83	93.4	80-120	0			O
Manganese	0.1942	0.0050	0.05	0.1499	88.6	82-119	0			
Molybdenum	0.04699	0.0050	0.05	0	94	84.6-115	0			
Nickel	0.05298	0.0050	0.05	0.01094	84.1	85-120	0			S
Potassium	7.353	0.20	5	2.353	100	80-120	0			
Selenium	0.046	0.0050	0.05	0.003609	84.8	79.2-118	0			
Silver	0.04262	0.0050	0.05	0	85.2	83-117	0			
Sodium	164.1	0.20	5	161.8	46	82.4-120	0			SEO
Vanadium	0.0482	0.0050	0.05	0.0006576	95.1	82.1-119	0			
Zinc	0.04617	0.0050	0.05	0.004682	83	83-118	0			S

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U - Analyzed for but not detected
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

MSD Sample ID: **0407028-83CMSD** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:19**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505875** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05215	0.010	0.05	0.002733	98.8	79-126	0.05038	3.45	15	
Arsenic	0.04869	0.0050	0.05	0.003932	89.5	80-121	0.04968	2.01	15	
Barium	0.07266	0.0050	0.05	0.02595	93.4	79.8-119	0.07232	0.469	15	
Beryllium	0.05198	0.0020	0.05	0.0005094	103	78.9-120	0.0509	2.1	15	
Boron	0.6325	0.020	0.5	0.09092	108	80-120	0.623	1.51	15	
Cadmium	0.04625	0.0020	0.05	0.0003332	91.8	79.1-119	0.04574	1.11	15	
Calcium	93.55	0.50	5	84.69	177	80-121	90.82	2.96	15	SEO
Chromium	0.04685	0.0050	0.05	0	93.7	79.3-121	0.04515	3.7	15	
Cobalt	0.04998	0.0050	0.05	0.004039	91.9	82-121	0.04827	3.48	15	
Copper	0.04371	0.0050	0.05	0.0009502	85.5	83-121	0.04228	3.33	15	
Iron	5.13	0.20	5	0.2496	97.6	80-120	5.002	2.53	15	
Lead	0.0471	0.0050	0.05	0	94.2	80-118	0.04748	0.804	15	
Magnesium	30.14	0.20	5	23.83	126	80-120	28.5	5.59	15	SO
Manganese	0.2008	0.0050	0.05	0.1499	102	82-119	0.1942	3.34	15	
Molybdenum	0.04735	0.0050	0.05	0	94.7	84.6-115	0.04699	0.763	15	
Nickel	0.05422	0.0050	0.05	0.01094	86.6	85-120	0.05298	2.31	15	
Potassium	7.483	0.20	5	2.353	103	80-120	7.353	1.75	15	
Selenium	0.04327	0.0050	0.05	0.003609	79.3	79.2-118	0.046	6.12	15	
Silver	0.04351	0.0050	0.05	0	87	83-117	0.04262	2.07	15	
Sodium	173.9	0.20	5	161.8	242	82.4-120	164.1	5.8	15	SEO
Vanadium	0.04997	0.0050	0.05	0.0006576	98.6	82.1-119	0.0482	3.61	15	
Zinc	0.04806	0.0050	0.05	0.004682	86.8	83-118	0.04617	4.01	15	

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9539** InstrumentID: **ICP4500**

DUP Sample ID: **0407028-83CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/10/04 0:09**
Client ID: Run ID: **ICP4500_040709A** SeqNo: **505873** Prep Date: **7/9/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002615	0.010	0	0	0	0-0	0.002733	0	25	J
Arsenic	0.003323	0.0050	0	0	0	0-0	0.003932	0	25	J
Barium	0.026	0.0050	0	0	0	0-0	0.02595	0.192	25	
Beryllium	0.000439	0.0020	0	0	0	0-0	0.0005094	0	25	J
Boron	0.08249	0.020	0	0	0	0-0	0.09092	9.72	25	
Cadmium	0.0002675	0.0020	0	0	0	0-0	0.0003332	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0003544	0	25	
Cobalt	0.003999	0.0050	0	0	0	0-0	0.004039	0	25	J
Copper	0.001006	0.0050	0	0	0	0-0	0.0009502	0	25	J
Iron	0.2425	0.20	0	0	0	0-0	0.2496	2.89	25	
Lead	ND	0.0050	0	0	0	0-0	0.0001737	0	25	
Magnesium	22.32	0.20	0	0	0	0-0	23.83	6.54	25	
Manganese	0.1501	0.0050	0	0	0	0-0	0.1499	0.133	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.0005272	0	25	
Nickel	0.01059	0.0050	0	0	0	0-0	0.01094	3.25	25	
Potassium	2.237	0.20	0	0	0	0-0	2.353	5.05	25	
Selenium	ND	0.0050	0	0	0	0-0	0.003609	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0001129	0	25	
Vanadium	0.0005641	0.0050	0	0	0	0-0	0.0006576	0	25	J
Zinc	0.00462	0.0050	0	0	0	0-0	0.004682	0	25	J

DUP Sample ID: **0407028-83CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **07/12/04 20:25**
Client ID: Run ID: **ICP4500_040712A** SeqNo: **506283** Prep Date: **7/9/2004** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	85.98	5.0	0	0	0	0-0	85.98	0	25	
Sodium	175.6	2.0	0	0	0	0-0	175.6	0	25	

The following samples were analyzed in this batch: 0407074-01B

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9641** InstrumentID: **Mercury**

MBLK Sample ID: **GBLKW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:39**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509754** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0			

LCS Sample ID: **GLCSW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:41**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509755** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00503	0.00020	0.005	0	101	83-115	0			

LCSD Sample ID: **GLCSDW1-071704** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:43**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509756** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	0	101	83-115	0.00503	0.595	20	

MS Sample ID: **0407082-18CMS** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:50**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509759** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00482	0.00020	0.005	-0.000006	96.5	83-115	0			

MSD Sample ID: **0407082-18CMSD** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:51**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509760** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00484	0.00020	0.005	-0.000006	96.9	83-115	0.00482	0.414	20	

DUP Sample ID: **0407082-18CDUP** Test Code: **SW7470** Units: **mg/L** Analysis Date: **07/17/04 17:48**
Client ID: Run ID: **MERCURY_040717C** SeqNo: **509758** Prep Date: **7/17/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000006	0	20	

The following samples were analyzed in this batch: 0407074-01B

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R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 15:58**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507356** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	82.25	10	100	0	82.2	39-153	0			
Surr: 2-Fluorobiphenyl	78.39	10	100	0	78.4	40-147	0			
Surr: 2-Fluorophenol	33.79	10	100	0	33.8	21-110	0			
Surr: 4-Terphenyl-d14	84.32	10	100	0	84.3	39-141	0			
Surr: Nitrobenzene-d5	70.65	10	100	0	70.7	37-140	0			
Surr: Phenol-d6	18.81	10	100	0	18.8	11-100	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 16:29**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507357** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	31.26	10	50	0	62.5	50-115	0			
2,4,5-Trichlorophenol	86.7	10	100	0	86.7	68-128	0			
2,4,6-Trichlorophenol	85.39	10	100	0	85.4	66-125	0			
2-Methylnaphthalene	34.79	10	50	0	69.6	47-122	0			
2-Methylphenol	61.44	10	100	0	61.4	51-115	0			
2-Nitroaniline	46.51	10	50	0	93	64-128	0			
2-Nitrophenol	76.92	10	100	0	76.9	60-119	0			
3-Nitroaniline	44.47	10	50	0	88.9	61-118	0			
4-Methylphenol	81.14	10	150	0	54.1	44-115	0			
4-Nitroaniline	44.56	10	50	0	89.1	61-123	0			
4-Nitrophenol	29.12	10	100	0	29.1	17-100	0			
Acenaphthene	40.9	10	50	0	81.8	68-115	0			
Acenaphthylene	40.88	10	50	0	81.8	67-116	0			
Aniline	32.02	10	50	0	64	40-130	0			
Anthracene	43.56	10	50	0	87.1	70-129	0			
Benz(a)anthracene	42.22	10	50	0	84.4	55-131	0			
Benzidine	30.17	10	50	0	60.3	10-115	0			
Hexachloroethane	30.87	10	50	0	61.7	46-115	0			
Indeno(1,2,3-cd)pyrene	48.4	10	50	0	96.8	42-123	0			
Isophorone	39.55	10	50	0	79.1	63-117	0			
N-Nitrosodi-n-propylamine	42.61	10	50	0	85.2	67-115	0			
N-Nitrosodimethylamine	21.15	10	50	0	42.3	28-115	0			
N-Nitrosodiphenylamine	46.31	10	50	0	92.6	72-144	0			
Naphthalene	33.4	10	50	0	66.8	52-115	0			
Nitrobenzene	38.35	10	50	0	76.7	65-115	0			
Pentachlorophenol	70.64	10	100	0	70.6	65-123	0			
Phenanthrene	41.84	10	50	0	83.7	69-119	0			
Phenol	23.79	10	100	0	23.8	16-115	0			
Pyrene	40.12	10	50	0	80.2	51-130	0			
Surr: 2,4,6-Tribromophenol	87.89	10	100	0	87.9	39-153	0			
Surr: 2-Fluorobiphenyl	82.26	10	100	0	82.3	40-147	0			
Surr: 2-Fluorophenol	40.23	10	100	0	40.2	21-110	0			
Surr: 4-Terphenyl-d14	86.41	10	100	0	86.4	39-141	0			
Surr: Nitrobenzene-d5	75.5	10	100	0	75.5	37-140	0			
Surr: Phenol-d6	23.26	10	100	0	23.3	11-100	0			

ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

LCSD Sample ID: **SLCSDW1-040712** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 16:59**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507358** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	31.58	10	50	0	63.2	50-115	31.26	1.01	30	
2,4,5-Trichlorophenol	87.3	10	100	0	87.3	68-128	86.7	0.685	30	
2,4,6-Trichlorophenol	86.39	10	100	0	86.4	66-125	85.39	1.16	30	
2-Methylnaphthalene	33.56	10	50	0	67.1	47-122	34.79	3.61	30	
2-Methylphenol	60.16	10	100	0	60.2	51-115	61.44	2.11	30	
2-Nitroaniline	47.23	10	50	0	94.5	64-128	46.51	1.53	30	
2-Nitrophenol	75.92	10	100	0	75.9	60-119	76.92	1.32	30	
3-Nitroaniline	40.62	10	50	0	81.2	61-118	44.47	9.05	30	
4-Methylphenol	81.3	10	150	0	54.2	44-115	81.14	0.188	30	
4-Nitroaniline	42.15	10	50	0	84.3	61-123	44.56	5.54	30	
4-Nitrophenol	30.34	10	100	0	30.3	17-100	29.12	4.08	30	
Acenaphthene	39.88	10	50	0	79.8	68-115	40.9	2.52	30	
Acenaphthylene	39.7	10	50	0	79.4	67-116	40.88	2.93	30	
Aniline	31.01	10	50	0	62	40-130	32.02	3.2	30	
Anthracene	42.13	10	50	0	84.3	70-129	43.56	3.34	30	
Benz(a)anthracene	41.72	10	50	0	83.4	55-131	42.22	1.2	30	
Benzidine	28.39	10	50	0	56.8	10-115	30.17	6.06	30	
Hexachloroethane	29.4	10	50	0	58.8	46-115	30.87	4.89	30	
Indeno(1,2,3-cd)pyrene	44.19	10	50	0	88.4	42-123	48.4	9.1	30	
Isophorone	38.71	10	50	0	77.4	63-117	39.55	2.15	30	
N-Nitrosodi-n-propylamine	41.17	10	50	0	82.3	67-115	42.61	3.43	30	
N-Nitrosodimethylamine	22.1	10	50	0	44.2	28-115	21.15	4.41	30	
N-Nitrosodiphenylamine	44.6	10	50	0	89.2	72-144	46.31	3.77	30	
Naphthalene	32.74	10	50	0	65.5	52-115	33.4	1.99	30	
Nitrobenzene	38.2	10	50	0	76.4	65-115	38.35	0.387	30	
Pentachlorophenol	72.91	10	100	0	72.9	65-123	70.64	3.15	30	
Phenanthrene	40.12	10	50	0	80.2	69-119	41.84	4.2	30	
Phenol	24.22	10	100	0	24.2	16-115	23.79	1.79	30	
Pyrene	40.25	10	50	0	80.5	51-130	40.12	0.331	30	
Surr: 2,4,6-Tribromophenol	86.61	10	100	0	86.6	39-153	87.89	1.46	30	
Surr: 2-Fluorobiphenyl	81.97	10	100	0	82	40-147	82.26	0.35	30	
Surr: 2-Fluorophenol	39.11	10	100	0	39.1	21-110	40.23	2.82	30	
Surr: 4-Terphenyl-d14	85.17	10	100	0	85.2	39-141	86.41	1.45	30	
Surr: Nitrobenzene-d5	75.33	10	100	0	75.3	37-140	75.5	0.231	30	
Surr: Phenol-d6	23.6	10	100	0	23.6	11-100	23.26	1.46	30	

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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MS Sample ID: **0407082-18DMS** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 18:00**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507360** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.77	11	53.19	0	72.9	50-115	0			
2,4,5-Trichlorophenol	91.48	11	106.4	0	86	68-128	0			
2,4,6-Trichlorophenol	92.28	11	106.4	0	86.7	66-125	0			
2-Methylnaphthalene	39.59	11	53.19	0	74.4	47-122	0			
2-Methylphenol	68.77	11	106.4	0	64.6	51-115	0			
2-Nitroaniline	49.37	11	53.19	0	92.8	64-128	0			
2-Nitrophenol	82.66	11	106.4	0	77.7	60-119	0			
3-Nitroaniline	39.84	11	53.19	0	74.9	61-118	0			
4-Methylphenol	95.14	11	159.6	0	59.6	44-115	0			
4-Nitroaniline	41.31	11	53.19	0	77.7	61-123	0			
4-Nitrophenol	36.34	11	106.4	0	34.2	17-100	0			
Acenaphthene	46.9	11	53.19	0	88.2	68-115	0			
Acenaphthylene	42.53	11	53.19	0	80	67-116	0			
Aniline	31.51	11	53.19	0	59.2	40-130	0			
Anthracene	45.14	11	53.19	0	84.9	70-129	0			
Benz(a)anthracene	44.52	11	53.19	0	83.7	55-131	0			
Benzidine	24.16	11	53.19	0	45.4	10-115	0			
Hexachloroethane	42.45	11	53.19	0	79.8	46-115	0			
Indeno(1,2,3-cd)pyrene	49.91	11	53.19	0	93.8	42-123	0			
Isophorone	41.24	11	53.19	0	77.5	63-117	0			
N-Nitrosodi-n-propylamine	46.57	11	53.19	0	87.5	67-115	0			
N-Nitrosodimethylamine	26.9	11	53.19	0	50.6	28-115	0			
N-Nitrosodiphenylamine	47.19	11	53.19	0	88.7	72-144	0			
Naphthalene	37.95	11	53.19	0	71.4	52-115	0			
Nitrobenzene	42.36	11	53.19	0	79.6	65-115	0			
Pentachlorophenol	71.64	11	106.4	0	67.3	65-123	0			
Phenanthrene	43.67	11	53.19	0	82.1	69-119	0			
Phenol	29.8	11	106.4	0	28	16-115	0			
Pyrene	41.73	11	53.19	0	78.4	51-130	0			
Surr: 2,4,6-Tribromophenol	88.29	11	106.4	0	83	39-153	0			
Surr: 2-Fluorobiphenyl	88.06	11	106.4	0	82.8	40-147	0			
Surr: 2-Fluorophenol	46.77	11	106.4	0	44	21-110	0			
Surr: 4-Terphenyl-d14	88.44	11	106.4	0	83.1	39-141	0			
Surr: Nitrobenzene-d5	81.74	11	106.4	0	76.8	37-140	0			
Surr: Phenol-d6	27.76	11	106.4	0	26.1	11-100	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **9560** InstrumentID: **SV-2**

MSD Sample ID: **0407082-18DMSD** Test Code: **SW8270** Units: **µg/L** Analysis Date: **07/13/04 18:30**
Client ID: Run ID: **SV-2_040713A** SeqNo: **507361** Prep Date: **7/12/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.35	11	53.19	0	72.1	50-115	38.77	1.09	30	
2,4,5-Trichlorophenol	95.8	11	106.4	0	90.1	68-128	91.48	4.61	30	
2,4,6-Trichlorophenol	92.06	11	106.4	0	86.5	66-125	92.28	0.244	30	
2-Methylnaphthalene	39.08	11	53.19	0	73.5	47-122	39.59	1.29	30	
2-Methylphenol	70.25	11	106.4	0	66	51-115	68.77	2.12	30	
2-Nitroaniline	48.77	11	53.19	0	91.7	64-128	49.37	1.21	30	
2-Nitrophenol	83.64	11	106.4	0	78.6	60-119	82.66	1.17	30	
3-Nitroaniline	37.37	11	53.19	0	70.3	61-118	39.84	6.4	30	
4-Methylphenol	94.8	11	159.6	0	59.4	44-115	95.14	0.358	30	
4-Nitroaniline	38.45	11	53.19	0	72.3	61-123	41.31	7.17	30	
4-Nitrophenol	36.01	11	106.4	0	33.8	17-100	36.34	0.923	30	
Acenaphthene	47.64	11	53.19	0	89.6	68-115	46.9	1.56	30	
Acenaphthylene	42.64	11	53.19	0	80.2	67-116	42.53	0.255	30	
Aniline	31.17	11	53.19	0	58.6	40-130	31.51	1.09	30	
Anthracene	45.61	11	53.19	0	85.7	70-129	45.14	1.04	30	
Benz(a)anthracene	45.17	11	53.19	0	84.9	55-131	44.52	1.46	30	
Benzidine	18.51	11	53.19	0	34.8	10-115	24.16	26.5	30	
Hexachloroethane	40.74	11	53.19	0	76.6	46-115	42.45	4.12	30	
Indeno(1,2,3-cd)pyrene	50.25	11	53.19	0	94.5	42-123	49.91	0.68	30	
Isophorone	42.87	11	53.19	0	80.6	63-117	41.24	3.88	30	
N-Nitrosodi-n-propylamine	46.44	11	53.19	0	87.3	67-115	46.57	0.281	30	
N-Nitrosodimethylamine	25.12	11	53.19	0	47.2	28-115	26.9	6.83	30	
N-Nitrosodiphenylamine	47.79	11	53.19	0	89.8	72-144	47.19	1.25	30	
Naphthalene	38.24	11	53.19	0	71.9	52-115	37.95	0.757	30	
Nitrobenzene	42.83	11	53.19	0	80.5	65-115	42.36	1.09	30	
Pentachlorophenol	81.78	11	106.4	0	76.9	65-123	71.64	13.2	30	
Phenanthrene	44.03	11	53.19	0	82.8	69-119	43.67	0.831	30	
Phenol	29.65	11	106.4	0	27.9	16-115	29.8	0.497	30	
Pyrene	42.44	11	53.19	0	79.8	51-130	41.73	1.71	30	
Surr: 2,4,6-Tribromophenol	93.87	11	106.4	0	88.2	39-153	88.29	6.12	30	
Surr: 2-Fluorobiphenyl	87.34	11	106.4	0	82.1	40-147	88.06	0.818	30	
Surr: 2-Fluorophenol	46.17	11	106.4	0	43.4	21-110	46.77	1.28	30	
Surr: 4-Terphenyl-d14	90.02	11	106.4	0	84.6	39-141	88.44	1.78	30	
Surr: Nitrobenzene-d5	80.82	11	106.4	0	76	37-140	81.74	1.14	30	
Surr: Phenol-d6	27.76	11	106.4	0	26.1	11-100	27.76	0.011	30	

The following samples were analyzed in this batch: 0407074-01D

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J - Analyte detected below quantitation limits
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MBLK Sample ID: **VBLKW-0719** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 11:33**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510670** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	42.27	5.0	50	0	84.5	71-126	0			
Surr: 4-Bromofluorobenzene	43.71	5.0	50	0	87.4	74-125	0			
Surr: Dibromofluoromethane	43.99	5.0	50	0	88	73-126	0			
Surr: Toluene-d8	44.34	5.0	50	0	88.7	75-125	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

LCS Sample ID: **VLCSW-0719** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 10:42**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510669** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.5	5.0	50	0	99	75.2-120	0			
1,1,2,2-Tetrachloroethane	47.64	5.0	50	0	95.3	72.4-121	0			
1,1,2-Trichloroethane	49.05	5.0	50	0	98.1	80-120	0			
1,1-Dichloroethane	40.8	5.0	50	0	81.6	76.9-120	0			
1,1-Dichloroethene	42.24	5.0	50	0	84.5	72.6-123	0			
1,2-Dichloroethane	50.08	5.0	50	0	100	80-120	0			
2-Butanone	98.22	10	100	0	98.2	69-131	0			
2-Chloroethyl vinyl ether	99.78	10	100	0	99.8	60-135	0			
2-Hexanone	109.7	10	100	0	110	55.6-126	0			
4-Methyl-2-pentanone	105.7	10	100	0	106	67.4-121	0			
Acetone	110	10	100	0	110	64.4-140	0			
Benzene	47.36	5.0	50	0	94.7	80-120	0			
Bromodichloromethane	49.67	5.0	50	0	99.3	80-120	0			
Bromoform	52.48	5.0	50	0	105	77.9-121	0			
Bromomethane	46.73	5.0	50	0	93.5	63.3-137	0			
Carbon disulfide	81.78	10	100	0	81.8	74.1-123	0			
Carbon tetrachloride	50.26	5.0	50	0	101	74.7-120	0			
Chlorobenzene	48.77	5.0	50	0	97.5	80-120	0			
Chloroethane	46	5.0	50	0	92	74.7-126	0			
Chloroform	46.23	5.0	50	0	92.5	80-120	0			
Chloromethane	43.9	5.0	50	0	87.8	64.5-132	0			
cis-1,3-Dichloropropene	51.24	5.0	50	0	102	80-120	0			
Dibromochloromethane	50.88	5.0	50	0	102	80-120	0			
Ethylbenzene	49.39	5.0	50	0	98.8	80-120	0			
m,p-Xylene	98.82	10	100	0	98.8	80-120	0			
Methylene chloride	41.13	10	50	0	82.3	76.2-120	0			
Styrene	50.69	5.0	50	0	101	80-120	0			
Tetrachloroethene	51.64	5.0	50	0	103	68.5-130	0			
Toluene	48.46	5.0	50	0	96.9	80-120	0			
trans-1,3-Dichloropropene	52.38	5.0	50	0	105	80-120	0			
Trichloroethene	50.2	5.0	50	0	100	78.9-120	0			
Vinyl acetate	106.1	10	100	0	106	62.4-133	0			
Vinyl chloride	46.69	2.0	50	0	93.4	72.7-128	0			
Xylenes, Total	148.4	15	150	0	98.9	80-120	0			
Surr: 1,2-Dichloroethane-d4	40.65	5.0	50	0	81.3	71-126	0			
Surr: 4-Bromofluorobenzene	46.15	5.0	50	0	92.3	74-125	0			
Surr: Dibromofluoromethane	41.66	5.0	50	0	83.3	73-126	0			
Surr: Toluene-d8	45.05	5.0	50	0	90.1	75-125	0			

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MS Sample ID: **0407154-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 14:05**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510672** Prep Date: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12140	1,200	12500	0	97.1	75.2-120	0			
1,1,2,2-Tetrachloroethane	11150	1,200	12500	0	89.2	72.4-121	0			
1,1,2-Trichloroethane	12470	1,200	12500	0	99.8	80-120	0			
1,1-Dichloroethane	11610	1,200	12500	0	92.9	76.9-120	0			
1,1-Dichloroethene	9668	1,200	12500	0	77.3	72.6-123	0			
1,2-Dichloroethane	12100	1,200	12500	0	96.8	80-120	0			
2-Butanone	24170	2,500	25000	0	96.7	69-131	0			
2-Chloroethyl vinyl ether	23350	2,500	25000	0	93.4	60-135	0			
2-Hexanone	28460	2,500	25000	0	114	55.6-126	0			
4-Methyl-2-pentanone	26920	2,500	25000	0	108	67.4-121	0			
Acetone	28630	2,500	25000	0	115	64.4-140	0			
Benzene	12840	1,200	12500	1617	89.8	80-120	0			
Bromodichloromethane	12110	1,200	12500	0	96.9	80-120	0			
Bromoform	12900	1,200	12500	0	103	77.9-121	0			
Bromomethane	10540	1,200	12500	0	84.3	63.3-137	0			
Carbon disulfide	21710	2,500	25000	0	86.8	74.1-123	0			
Carbon tetrachloride	15530	1,200	12500	3701	94.7	74.7-120	0			
Chlorobenzene	17760	1,200	12500	6761	88	80-120	0			
Chloroethane	11150	1,200	12500	0	89.2	74.7-126	0			
Chloroform	27960	1,200	12500	16690	90.2	80-120	0			
Chloromethane	11340	1,200	12500	0	90.7	64.5-132	0			
cis-1,3-Dichloropropene	12280	1,200	12500	0	98.3	80-120	0			
Dibromochloromethane	12560	1,200	12500	0	101	80-120	0			
Ethylbenzene	12120	1,200	12500	0	97	80-120	0			
m,p-Xylene	24660	2,500	25000	0	98.7	80-120	0			
Methylene chloride	11050	2,500	12500	251	86.4	76.2-120	0			
Styrene	12310	1,200	12500	0	98.5	80-120	0			
Tetrachloroethene	12830	1,200	12500	307.5	100	68.5-130	0			
Toluene	11740	1,200	12500	0	93.9	80-120	0			
trans-1,3-Dichloropropene	12720	1,200	12500	0	102	80-120	0			
Trichloroethene	13050	1,200	12500	382.7	101	78.9-120	0			
Vinyl acetate	16340	2,500	25000	0	65.4	62.4-133	0			
Vinyl chloride	11910	500	12500	0	95.2	72.7-128	0			
Xylenes, Total	36910	3,800	37500	0	98.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	10910	1,200	12500	0	87.3	71-126	0			
Surr: 4-Bromofluorobenzene	12050	1,200	12500	0	96.4	74-125	0			
Surr: Dibromofluoromethane	10810	1,200	12500	0	86.5	73-126	0			
Surr: Toluene-d8	11660	1,200	12500	0	93.3	75-125	0			

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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21831** InstrumentID: **VOA2**

MSD Sample ID: **0407154-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **07/19/04 14:33**
Client ID: Run ID: **VOA2_040719A** SeqNo: **510673** Prep Date: DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12300	1,200	12500	0	98.4	75.2-120	12140	1.31	20	
1,1,2,2-Tetrachloroethane	11100	1,200	12500	0	88.8	72.4-121	11150	0.381	20	
1,1,2-Trichloroethane	12660	1,200	12500	0	101	80-120	12470	1.46	20	
1,1-Dichloroethane	10890	1,200	12500	0	87.2	76.9-120	11610	6.37	20	
1,1-Dichloroethene	10340	1,200	12500	0	82.7	72.6-123	9668	6.67	20	
1,2-Dichloroethane	12510	1,200	12500	0	100	80-120	12100	3.41	20	
2-Butanone	25510	2,500	25000	0	102	69-131	24170	5.39	20	
2-Chloroethyl vinyl ether	23900	2,500	25000	0	95.6	60-135	23350	2.29	20	
2-Hexanone	29060	2,500	25000	0	116	55.6-126	28460	2.07	20	
4-Methyl-2-pentanone	27690	2,500	25000	0	111	67.4-121	26920	2.82	20	
Acetone	28630	2,500	25000	0	115	64.4-140	28630	0.0181	20	
Benzene	13310	1,200	12500	1617	93.5	80-120	12840	3.55	20	
Bromodichloromethane	12400	1,200	12500	0	99.2	80-120	12110	2.29	20	
Bromoform	13180	1,200	12500	0	105	77.9-121	12900	2.16	20	
Bromomethane	11380	1,200	12500	0	91	63.3-137	10540	7.65	20	
Carbon disulfide	22610	2,500	25000	0	90.4	74.1-123	21710	4.08	20	
Carbon tetrachloride	16060	1,200	12500	3701	98.9	74.7-120	15530	3.35	20	
Chlorobenzene	18250	1,200	12500	6761	91.9	80-120	17760	2.71	20	
Chloroethane	11550	1,200	12500	0	92.4	74.7-126	11150	3.48	20	
Chloroform	27240	1,200	12500	16690	84.4	80-120	27960	2.59	20	
Chloromethane	11380	1,200	12500	0	91.1	64.5-132	11340	0.38	20	
cis-1,3-Dichloropropene	12670	1,200	12500	0	101	80-120	12280	3.12	20	
Dibromochloromethane	12910	1,200	12500	0	103	80-120	12560	2.71	20	
Ethylbenzene	12480	1,200	12500	0	99.8	80-120	12120	2.91	20	
m,p-Xylene	25180	2,500	25000	0	101	80-120	24660	2.07	20	
Methylene chloride	10390	2,500	12500	251	81.1	76.2-120	11050	6.19	20	
Styrene	12620	1,200	12500	0	101	80-120	12310	2.5	20	
Tetrachloroethene	13110	1,200	12500	307.5	102	68.5-130	12830	2.1	20	
Toluene	12160	1,200	12500	0	97.3	80-120	11740	3.54	20	
trans-1,3-Dichloropropene	12790	1,200	12500	0	102	80-120	12720	0.554	20	
Trichloroethene	13550	1,200	12500	382.7	105	78.9-120	13050	3.73	20	
Vinyl acetate	16770	2,500	25000	0	67.1	62.4-133	16340	2.6	20	
Vinyl chloride	11890	500	12500	0	95.1	72.7-128	11910	0.11	20	
Xylenes, Total	37950	3,800	37500	0	101	80-120	36910	2.78	20	
Surr: 1,2-Dichloroethane-d4	10830	1,200	12500	0	86.7	71-126	10910	0.714	20	
Surr: 4-Bromofluorobenzene	12050	1,200	12500	0	96.4	74-125	12050	0.0324	20	
Surr: Dibromofluoromethane	11040	1,200	12500	0	88.3	73-126	10810	2.07	20	
Surr: Toluene-d8	11800	1,200	12500	0	94.4	75-125	11660	1.17	20	

The following samples were analyzed in this batch: 0407074-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21602** InstrumentID: **WetChem**

LCS Sample ID: **WLCSW1-070804** Test Code: **E150.1** Units: **pH units** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708A** SeqNo: **504779** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.04	0.10	6	0	101	85-115	0			

DUP Sample ID: **0407074-01CDUP** Test Code: **E150.1** Units: **pH units** Analysis Date: **07/08/04 0:00**
Client ID: **Inj Wells** Run ID: **WETCHEM_040708A** SeqNo: **504783** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.91	0.10	0	0	0	0-0	6.92	0.145	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21620** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW1-070804** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505164** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **WLCSW1-070804** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505165** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1058	10	1000	0	106	80-120	0			

DUP Sample ID: **0407068-01EDUP** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/08/04 0:00**
Client ID: Run ID: **WETCHEM_040708F** SeqNo: **505171** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	25900	10	0	0	0	0-0	25620	1.07	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21657** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW-071204** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506101** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-071204** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506102** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	980.7	5.0	0	0.9806	0	0-0	0			
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Total (As CaCO3)	980.7	5.0	1000	0	98.1	80-120	0			

DUP Sample ID: **0407076-01BDUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712B** SeqNo: **506130** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	421.7	5.0	0	0	0	0-0	421.7	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	421.7	5.0	0	0	0	0-0	421.7	0	20	

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21661** InstrumentID: **WetChem**

MBLK Sample ID: **WBLKW1-071204** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712D** SeqNo: **506172** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-071204** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: Run ID: **WETCHEM_040712D** SeqNo: **506173** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1440	1.0	1409	0	102	80-120	0			

DUP Sample ID: **0407074-01CDUP** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **07/12/04 0:00**
Client ID: **Inj Wells** Run ID: **WETCHEM_040712D** SeqNo: **506175** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	7190	1.0	0	0	0	0-0	7200	0.139	20	

The following samples were analyzed in this batch: 0407074-01C

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21698** InstrumentID: **IC201**

MBLK Sample ID: **WBLKW1-071204** Test Code: **E300** Units: **mg/L** Analysis Date: **07/12/04 23:08**
Client ID: Run ID: **IC201_040712B** SeqNo: **506929** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Dichloroacetic acid (surr)	5.26	0.10	5	0	105	80-120		0		

LCS Sample ID: **WLCSW1-071204** Test Code: **E300** Units: **mg/L** Analysis Date: **07/12/04 23:37**
Client ID: Run ID: **IC201_040712B** SeqNo: **506930** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.89	0.50	10	0	98.9	80-120		0		
Sulfate	10.41	1.0	10	0	104	80-120		0		
Surr: Dichloroacetic acid (surr)	5.58	0.10	5	0	112	80-120		0		

LCSD Sample ID: **WLCSW1DUP-071** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 0:05**
Client ID: Run ID: **IC201_040712B** SeqNo: **506931** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.9	0.50	10	0	99	80-120		0		
Sulfate	10.43	1.0	10	0	104	80-120		0		
Surr: Dichloroacetic acid (surr)	5.6	0.10	5	0	112	80-120		0		

MS Sample ID: **0407016-02AMS** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:31**
Client ID: Run ID: **IC201_040712B** SeqNo: **506934** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3695	50	1000	2719	97.6	75-125		0		
Sulfate	1255	100	1000	273	98.2	75-125		0		
Surr: Dichloroacetic acid (surr)	528	10	500	0	106	80-120		0		

MSD Sample ID: **0407016-02AMSD** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:59**
Client ID: Run ID: **IC201_040712B** SeqNo: **506935** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3686	50	1000	2719	96.7	75-125	3695	0.244	20	
Sulfate	1255	100	1000	273	98.2	75-125	1255	0	20	
Surr: Dichloroacetic acid (surr)	534	10	500	0	107	80-120	528	1.13	20	

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P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: **R21698** InstrumentID: **IC201**

DUP Sample ID: **0407016-02ADUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 1:02**
Client ID: Run ID: **IC201_040712B** SeqNo: **506933** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2515	50	0	0	0	0-0	2719	7.8	20	
Sulfate	259	100	0	0	0	0-0	273	5.26	20	
Surr: Dichloroacetic acid (surr)	538	10	500	0	108	80-120	571	5.95	20	

DUP Sample ID: **0407076-04BDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 11:01**
Client ID: Run ID: **IC201_040712B** SeqNo: **506938** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	844	25	0	0	0	0-0	845.5	0.178	20	
Sulfate	2172	50	0	0	0	0-0	2174	0.115	20	
Surr: Dichloroacetic acid (surr)	279	5.0	250	0	112	80-120	284.5	1.95	20	

DUP Sample ID: **0407076-07BDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **07/13/04 14:49**
Client ID: Run ID: **IC201_040712B** SeqNo: **506944** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3191	0.50	0	0	0	0-0	3183	0.227	20	E
Sulfate	4941	1.0	0	0	0	0-0	4912	0.6	20	E
Surr: Dichloroacetic acid (surr)	4.38	0.10	5	0	87.6	80-120	5.6	24.4	20	R

The following samples were analyzed in this batch: 0407074-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

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Chain of Custody Form

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(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 04070U

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Injection Wells	A	VOC (8260)
Work Order		Project Number		B	SVOC (8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Tot Metals WQCC + Cations (6020)
Send Report To	Charlie Plymale	Invoice Attn	Charlie Plymale	D	Anions: Cl, SO4 (300)
Address	P.O. Box 159	Address	P.O. Box 159	E	Alkalintiy (310.1)
				F	pH
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	TDS
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Conductivity
Fax	(505) 746-5421	Fax	(505) 746-5421	I	Uranium
e-Mail Address		e-Mail Address		J	RCI

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj Wells	7/7/04	900			11	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Charlie Plymale

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ STD 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☐ Other 10 Day TAT

Results Due Date:

Relinquished by:	Date: 7/7/04	Time: 1615	Received by:	Notes:	
Relinquished by:	Date:	Time:	Received by (Laboratory):	e-lab Cooler ID	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

Copyright 2003 by e-Lab, Inc.

e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 7/8/2004 8:40:00 AM

Work Order Number 0407074 Received by: FSM

Checklist completed by RICHARD SANCHEZ 7-8-04 (Signature / Date) Reviewed by (Initials) 7/9/04 (Date)

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.0c	002	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes: Trip blank not on COC; logged in without anlaysis.

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab, Inc **Date:** *July 19, 2004*

CLIENT: e-Lab, Inc
Project: 0407074
Work Order: 0407128

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0407128-01	0407074-01E	Water		7/7/2004 09:00	7/9/2004 10:00	☐

e-Lab, Inc

Date: *July 19, 2004*

CLIENT: e-Lab, Inc
Project: 0407074
Work Order: 0407128

Lab ID: 0407128-01A
Client Sample ID: 0407074-01E
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE		**EPA 7.3.3.2**				Analyst: **KAE**
Cyanide, Reactive	ND	0.0300		mg/Kg	1	7/16/2004
FLASHPOINT, P-M CLOSED-CUP		**ASTM D93**				Analyst: **MB**
Flashpoint, P-M Closed-cup	>200			°F	1	7/16/2004
SULFIDE, REACTIVE		**EPA 7.3.4.2**				Analyst: **KAE**
Sulfide, Reactive	ND	40.0		mg/Kg	1	7/16/2004

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

Date: *Jul 19 2004*

QC BATCH REPORT

Batch ID: **R22476** InstrumentID: **WETCHEM**

LCS Sample ID: **WLCSW1-071504** Test Code: **ASTM D93** Units: **°F** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716G** SeqNo: **329758** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	80	0	81	0	98.8	97.5-102.4	0			

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

QC BATCH REPORT

Batch ID: **R22479** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-071504** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716I** SeqNo: **329826** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	0.030								

LCS Sample ID: **WLCSW1-071504** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716I** SeqNo: **329827** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	4.238	0.75	19.71	0	21.5	5-100		0		

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

QC BATCH REPORT

Batch ID: **R22482** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-071604** Test Code: **EPA 7.3.4.2** Units: **mg/Kg** Analysis Date **07/16/04 0:00**
Client ID: Run ID: **WETCHEM_040716L** SeqNo: **329840** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Page 5500 of 5828

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

040722

CHAIN-OF-CUSTODY RECORD

Work Order: [illegible]
ELOT ID: [illegible]
Date Page: 7/20/2022

Environmental Lab of Texas
[illegible]
[illegible]
Phone: [illegible]
Email: [illegible]

Client Information		Project Information		Parameters / Requested Analyses
Purchase Order		Project Name	C40071	A: Chloride, Sulfate (EPA 300.0)
Work Order		Project Number		B: BTEX (EPA 8021B)
Company Name	[illegible]	Bill to Company	[illegible]	C: TPH (EPA 8015)
Send Report To	[illegible]	Invoice to	Accounts Payable	D:
Address	[illegible]	Address	[illegible]	E:
				F:
City/State/Zip	Hobbs, New [illegible]	City/State/Zip	[illegible]	G:
Phone	[illegible]	Phone	[illegible]	H:
Fax	[illegible]	Fax	[illegible]	I:
Email Address				J:

Sample ID	Matrix	Collection Date	Bottle	A	B	C	D	E	F	G	H	I	J
[illegible]	Solid	7/20/2022	1 TERRACORE	X	X	X							

Comments:

Relinquished by:	Received by:	Relinquished by:	Received by:	Verified	Special Instructions
[signature]	[signature]	[signature]	[signature]		

e-Lab, Inc

Sample Receipt Checklist

Client Name ELAB-HOU Date/Time Received: 7/9/2004 10:00:00 AM

Work Order Number 0407128 Received by: TL

Checklist completed by [signature] 7/9/04 Reviewed by [initials] 7/9/04

Matrix: Carrier name FedEx

Shipping container/cooler in good condition?	Yes ✔	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✔	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✔
Chain of custody present?	Yes ✔	No	
Chain of custody signed when relinquished and received?	Yes ✔	No	
Chain of custody agrees with sample labels?	Yes ✔	No	
Samples in proper container/bottle?	Yes ✔	No	
Sample containers intact?	Yes ✔	No	
Sufficient sample volume for indicated test?	Yes ✔	No	
All samples received within holding time?	Yes ✔	No	
Container/Temp Blank temperature in compliance?	Yes ✔	No	
Temperature(s)/Thermometer(s):	1.8 C		
Water - VOA vials have zero headspace?	Yes	No	No VOA vials submitted ✔
Water - pH acceptable upon receipt?	Yes ✔	No	N/A

Adjusted? Checked b

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action

ALIGN OPEN END OF FEDEX AIRBILL POUCH HERE
CUSTODY SEAL
FedEx
PRIORITY OVERNIGHT
FRI
GRR
49424
TR HLMA
Holland MI 49424

Navajo REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
MAY 0 3 2004
OIL CONSERVATION DIVISION

April 30 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2004 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2004 to March 31, 2004. We have disposed a total of 18,858,402 bbls. of fluid into the two wells as of March 31, 2004. This is broken down as follows: 12,908,972 bbls. into WDW-1 and 5,949,430 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jan-04	410	483	241	271	322	165	322	450	179	9281	11030	5641	287,699
Feb-04	313	427	160	253	299	149	65	351	0	8680	10243	5095	269,077
Mar-04	312	463	17	235	294	101	0.2	0.3	0.1	8048	10067	3477	249,489
WDW-2													
Jan-04	461	500	53	143	168	94	278	460	144	4919	5753	3212	152,491
Feb-04	236	452	0	140	249	91	369	500	196	4784	8546	3127	148,313
Mar-04	325	477	1	117	170	0.5	407	500	158	4026	5844	16	124,792

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5658 Fax 281-530-5887

January 26, 2004

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj Wells Work Order : **0401037**

Dear Jeff Byrd,

e-Lab, Inc. received 1 sample on 1/7/2004 9:25:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 36.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Patrina A. Dathorne

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Project: Inj Wells
Work Order: **0401037**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0401037-01	Inj. Wells	Water		1/6/2004 11:00	1/7/2004 09:25	☐

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT: Navajo Refining Company
Project: Inj Wells
Work Order: 0401037

Case Narrative

The analysis for Uranium was performed at American Radiation Services in Baton Rouge, LA.

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL		**SW7470**			Prep Date: **1/13/2004**	Analyst: **JCJ**
Mercury	ND	0.000200		mg/L	1	1/14/2004 4:38:03 PM
ICP METALS, TOTAL		**SW6020**			Prep Date: **1/8/2004**	Analyst: **ALR**
Aluminum	0.0929	0.0200		mg/L	2	1/9/2004 3:23:00 PM
Arsenic	0.130	0.0250		mg/L	5	1/9/2004 3:14:00 PM
Barium	0.0405	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Beryllium	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Boron	0.579	0.0400		mg/L	2	1/9/2004 3:23:00 PM
Cadmium	ND	0.00200		mg/L	2	1/9/2004 3:23:00 PM
Calcium	78.5	2.50		mg/L	5	1/9/2004 3:14:00 PM
Chromium	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Cobalt	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Copper	ND	0.00400		mg/L	2	1/9/2004 3:23:00 PM
Iron	0.424	0.400		mg/L	2	1/9/2004 3:23:00 PM
Lead	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Magnesium	21.2	1.00		mg/L	5	1/9/2004 3:14:00 PM
Manganese	0.0279	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Nickel	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Potassium	84.1	1.00		mg/L	5	1/9/2004 3:14:00 PM
Selenium	0.169	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Silver	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Sodium	2,280	40.0		mg/L	200	1/14/2004 1:00:00 PM
Vanadium	ND	0.0100		mg/L	2	1/9/2004 3:23:00 PM
Zinc	0.0357	0.0100		mg/L	2	1/9/2004 3:23:00 PM
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **1/8/2004**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Methylnaphthalene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Methylphenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
2-Nitrophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
3-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Methylphenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Nitroaniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM
4-Nitrophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Acenaphthene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Acenaphthylene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Aniline	ND	10		µg/L	1	1/10/2004 1:04:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Anthracene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Benz(a)anthracene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Benzidine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Hexachloroethane	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Isophorone	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodimethylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Naphthalene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Nitrobenzene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Pentachlorophenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Phenanthrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Phenol	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Pyrene	ND	10		µg/L	1	1/10/2004 1:04:00 AM
Surr: 2,4,6-Tribromophenol	84.1	39-153		%REC	1	1/10/2004 1:04:00 AM
Surr: 2-Fluorobiphenyl	69.6	40-147		%REC	1	1/10/2004 1:04:00 AM
Surr: 2-Fluorophenol	29.1	21-100		%REC	1	1/10/2004 1:04:00 AM
Surr: 4-Terphenyl-d14	65.8	39-141		%REC	1	1/10/2004 1:04:00 AM
Surr: Nitrobenzene-d5	76.6	37-140		%REC	1	1/10/2004 1:04:00 AM
Surr: Phenol-d6	17.0	11-100		%REC	1	1/10/2004 1:04:00 AM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
2-Butanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	1/13/2004 7:54:00 PM
2-Hexanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Acetone	17	10		µg/L	1	1/13/2004 7:54:00 PM
Benzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromoform	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Bromomethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Carbon disulfide	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chlorobenzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *January 26, 2004*

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells
Lab ID: 0401037-01

Client Sample ID: Inj. Wells
Collection Date: 1/6/2004 11:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Chloroethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chloroform	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Chloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Ethylbenzene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
m,p-Xylene	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Methylene chloride	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Styrene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Toluene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Trichloroethene	ND	5.0		µg/L	1	1/13/2004 7:54:00 PM
Vinyl acetate	ND	10		µg/L	1	1/13/2004 7:54:00 PM
Vinyl chloride	ND	2.0		µg/L	1	1/13/2004 7:54:00 PM
Xylenes, Total	ND	15		µg/L	1	1/13/2004 7:54:00 PM
Surr: 1,2-Dichloroethane-d4	93.7	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: Dibromofluoromethane	93.4	70-130		%REC	1	1/13/2004 7:54:00 PM
Surr: Toluene-d8	89.3	70-130		%REC	1	1/13/2004 7:54:00 PM
FLASHPOINT		**SW1010**				Analyst: **MAG**
Ignitability	>200	50		°F	1	1/8/2004
CYANIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Cyanide	ND	0.0300		mg/L	1	1/13/2004
SULFIDE, REACTIVE		**SW-846**				Analyst: **MAG**
Reactive Sulfide	ND	40.0		mg/L	1	1/12/2004
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **MG**
Chloride	2,440	50.0		mg/L	100	1/13/2004 12:02:00 PM
Sulfate	1,710	100		mg/L	100	1/13/2004 12:02:00 PM
Surr: Dichloroacetic acid (surr)	115	80-120		%REC	100	1/13/2004 12:02:00 PM
ALKALINITY		**E310.1**				Analyst: **LMD**
Alkalinity, Bicarbonate (As CaCO3)	290	5.00		mg/L	1	1/7/2004
Alkalinity, Carbonate (As CaCO3)	ND	5.00		mg/L	1	1/7/2004
Alkalinity, Hydroxide (As CaCO3)	ND	5.00		mg/L	1	1/7/2004
Alkalinity, Total (As CaCO3)	290	5.00		mg/L	1	1/7/2004
CONDUCTIVITY		**E120.1**				Analyst: **LMD**
Specific Conductance	9,120	1.00		µmhos/cm	1	1/13/2004

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc. **Date:** *January 26, 2004*

CLIENT:	Navajo Refining Company	**Client Sample ID:**	Inj. Wells
Work Order:	0401037	**Collection Date:**	1/6/2004 11:00:00 AM
Project:	Inj Wells		
Lab ID:	0401037-01	**Matrix:**	WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PH			**E150.1**			Analyst: **LMD**
pH	8.43	0.100		pH units	1	1/7/2004
TOTAL DISSOLVED SOLIDS			**E160.1**			Analyst: **JBA**
Total Dissolved Solids (Residue, Filterable)	6,070	10.0		mg/L	1	1/9/2004

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	P - Dual Column results percent difference > 40%
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Jan 26 2004*

CLIENT: Navajo Refining Company

Work Order: 0401037

Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MBLK Sample ID: **MBLKW2-010804** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 13:47**

Client ID: Run ID: **ICP4500_040109A** SeqNo: **415496** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0010								
Calcium	ND	0.50								
Chromium	ND	0.0020								
Cobalt	ND	0.0020								
Copper	ND	0.0020								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	0.001716	0.0050								J

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

LCS Sample ID: **MLCSW2-010804** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 13:51**
Client ID: Run ID: **ICP4500_040109A** SeqNo: **415497** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05256	0.010	0.05	0	105	80-120	0			
Arsenic	0.05054	0.0050	0.05	0	101	80-120	0			
Barium	0.04876	0.0050	0.05	0	97.5	80-120	0			
Beryllium	0.0475	0.0020	0.05	0	95	80-120	0			
Boron	0.4771	0.020	0.5	0	95.4	80-120	0			
Cadmium	0.0518	0.0010	0.05	0	104	80-120	0			
Calcium	4.894	0.50	5	0	97.9	80-120	0			
Chromium	0.05086	0.0020	0.05	0	102	80-120	0			
Cobalt	0.05016	0.0020	0.05	0	100	80-120	0			
Copper	0.04837	0.0020	0.05	0	96.7	80-120	0			
Iron	4.695	0.20	5	0	93.9	80-120	0			
Lead	0.04803	0.0050	0.05	0	96.1	80-120	0			
Magnesium	5.03	0.20	5	0	101	80-120	0			
Manganese	0.05203	0.0050	0.05	0	104	80-120	0			
Nickel	0.05031	0.0050	0.05	0	101	80-120	0			
Potassium	5.001	0.20	5	0	100	80-120	0			
Selenium	0.04876	0.0050	0.05	0	97.5	80-120	0			
Silver	0.04905	0.0050	0.05	0	98.1	80-120	0			
Sodium	4.934	0.20	5	0	98.7	80-120	0			
Vanadium	0.05047	0.0050	0.05	0	101	80-120	0			
Zinc	0.04962	0.0050	0.05	0	99.2	80-120	0			

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R - RPD outside accepted recovery limits
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B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MS Sample ID: **0401037-01CMS** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:41**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415583** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1386	0.020	0.05	0.09293	91.3	75-125	0			
Arsenic	0.1628	0.010	0.05	0.1222	81.2	75-125	0			
Barium	0.0922	0.010	0.05	0.04055	103	75-125	0			
Beryllium	0.054	0.0040	0.05	0	108	75-125	0			
Boron	1.149	0.040	0.5	0.5787	114	75-125	0			
Cadmium	0.04433	0.0020	0.05	0	88.7	75-125	0			
Calcium	76.14	1.0	5	73.6	50.8	75-125	0			SO
Chromium	0.05061	0.0040	0.05	0.002633	96	75-125	0			
Cobalt	0.04941	0.0040	0.05	0.002671	93.5	75-125	0			
Copper	0.0442	0.0040	0.05	0.003364	81.7	75-125	0			
Iron	4.765	0.40	5	0.4238	86.8	75-125	0			
Lead	0.05518	0.010	0.05	0	110	75-125	0			
Magnesium	23.02	0.40	5	19.15	77.4	75-125	0			
Manganese	0.07355	0.010	0.05	0.02789	91.3	75-125	0			
Nickel	0.05067	0.010	0.05	0.008268	84.8	75-125	0			
Potassium	85.96	0.40	5	82.03	78.6	75-125	0			O
Selenium	0.1903	0.010	0.05	0.1686	43.4	75-125	0			S
Silver	0.04085	0.010	0.05	0.0006825	80.3	75-125	0			
Sodium	400	0.40	5	400	0	75-125	0			SEO
Vanadium	0.05781	0.010	0.05	0.007067	101	75-125	0			
Zinc	0.07138	0.010	0.05	0.03574	71.3	75-125	0			S

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

MSD Sample ID: **0401037-01CMSD** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:46**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415584** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1337	0.020	0.05	0.09293	81.5	75-125	0.1386	3.6	25	
Arsenic	0.1586	0.010	0.05	0.1222	72.8	75-125	0.1628	2.61	25	S
Barium	0.08998	0.010	0.05	0.04055	98.9	75-125	0.0922	2.44	25	
Beryllium	0.0523	0.0040	0.05	0	105	75-125	0.054	3.2	25	
Boron	1.11	0.040	0.5	0.5787	106	75-125	1.149	3.45	25	
Cadmium	0.0431	0.0020	0.05	0	86.2	75-125	0.04433	2.81	25	
Calcium	74.74	1.0	5	73.6	22.6	75-125	76.14	1.86	25	SO
Chromium	0.05029	0.0040	0.05	0.002633	95.3	75-125	0.05061	0.634	25	
Cobalt	0.04901	0.0040	0.05	0.002671	92.7	75-125	0.04941	0.813	25	
Copper	0.04405	0.0040	0.05	0.003364	81.4	75-125	0.0442	0.34	25	
Iron	4.732	0.40	5	0.4238	86.2	75-125	4.765	0.695	25	
Lead	0.05415	0.010	0.05	0	108	75-125	0.05518	1.88	25	
Magnesium	22.37	0.40	5	19.15	64.4	75-125	23.02	2.86	25	S
Manganese	0.07227	0.010	0.05	0.02789	68.8	75-125	0.07355	1.76	25	
Nickel	0.05102	0.010	0.05	0.008268	85.5	75-125	0.05067	0.688	25	
Potassium	81.97	0.40	5	82.03	-1.2	75-125	85.96	4.75	25	SO
Selenium	0.179	0.010	0.05	0.1686	20.8	75-125	0.1903	6.12	25	S
Silver	0.03939	0.010	0.05	0.0006825	77.4	75-125	0.04085	3.64	25	
Sodium	400	0.40	5	400	0	75-125	400	0	25	SEO
Vanadium	0.0578	0.010	0.05	0.007067	101	75-125	0.05781	0.0173	25	
Zinc	0.07034	0.010	0.05	0.03574	69.2	75-125	0.07138	1.47	25	S

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:18**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415578** Prep Date: **1/8/2004** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1275	0.025	0	0	0	0-0	0.13	1.94	25	
Calcium	73.74	2.5	0	0	0	0-0	78.49	6.24	25	
Magnesium	19.87	1.0	0	0	0	0-0	21.18	6.38	25	
Potassium	80.79	1.0	0	0	0	0-0	84.06	3.97	25	

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7670** InstrumentID: **ICP4500**

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/09/04 15:37**
Client ID: **Inj. Wells** Run ID: **ICP4500_040109A** SeqNo: **415582** Prep Date: **1/8/2004** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09187	0.020	0	0	0	0-0	0.09293	1.15	25	
Barium	0.03947	0.010	0	0	0	0-0	0.04055	2.7	25	
Beryllium	ND	0.0040	0	0	0	0-0	0	0	25	
Boron	0.5767	0.040	0	0	0	0-0	0.5787	0.346	25	
Cadmium	ND	0.0020	0	0	0	0-0	0	0	25	
Chromium	0.002171	0.0040	0	0	0	0-0	0.002633	0	25	J
Cobalt	0.002721	0.0040	0	0	0	0-0	0.002671	0	25	J
Copper	0.003462	0.0040	0	0	0	0-0	0.003364	0	25	J
Iron	0.4287	0.40	0	0	0	0-0	0.4238	1.15	25	
Lead	ND	0.010	0	0	0	0-0	0	0	25	
Manganese	0.02741	0.010	0	0	0	0-0	0.02789	1.74	25	
Nickel	0.008235	0.010	0	0	0	0-0	0.008268	0	25	J
Selenium	0.1445	0.010	0	0	0	0-0	0.1686	15.4	25	
Silver	0.0005242	0.010	0	0	0	0-0	0.0006825	0	25	J
Vanadium	0.006497	0.010	0	0	0	0-0	0.007067	0	25	J
Zinc	0.0343	0.010	0	0	0	0-0	0.03574	4.11	25	

DUP Sample ID: **0401037-01CDUP** Test Code: **SW6020** Units: **mg/L** Analysis Date: **01/14/04 13:04**
Client ID: **Inj. Wells** Run ID: **ICP4500_040114A** SeqNo: **416724** Prep Date: **1/8/2004** DF: **200**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	2229	40	0	0	0	0-0	2285	2.48	25	

The following samples were analyzed in this batch: 0401037-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7710** InstrumentID: **Mercury**

MBLK Sample ID: **GBLKW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:33**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416950** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:34**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416951** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00487	0.00020	0.005	0	97.4	83-115	0			

LCSD Sample ID: **GLCSDW5-011304** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:36**
Client ID: Run ID: **MERCURY_040114D** SeqNo: **416952** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00496	0.00020	0.005	0	99.2	83-115	0.00487	1.83	20	

MS Sample ID: **0401037-01CMS** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:41**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416955** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00507	0.00020	0.005	0.000045	100	70-124	0			

MSD Sample ID: **0401037-01CMSD** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:42**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416956** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00495	0.00020	0.005	0.000045	98.1	70-124	0.00507	2.4	20	

DUP Sample ID: **0401037-01CDUP** Test Code: **SW7470** Units: **mg/L** Analysis Date: **01/14/04 16:39**
Client ID: **Inj. Wells** Run ID: **MERCURY_040114D** SeqNo: **416954** Prep Date: **1/13/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0.000045	0	20	

The following samples were analyzed in this batch: 0401037-01C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

MBLK Sample ID: **SBLKW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 16:47**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416012** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	85.07	0	100	0	85.1	39-153	0			
Surr: 2-Fluorobiphenyl	76.23	0	100	0	76.2	40-147	0			
Surr: 2-Fluorophenol	45.21	0	100	0	45.2	21-100	0			
Surr: 4-Terphenyl-d14	75.82	0	100	0	75.8	39-141	0			
Surr: Nitrobenzene-d5	86.87	0	100	0	86.9	37-140	0			
Surr: Phenol-d6	28.99	0	100	0	29	11-100	0			

ND - Not Detected at the Reporting Limit
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O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

LCS Sample ID: **SLCSW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 17:13**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416013** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.87	10	50	0	83.7	50-115	0			
2,4,5-Trichlorophenol	82.2	10	100	0	82.2	72-118	0			
2,4,6-Trichlorophenol	83.51	10	100	0	83.5	72-117	0			
2-Methylnaphthalene	42.34	10	50	0	84.7	47-122	0			
2-Methylphenol	71.03	10	100	0	71	51-115	0			
2-Nitroaniline	44.61	10	50	0	89.2	73-119	0			
2-Nitrophenol	87.53	10	100	0	87.5	60-119	0			
3-Nitroaniline	41.16	10	50	0	82.3	61-118	0			
4-Methylphenol	96.92	10	150	0	64.6	44-115	0			
4-Nitroaniline	41.84	10	50	0	83.7	61-123	0			
4-Nitrophenol	38.84	10	100	0	38.8	17-100	0			
Acenaphthene	41.32	10	50	0	82.6	68-115	0			
Acenaphthylene	41.87	10	50	0	83.7	67-116	0			
Anthracene	44.55	10	50	0	89.1	72-124	0			
Benz(a)anthracene	40.18	10	50	0	80.4	55-131	0			
Benzidine	13.03	10	50	0	26.1	10-115	0			
Hexachloroethane	38.29	10	50	0	76.6	46-115	0			
Indeno(1,2,3-cd)pyrene	41.53	10	50	0	83.1	42-123	0			
Isophorone	45.89	10	50	0	91.8	63-117	0			
N-Nitrosodi-n-propylamine	43.72	10	50	0	87.4	67-115	0			
N-Nitrosodimethylamine	25.46	10	50	0	50.9	28-115	0			
N-Nitrosodiphenylamine	50.02	10	50	0	100	72-144	0			
Naphthalene	42.08	10	50	0	84.2	52-115	0			
Nitrobenzene	45.06	10	50	0	90.1	65-115	0			
Pentachlorophenol	84.64	10	100	0	84.6	65-123	0			
Phenanthrene	43.23	10	50	0	86.5	69-119	0			
Phenol	33.5	10	100	0	33.5	16-115	0			
Pyrene	38.95	10	50	0	77.9	51-130	0			
Surr: 2,4,6-Tribromophenol	91.94	0	100	0	91.9	39-153	0			
Surr: 2-Fluorobiphenyl	80.16	0	100	0	80.2	40-147	0			
Surr: 2-Fluorophenol	50.59	0	100	0	50.6	21-100	0			
Surr: 4-Terphenyl-d14	81.09	0	100	0	81.1	39-141	0			
Surr: Nitrobenzene-d5	90.59	0	100	0	90.6	37-140	0			
Surr: Phenol-d6	33.67	0	100	0	33.7	11-100	0			

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R - RPD outside accepted recovery limits
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **7683** InstrumentID: **SV-3**

LCSD Sample ID: **SLCSDW1-040108** Test Code: **SW8270** Units: **µg/L** Analysis Date: **01/09/04 17:39**
Client ID: Run ID: **SV-3_040108A** SeqNo: **416014** Prep Date: **1/8/2004** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	42.41	10	50	0	84.8	50-115	41.87	1.29	30	
2,4,5-Trichlorophenol	86.29	10	100	0	86.3	72-118	82.2	4.86	30	
2,4,6-Trichlorophenol	83.53	10	100	0	83.5	72-117	83.51	0.0281	30	
2-Methylnaphthalene	42.19	10	50	0	84.4	47-122	42.34	0.363	30	
2-Methylphenol	67.08	10	100	0	67.1	51-115	71.03	5.73	30	
2-Nitroaniline	46.08	10	50	0	92.2	73-119	44.61	3.24	30	
2-Nitrophenol	87.97	10	100	0	88	60-119	87.53	0.504	30	
3-Nitroaniline	41.24	10	50	0	82.5	61-118	41.16	0.186	30	
4-Methylphenol	90.96	10	150	0	60.6	44-115	96.92	6.35	30	
4-Nitroaniline	43.08	10	50	0	86.2	61-123	41.84	2.91	30	
4-Nitrophenol	34.89	10	100	0	34.9	17-100	38.84	10.7	30	
Acenaphthene	41.74	10	50	0	83.5	68-115	41.32	1.02	30	
Acenaphthylene	42.98	10	50	0	86	67-116	41.87	2.62	30	
Anthracene	45.95	10	50	0	91.9	72-124	44.55	3.09	30	
Benz(a)anthracene	40.72	10	50	0	81.4	55-131	40.18	1.34	30	
Benzidine	19.19	10	50	0	38.4	10-115	13.03	38.2	30	R
Hexachloroethane	38.69	10	50	0	77.4	46-115	38.29	1.04	30	
Indeno(1,2,3-cd)pyrene	42.3	10	50	0	84.6	42-123	41.53	1.84	30	
Isophorone	46.42	10	50	0	92.8	63-117	45.89	1.15	30	
N-Nitrosodi-n-propylamine	43.74	10	50	0	87.5	67-115	43.72	0.0428	30	
N-Nitrosodimethylamine	25.93	10	50	0	51.9	28-115	25.46	1.83	30	
N-Nitrosodiphenylamine	47.58	10	50	0	95.2	72-144	50.02	5.01	30	
Naphthalene	41.54	10	50	0	83.1	52-115	42.08	1.29	30	
Nitrobenzene	45.04	10	50	0	90.1	65-115	45.06	0.0543	30	
Pentachlorophenol	82.68	10	100	0	82.7	65-123	84.64	2.34	30	
Phenanthrene	44.72	10	50	0	89.4	69-119	43.23	3.38	30	
Phenol	33.12	10	100	0	33.1	16-115	33.5	1.13	30	
Pyrene	39.61	10	50	0	79.2	51-130	38.95	1.68	30	
Surr: 2,4,6-Tribromophenol	95.4	0	100	0	95.4	39-153	91.94	3.69	30	
Surr: 2-Fluorobiphenyl	81.18	0	100	0	81.2	40-147	80.16	1.26	30	
Surr: 2-Fluorophenol	48.13	0	100	0	48.1	21-100	50.59	4.98	30	
Surr: 4-Terphenyl-d14	80.48	0	100	0	80.5	39-141	81.09	0.752	30	
Surr: Nitrobenzene-d5	91.03	0	100	0	91	37-140	90.59	0.48	30	
Surr: Phenol-d6	30.39	0	100	0	30.4	11-100	33.67	10.3	30	

The following samples were analyzed in this batch: 0401037-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MBLK Sample ID: **VBLKW-0113** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 11:22**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416622** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	46	5.0	50	0	92	70-130		0		
Surr: 4-Bromofluorobenzene	48.08	5.0	50	0	96.2	70-130		0		
Surr: Dibromofluoromethane	47.06	5.0	50	0	94.1	70-130		0		
Surr: Toluene-d8	46.05	5.0	50	0	92.1	70-130		0		

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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

LCS Sample ID: **VLCSW-0113** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 10:28**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416621** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.27	5.0	50	0	96.5	75-118	0			
1,1,2,2-Tetrachloroethane	47.46	5.0	50	0	94.9	79-120	0			
1,1,2-Trichloroethane	48.13	5.0	50	0	96.3	81-119	0			
1,1-Dichloroethane	46.83	5.0	50	0	93.7	80-120	0			
1,1-Dichloroethene	46.32	5.0	50	0	92.6	80-120	0			
1,2-Dichloroethane	53.01	5.0	50	0	106	80-120	0			
2-Butanone	98.39	10	100	0	98.4	70-130	0			
2-Chloroethyl vinyl ether	90.24	10	100	0	90.2	72-120	0			
4-Methyl-2-pentanone	93.51	10	100	0	93.5	78-120	0			
Acetone	113.7	10	100	0	114	60-135	0			
Benzene	46.07	5.0	50	0	92.1	82-119	0			
Bromodichloromethane	51.5	5.0	50	0	103	81-119	0			
Bromoform	50.25	5.0	50	0	100	80-120	0			
Bromomethane	44.31	5.0	50	0	88.6	75-130	0			
Carbon disulfide	89.23	10	100	0	89.2	78-120	0			
Carbon tetrachloride	49.21	5.0	50	0	98.4	77-120	0			
Chlorobenzene	47.05	5.0	50	0	94.1	82-118	0			
Chloroethane	46.72	5.0	50	0	93.4	78-122	0			
Chloroform	49.02	5.0	50	0	98	78-120	0			
Chloromethane	58.33	5.0	50	0	117	75-125	0			
cis-1,3-Dichloropropene	50.41	5.0	50	0	101	81-120	0			
Dibromochloromethane	52.1	5.0	50	0	104	81-118	0			
Ethylbenzene	46.77	5.0	50	0	93.5	82-120	0			
m,p-Xylene	90.81	10	100	0	90.8	82-122	0			
Methylene chloride	47.03	10	50	0	94.1	80-122	0			
Styrene	47.64	5.0	50	0	95.3	82-121	0			
Tetrachloroethene	47.51	5.0	50	0	95	79-118	0			
Toluene	45.44	5.0	50	0	90.9	81-119	0			
trans-1,3-Dichloropropene	50.2	5.0	50	0	100	82-121	0			
Trichloroethene	49.17	5.0	50	0	98.3	78-118	0			
Vinyl acetate	98.67	10	100	0	98.7	75-120	0			
Vinyl chloride	45.63	2.0	50	0	91.3	73-127	0			
Xylenes, Total	138.2	15	150	0	92.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	45.82	5.0	50	0	91.6	70-130	0			
Surr: 4-Bromofluorobenzene	48.79	5.0	50	0	97.6	70-130	0			
Surr: Dibromofluoromethane	46.9	5.0	50	0	93.8	70-130	0			
Surr: Toluene-d8	45.11	5.0	50	0	90.2	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MS Sample ID: **0401069-08AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 13:36**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416623** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.27	5.0	50	0	88.5	75-125	0			
1,1,2,2-Tetrachloroethane	43.73	5.0	50	0	87.5	75-125	0			
1,1,2-Trichloroethane	45.29	5.0	50	0	90.6	75-125	0			
1,1-Dichloroethane	71.66	5.0	50	31.2	80.9	75-125	0			
1,1-Dichloroethene	104.2	5.0	50	72.85	62.8	65-130	0			S
1,2-Dichloroethane	49.86	5.0	50	0	99.7	70-130	0			
2-Butanone	91.73	10	100	0	91.7	64-128	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	75-125	0			S
4-Methyl-2-pentanone	95.27	10	100	0	95.3	75-125	0			
Acetone	100.1	10	100	0	100	60-130	0			
Benzene	44.02	5.0	50	0	88	76-127	0			
Bromodichloromethane	48.53	5.0	50	0	97.1	75-125	0			
Bromoform	47.61	5.0	50	0	95.2	75-125	0			
Bromomethane	40.26	5.0	50	0	80.5	75-125	0			
Carbon disulfide	81.69	10	100	0	81.7	75-125	0			
Carbon tetrachloride	44.78	5.0	50	0	89.6	70-130	0			
Chlorobenzene	44.91	5.0	50	0	89.8	75-126	0			
Chloroethane	41.03	5.0	50	0	82.1	70-130	0			
Chloroform	47.25	5.0	50	0	94.5	75-125	0			
Chloromethane	53.47	5.0	50	0	107	75-125	0			
cis-1,3-Dichloropropene	47.2	5.0	50	0	94.4	75-125	0			
Dibromochloromethane	49.07	5.0	50	0	98.1	75-125	0			
Ethylbenzene	43.36	5.0	50	0	86.7	75-125	0			
m,p-Xylene	85.04	10	100	0	85	75-125	0			
Methylene chloride	45.19	10	50	0	90.4	75-125	0			
Styrene	40.66	5.0	50	0	81.3	75-125	0			
Tetrachloroethene	43.81	5.0	50	0	87.6	75-125	0			
Toluene	42.83	5.0	50	0	85.7	76-125	0			
trans-1,3-Dichloropropene	48.07	5.0	50	0	96.1	70-130	0			
Trichloroethene	47.03	5.0	50	0	94.1	71-120	0			
Vinyl acetate	88.29	10	100	0	88.3	75-125	0			
Vinyl chloride	39.74	2.0	50	0	79.5	60-135	0			
Xylenes, Total	129	15	150	0	86	75-125	0			
Surr: 1,2-Dichloroethane-d4	46.19	5.0	50	0	92.4	70-130	0			
Surr: 4-Bromofluorobenzene	49.78	5.0	50	0	99.6	70-130	0			
Surr: Dibromofluoromethane	47.52	5.0	50	0	95	70-130	0			
Surr: Toluene-d8	45.36	5.0	50	0	90.7	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18228** InstrumentID: **VOA_I**

MSD Sample ID: **0401069-08AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **01/13/04 14:03**
Client ID: Run ID: **VOA_I_040113A** SeqNo: **416624** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.32	5.0	50	0	103	75-125	44.27	14.8	20	
1,1,2,2-Tetrachloroethane	47.81	5.0	50	0	95.6	75-125	43.73	8.9	20	
1,1,2-Trichloroethane	49.39	5.0	50	0	98.8	75-125	45.29	8.66	20	
1,1-Dichloroethane	77.65	5.0	50	31.2	92.9	75-125	71.66	8.03	20	
1,1-Dichloroethene	115.3	5.0	50	72.85	84.9	65-130	104.2	10.1	20	
1,2-Dichloroethane	53.62	5.0	50	0	107	70-130	49.86	7.27	20	
2-Butanone	103.2	10	100	0	103	64-128	91.73	11.8	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	75-125	0	0	20	S
4-Methyl-2-pentanone	100.9	10	100	0	101	75-125	95.27	5.77	20	
Acetone	107.4	10	100	0	107	60-130	100.1	7.09	20	
Benzene	49.06	5.0	50	0	98.1	76-127	44.02	10.8	20	
Bromodichloromethane	53.21	5.0	50	0	106	75-125	48.53	9.21	20	
Bromoform	51.56	5.0	50	0	103	75-125	47.61	7.95	20	
Bromomethane	49.35	5.0	50	0	98.7	75-125	40.26	20.3	20	R
Carbon disulfide	96.66	10	100	0	96.7	75-125	81.69	16.8	20	
Carbon tetrachloride	52.5	5.0	50	0	105	70-130	44.78	15.9	20	
Chlorobenzene	49.89	5.0	50	0	99.8	75-126	44.91	10.5	20	
Chloroethane	49.74	5.0	50	0	99.5	70-130	41.03	19.2	20	
Chloroform	51.66	5.0	50	0	103	75-125	47.25	8.93	20	
Chloromethane	59.73	5.0	50	0	119	75-125	53.47	11.1	20	
cis-1,3-Dichloropropene	52.48	5.0	50	0	105	75-125	47.2	10.6	20	
Dibromochloromethane	52.99	5.0	50	0	106	75-125	49.07	7.7	20	
Ethylbenzene	49.24	5.0	50	0	98.5	75-125	43.36	12.7	20	
m,p-Xylene	97.66	10	100	0	97.7	75-125	85.04	13.8	20	
Methylene chloride	49.52	10	50	0	99	75-125	45.19	9.15	20	
Styrene	44.29	5.0	50	0	88.6	75-125	40.66	8.54	20	
Tetrachloroethene	51.19	5.0	50	0	102	75-125	43.81	15.5	20	
Toluene	47.76	5.0	50	0	95.5	76-125	42.83	10.9	20	
trans-1,3-Dichloropropene	52.51	5.0	50	0	105	70-130	48.07	8.81	20	
Trichloroethene	52.68	5.0	50	0	105	71-120	47.03	11.3	20	
Vinyl acetate	92.99	10	100	0	93	75-125	88.29	5.19	20	
Vinyl chloride	47.65	2.0	50	0	95.3	60-135	39.74	18.1	20	
Xylenes, Total	146.6	15	150	0	97.8	75-125	129	12.8	20	
Surr: 1,2-Dichloroethane-d4	46.39	5.0	50	0	92.8	70-130	46.19	0.429	20	
Surr: 4-Bromofluorobenzene	49.42	5.0	50	0	98.8	70-130	49.78	0.719	20	
Surr: Dibromofluoromethane	47.17	5.0	50	0	94.3	70-130	47.52	0.757	20	
Surr: Toluene-d8	45.25	5.0	50	0	90.5	70-130	45.36	0.243	20	

The following samples were analyzed in this batch: 0401037-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18133** InstrumentID: **Wet Chemistry**

LCS Sample ID: **WLCSW1-010704** Test Code: **E150.1** Units: **pH units** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414646** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	85-115	0			

DUP Sample ID: **0401037-01D DUP** Test Code: **E150.1** Units: **pH units** Analysis Date: **01/07/04 0:00**
Client ID: **Inj. Wells** Run ID: **WET CHEMISTRY_0401** SeqNo: **414648** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.45	0.10	0	0	0	0-0	8.43	0.237	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18137** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WMBW1-010704** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414715** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-010704** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414716** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1000	5.0	1000	0	100	80-120	0			

DUP Sample ID: **0312297-03D DUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414723** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	675.2	5.0	0	0	0	0-0	680.2	0.738	20	
Alkalinity, Carbonate (As CaCO3)	40.01	5.0	0	0	0	0-0	40.01	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	715.2	5.0	0	0	0	0-0	720.2	0.698	20	

DUP Sample ID: **0401024-03D DUP** Test Code: **E310.1** Units: **mg/L** Analysis Date: **01/07/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **414727** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	600.2	5.0	0	0	0	0-0	605.2	0.83	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	600.2	5.0	0	0	0	0-0	605.2	0.83	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18194** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WBLKW1-010904** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415951** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **WLCSW1-010904** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415952** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1010	10	1000	0	101	80-120	0			

DUP Sample ID: **0401020-01EDUP** Test Code: **E160.1** Units: **mg/L** Analysis Date: **01/09/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **415961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	*849*	*10*	*0*	*0*	*0*	*0-0*	*841*	*0.947*	*20*	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18217** InstrumentID: **Wet Chemistry**

MBLK Sample ID: **WMBW1-011304** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416394** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-011304** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416395** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1410	1.0	1409	0	100	80-120	0			

DUP Sample ID: **0401087-03B DUP** Test Code: **E120.1** Units: **µmhos/cm** Analysis Date: **01/13/04 0:00**
Client ID: Run ID: **WET CHEMISTRY_0401** SeqNo: **416400** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	978	1.0	0	0	0	0-0	975	0.307	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18226** InstrumentID: **IC201**

MBLK Sample ID: **WBLKW1-011204** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 15:27**
Client ID: Run ID: **IC201_040112A** SeqNo: **416579** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Dichloroacetic acid (surr)	5.31	0.10	5	0	106	80-120	0			

LCS Sample ID: **WLCSW1-011204** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 15:59**
Client ID: Run ID: **IC201_040112A** SeqNo: **416580** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.86	0.50	10	0	98.6	80-120	0			
Sulfate	9.43	1.0	10	0	94.3	80-120	0			
Surr: Dichloroacetic acid (surr)	5.43	0.10	5	0	109	80-120	0			

LCSD Sample ID: **WLCSDW1-01120** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 16:32**
Client ID: Run ID: **IC201_040112A** SeqNo: **416581** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	10	0.50	10	0	100	80-120	9.86	1.41	20	
Sulfate	9.46	1.0	10	0	94.6	80-120	9.43	0.318	20	
Surr: Dichloroacetic acid (surr)	5.45	0.10	5	0	109	80-120	5.43	0.368	20	

MS Sample ID: **0401071-02EMS** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 19:47**
Client ID: Run ID: **IC201_040112A** SeqNo: **416587** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	50.26	0.50	10	39.6	107	75-125	0			E
Sulfate	43.9	1.0	10	33.82	101	75-125	0			
Surr: Dichloroacetic acid (surr)	5.29	0.10	5	0	106	80-120	0			

MSD Sample ID: **0401071-02EMSD** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 20:19**
Client ID: Run ID: **IC201_040112A** SeqNo: **416588** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	50.1	0.50	10	39.6	105	75-125	50.26	0.319	20	E
Sulfate	43.91	1.0	10	33.82	101	75-125	43.9	0.0228	20	
Surr: Dichloroacetic acid (surr)	5.28	0.10	5	0	106	80-120	5.29	0.189	20	

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0401037
Project: Inj Wells

QC BATCH REPORT

Batch ID: **R18226** InstrumentID: **IC201**

DUP Sample ID: **0401071-02EDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 19:14**
Client ID: Run ID: **IC201_040112A** SeqNo: **416586** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	39.6	0.50	0	0	0	0-0	39.6	0	20	
Sulfate	33.89	1.0	0	0	0	0-0	33.82	0.207	20	
Surr: Dichloroacetic acid (surr)	5.31	0.10	5	0	106	80-120	5.34	0.563	20	

DUP Sample ID: **0401071-03EDUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/12/04 23:34**
Client ID: Run ID: **IC201_040112A** SeqNo: **416593** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	57.2	1.0	0	0	0	0-0	57.1	0.175	20	
Sulfate	12.82	2.0	0	0	0	0-0	12.9	0.622	20	
Surr: Dichloroacetic acid (surr)	10.68	0.20	10	0	107	80-120	10.56	1.13	20	

DUP Sample ID: **0401037-01D DUP** Test Code: **E300** Units: **mg/L** Analysis Date: **01/13/04 12:35**
Client ID: **Inj. Wells** Run ID: **IC201_040112A** SeqNo: **416601** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2451	50	0	0	0	0-0	2442	0.368	20	
Sulfate	1719	100	0	0	0	0-0	1708	0.642	20	
Surr: Dichloroacetic acid (surr)	567	10	500	0	113	80-120	573	1.05	20	

The following samples were analyzed in this batch: 0401037-01D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab
QUALITY • INTEGRITY • SERVICE

☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
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Chain of Custody Form

Page ____ of ____

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: | e-Lab Work Order #: 0401037

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	INJ WELLS	A	Volatiles Select (8260)
Work Order		Project Number		B	Semivolatiles select (8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	Tot. Metals WQCC+ Cations(6020/7000)
Send Report To	Jeff Byrd / Charlie Plymale	Invoice Attn	Jeff Byrd	D	RCI Profile
Address	P.O. Box 159	Address	P.O. Box 159	E	Anions: Cl, SO4
				F	Alkalinity
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	pH
Phone	(505) 748-3311	Phone	(505) 748-3311	H	Solids: TDS
Fax	(505) 746-5421	Fax	(505) 746-5421	I	Conductivity
e-Mail Address		e-Mail Address		J	Uranium

No.	Sample Description	Date	Time	Matrix	Preserv.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. wells	1/6/04	1100			10	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Charlie Plymale

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☐ STD 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ Other ☐ 24 Hour

Results Due Date:

Relinquished by:	Date: 1/6/04	Time: 1615	Received by:	Notes:	
Relinquished by:	Date:	Time:	Received by (Laboratory): PICHARD SAMPLE 1-7-04 0825	e-Lab Cooler ID:	Cooler Temp:
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☐ Level I Std QC ☐ TRRP CheckList
☐ Level II Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 1/7/2004 9:25:00 AM

Work Order Number 0401037 Received by: RSZ

Checklist completed by _____ 1/7/04 Reviewed by _____ 1/8/04

Signature Date Initials Date

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.9 C	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab, Inc **Date:** *January 13, 2004*

CLIENT: e-Lab, Inc
Project: 0401037
Work Order: 0401065

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0401065-01	0401037-01F	Water		1/8/2004	1/8/2004	☐

e-Lab, Inc

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

Date: *Jan 13 2004*

QC BATCH REPORT

Batch ID: R18598 **InstrumentID:** WETCHEM

LCS **Sample ID:** WLCSW1-123003 **Test Code:** ASTM D93 **Units:** °F **Analysis Date** 01/08/04 0:00
Client ID: **Run ID:** WETCHEM_040108E **SeqNo:** 270178 **Prep Date:** **DF:** 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	80.6	0	61	0	99.5	97.8-102.7	0			

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

QC BATCH REPORT

Batch ID: R18853 InstrumentID: WETCHEM

MBLK Sample ID: WBLKW1-011204 Test Code: EPA 7.3.4.2 Units: mg/Kg Analysis Date 01/12/04 0:00
Client ID: Run ID: WETCHEM_040112C SeqNo: 270845 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0401065
Project: 0401037

QC BATCH REPORT

Batch ID: R18667 InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKR1-011204** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **01/13/04 0:00**
Client ID: Run ID: **WETCHEM_040113F** SeqNo: **271121** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	0.030								

LCS Sample ID: **WLCSR1-011204** Test Code: **EPA 7.3.3.2** Units: **mg/Kg** Analysis Date **01/13/04 0:00**
Client ID: Run ID: **WETCHEM_040113F** SeqNo: **271122** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	4.22	0.75	16.95	0	24.9	5-100		0		

The following samples were analyzed in this batch: 0401065-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Page 5537 of 5828

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

0401037

e-Lab, Inc.

[redacted]

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Laboratories

e-Lab Inc
5352 122nd Ave.

TEL: (616) 399-6070
FAX: (616) 399-6771

Holland, MI 49423-5363

Acct #:

Jan 01, 2004

Sample ID	Matrix	Collection Date	Requested Tests					
			SW-846	SW-1010				
0401037-01F (by Water)	Water	1/1/2004 11:33						

Comments: Please analyze for Reactive Cyanide and Reactive Sulfide and Ignitability. Report by 1/10/04.

		Date/Time			Date/Time
Relinquished by:			Received by:		
Relinquished by:			Received by:		

e-Lab, Inc

Sample Receipt Checklist

Client Name: ELAB-HOU

Work Order Number: 2402065

Matrix: Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ✔	No	Not Present
Custody seals intact on shipping container/cooler?	Yes ✔	No	Not Present
Custody seals intact on sample bottles?	Yes	No	Not Present ✔
Chain of custody present?	Yes ✔	No	
Chain of custody signatures complete and received?	Yes ✔	No	
Chain of custody agrees with sample labels?	Yes ✔	No	
Samples in proper container/bottle?	Yes ✔	No	
Sample containers intact?	Yes ✔	No	
Sufficient sample volume for indicated test?	Yes ✔	No	
All samples received within holding time?	Yes ✔	No	
Container/Temp Blank temperature in compliance?	Yes ✔	No	
Temperature(s)/Thermometer(s):	0.2°C		
Water VOA vials have zero headspace?	Yes	No	No VOA vials submitted ✔
Water pH acceptable upon receipt?	Yes ✔	No	N/A

Adjusted? Checked by:

Login Notes

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted: Date contacted: Person contacted:

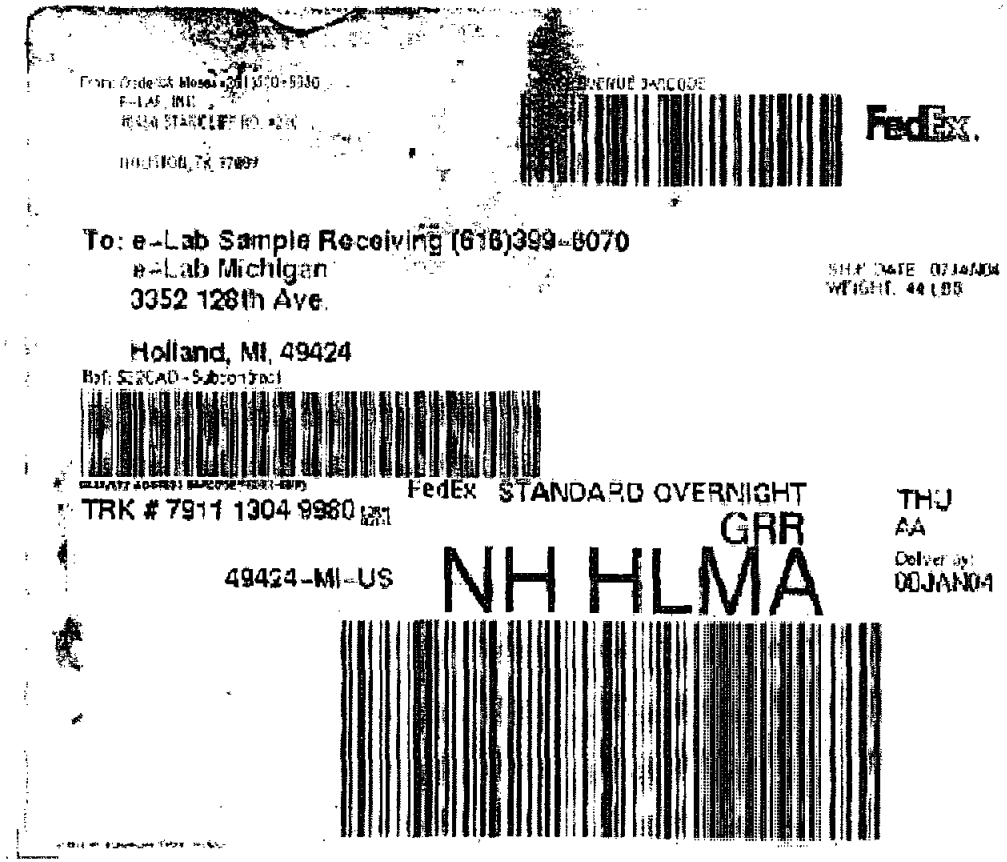
Contacted by: Regarding:

Comments:

Corrective Action:

e-Lab, Inc.
CUSTODY SEAL

Page 5540 of 5828



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ARS AMERICAN RADIATION SERVICES, INC.

2609 N. River Rd. Port Allen, Louisiana 70767

1(800) 401 - 4277 Fax: (225) 381-2996

ARS Tracking Number:	ARS040096	**P.O. Number:**	NA
Client I.D.:	0401037-01E (Inj. Wells)	**ARS Sample I.D.:**	ARS040096-218
Date Sampled:	1/6/04	**Date Received:**	1/08/04
Time Sample:	11:00	**Time Received:**	1200
Type of Sample:	Liquid	**Date of Report:**	1/23/04
NELAP Certification #:	E87558	**L. A. Agency Interest #:**	30658

Analysis Description	Analysis Result	Analysis Error ±2σ	Detection Limit	Analysis Unit	Analysis Test Method	Analysis Date & Time	Analysis Technician
Total Uranium	0.000	0.000	0.0003	mg/L	ASTM D 5174-97	1/23/04 1535	SM

Quality Assurance Review

Notes: American Radiation Services, Inc assumes no liability for the use or interpretation of any analytical results provided other than the cost of the performed analysis itself. Reproduction of this report in less than full requires the written consent of the client

Received by OCD: 5/16/2022 2:12:41 PM

ARS
AMERICAN RADIATION SERVICES, INC.

2609 North River Road Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2998

Notes:

Comments:

1.0) Soil and Sludge analysis are reported on a wet basis or an as received basis unless otherwise indicated.
2.0) The data in this report are within the limits of uncertainty specified in the reference method unless specified.
3.0) Modified analysis procedures are procedures that are modified to meet the certain specifications. An example may be the use of a water method to analyze a solid matrix due to the lack of an officially recognized procedure for the analysis of the solid matrix.
4.0) Derived Air Concentrations and Effluent Release Concentrations are obtained from 10 CFR 20 Appendix B.
5.0) Total activity is actually total gamma activity and is determined utilizing the prominent gamma emitters from the naturally occurring radioactive decay chains and other prominent radioactive nuclides. Total activity may be lower than the actual total activity due to the extent of secular equilibrium achieved in the various decay chains at the time of analysis. The total activity is not representative of nuclides that emit solely alpha or beta particles.
6.0) Ra-226 is determined via secular equilibrium with its daughter, Actinium 228. (Gamma Spectroscopy only).
7.0) U-238 is determined via secular equilibrium with its daughter, Thorium 234. (Gamma Spectroscopy only).
8.0) All gamma spectroscopy was performed utilizing high purity germanium detectors (HPGe).

Method References:

1.0) EPA 600/4-80-032, Prescribed Procedures for the Measurements of Radioactivity in Drinking Water, August 1980.
2.0) Standard Methods for Examination of Water and Waste Water, 18th, 1992.
3.0) EPA SW-846, Test Methods for Evaluating Solid Waste, Third Edition, (9/86). (Updated through 1995).
4.0) EPA 600/4/79-020, Methods for Chemical Analysis of Water and Waste, March 1983.
5.0) HASL 300

Definitions:

1.0)	BDL	Analyte not detected because the value was below the detection limit.
2.0)	ND	Not detected above the detection limit.
3.0)	Detection Limit	The minimum amount of the analyte that ARS can detect utilizing the specific analysis.
4.0)	B	Method Blank
5.0)	D	Method Duplicate
6.0)	MS	Matrix Spike
7.0)	S	Spike
8.0)	RS	Reference Spike
9.0)	*SC	Subcontracted out to another qualified laboratory
10.0)	NR	Not Referenced
11.0)	N/A	Not Applicable

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the client.

LELAP Cert# 30658 NELAP Cert# E87558

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NAVAJO REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
MAY 0 3 2004
OIL CONSERVATION DIVISION

April 30, 2004

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2003 to December 31, 2003. We have disposed a total of 17,626,541 bbls. of fluid into the two wells as of December 31, 2003. This is broken down as follows: 12,102,707 bbls. into WDW-1 and 5,523,834 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Oct-03	196	414	75	198	311	138	260	389	156	6802	10663	4727	210,858
Nov-03	202	472	109	184	310	86	234	386	88	6317	10624	2935	195,817
Dec-03	260	458	30	184	280	93	76	258	15	6315	9610	3182	195,770
WDW-2													
Oct-03	231	431	120	157	210	123	152	159	146	5374	7190	4201	166,606
Nov-03	209	500	0	138	225	14	144	171	35	4733	7722	490	146,717
Dec-03	289	500	64	125	175	84	162	178	143	4294	6009	2864	133,110

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5

October 25, 2003

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Inj. Wells Work Order : **0310201**

Dear Jeff Byrd,

e-Lab, Inc. received 1 sample on 10/17/2003 8:45:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 16.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Lora Terrill

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: **0310201**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0310201-01	Inj. Wells	Wate1		10/15/2003 10:2(	10/17/2003 08:4:	☐

e-Lab, Inc. **Date:** *October 24, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: 0310201

Case Narrative

Semivolatile Batch 6980 MS/MSD was an unrelated sample.

Semivolatile sample Inj. Wells had surrogate diluted out.

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells
Lab ID: 0310201-01

Client Sample ID: Inj. Wells
Collection Date: 10/15/2003 10:20:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **10/21/2003**	Analyst: **HV**
1,2,4-Trichlorobenzene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Methylnaphthalene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Methylphenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
2-Nitrophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
3-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Methylphenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Nitroaniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
4-Nitrophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Acenaphthene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Acenaphthylene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Aniline	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Anthracene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Benz(a)anthracene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Benzidine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Hexachloroethane	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Isophorone	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Naphthalene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Nitrobenzene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Pentachlorophenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Phenanthrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Phenol	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Pyrene	ND	10		µg/L	1	10/22/2003 8:15:00 PM
Surr: 2,4,6-Tribromophenol	74.6	39-153		%REC	1	10/22/2003 8:15:00 PM
Surr: 2-Fluorobiphenyl	78.4	40-147		%REC	1	10/22/2003 8:15:00 PM
Surr: 2-Fluorophenol	46.2	21-100		%REC	1	10/22/2003 8:15:00 PM
Surr: 4-Terphenyl-d14	89.6	39-141		%REC	1	10/22/2003 8:15:00 PM
Surr: Nitrobenzene-d5	79.1	37-140		%REC	1	10/22/2003 8:15:00 PM
Surr: Phenol-d6	11.7	11-100		%REC	1	10/22/2003 8:15:00 PM
VOLATILES BY GC/MS		**SW8260**				Analyst: **PC**
1,1,1-Trichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *October 24, 2003*

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells
Lab ID: 0310201-01

Client Sample ID: Inj. Wells
Collection Date: 10/15/2003 10:20:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
2-Butanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	10/20/2003 8:45:00 PM
2-Hexanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Acetone	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Benzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromoform	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Bromomethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Carbon disulfide	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chlorobenzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloroethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloroform	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Chloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Ethylbenzene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
m,p-Xylene	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Methylene chloride	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Styrene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Toluene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Trichloroethene	ND	5.0		µg/L	1	10/20/2003 8:45:00 PM
Vinyl acetate	ND	10		µg/L	1	10/20/2003 8:45:00 PM
Vinyl chloride	ND	2.0		µg/L	1	10/20/2003 8:45:00 PM
Xylenes, Total	ND	15		µg/L	1	10/20/2003 8:45:00 PM
Surr: 1,2-Dichloroethane-d4	93.2	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: 4-Bromofluorobenzene	97.8	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: Dibromofluoromethane	92.4	70-130		%REC	1	10/20/2003 8:45:00 PM
Surr: Toluene-d8	98.7	70-130		%REC	1	10/20/2003 8:45:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Oct 24 2003*

CLIENT: Navajo Refining Company

Work Order: 0310201

Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-031021** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 15:18**

Client ID: Run ID: **SV-2_031021A** SeqNo: **383368** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benz(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	91.19	0	100	0	91.2	39-153	0			
Surr: 2-Fluorobiphenyl	86.44	0	100	0	86.4	40-147	0			
Surr: 2-Fluorophenol	57.73	0	100	0	57.7	21-100	0			
Surr:4-Terphenyl-d14	99.11	0	100	0	99.1	39-141	0			
Surr: Nitrobenzene-d5	84.06	0	100	0	84.1	37-140	0			
Surr: Phenol-d6	37.66	0	100	0	37.7	11-100	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-031021** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 15:44**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383369** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.01	10	50	0	82	50-115	0			
2,4,5-Trichlorophenol	92.43	10	100	0	92.4	72-118	0			
2,4,6-Trichlorophenol	89.2	10	100	0	89.2	72-117	0			
2-Methylnaphthalene	41.91	10	50	0	83.8	47-122	0			
2-Methylphenol	81.69	10	100	0	81.7	51-115	0			
2-Nitroaniline	45.36	10	50	0	90.7	73-119	0			
2-Nitrophenol	87.88	10	100	0	87.9	60-119	0			
3-Nitroaniline	45.23	10	50	0	90.5	61-118	0			
4-Methylphenol	115.5	10	150	0	77	44-115	0			
4-Nitroaniline	45.56	10	50	0	91.1	61-123	0			
4-Nitrophenol	50.68	10	100	0	50.7	17-100	0			
Acenaphthene	42.5	10	50	0	85	68-115	0			
Acenaphthylene	42.55	10	50	0	85.1	67-116	0			
Anthracene	46.52	10	50	0	93	72-124	0			
Benz(a)anthracene	46.45	10	50	0	92.9	55-131	0			
Benzidine	51.57	10	50	0	103	10-115	0			
Hexachloroethane	41.88	10	50	0	83.8	46-115	0			
Indeno(1,2,3-cd)pyrene	40.36	10	50	0	80.7	42-123	0			
Isophorone	42.5	10	50	0	85	63-117	0			
N-Nitrosodi-n-propylamine	45.15	10	50	0	90.3	67-115	0			
N-Nitrosodimethylamine	33.23	10	50	0	66.5	28-115	0			
N-Nitrosodiphenylamine	49.76	10	50	0	99.5	72-144	0			
Naphthalene	40.62	10	50	0	81.2	52-115	0			
Nitrobenzene	41.76	10	50	0	83.5	65-115	0			
Pentachlorophenol	91.23	10	100	0	91.2	65-123	0			
Phenanthrene	44.56	10	50	0	89.1	69-119	0			
Phenol	45.92	10	100	0	45.9	16-115	0			
Pyrene	44.48	10	50	0	89	51-130	0			
Surr: 2,4,6-Tribromophenol	93.38	0	100	0	93.4	39-153	0			
Surr: 2-Fluorobiphenyl	85.03	0	100	0	85	40-147	0			
Surr: 2-Fluorophenol	65.69	0	100	0	65.7	21-100	0			
Surr:4-Terphenyl-d14	98.75	0	100	0	98.8	39-141	0			
Surr:Nitrobenzene-d5	83.84	0	100	0	83.8	37-140	0			
Surr: Phenol-d6	44.85	0	100	0	44.9	11-100	0			

ND - Not Detected at the Reporting Limit
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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MS Sample ID: **0310174-12HMS** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 19:55**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383378** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	18.97	10	50	0	37.9	45-115	0			S
2,4,5-Trichlorophenol	90.44	10	100	0	90.4	47-129	0			
2,4,6-Trichlorophenol	88.68	10	100	0	88.7	45-127	0			
2-Methylnaphthalene	33.15	10	50	11.91	42.5	30-144	0			
2-Methylphenol	2711	10	100	2579	131	42-115	0			SEO
2-Nitroaniline	48.01	10	50	0	96	48-129	0			
2-Nitrophenol	40.54	10	100	0	40.5	32-144	0			
3-Nitroaniline	26.7	10	50	0	53.4	23-122	0			
4-Methylphenol	2974	10	150	2835	92.2	35-115	0			EO
4-Nitroaniline	32.79	10	50	0	65.6	12-138	0			
4-Nitrophenol	35.6	10	100	0	35.6	10-80	0			
Acenaphthene	44.82	10	50	0	89.6	55-117	0			
Acenaphthylene	42.11	10	50	0	84.2	39-128	0			
Anthracene	49.1	10	50	0	98.2	58-129	0			
Benz(a)anthracene	48.52	10	50	0	97	42-135	0			
Benzidine	ND	10	50	0	0	10-127	0			S
Hexachloroethane	42.95	10	50	0	85.9	45-115	0			
Indeno(1,2,3-cd)pyrene	44.37	10	50	0	88.7	32-132	0			
Isophorone	17.44	10	50	0	34.9	51-122	0			S
N-Nitrosodi-n-propylamine	43.76	10	50	0	87.5	55-115	0			
N-Nitrosodimethylamine	31.94	10	50	0	63.9	30-115	0			
N-Nitrosodiphenylamine	61.5	10	50	0	123	47-146	0			
Naphthalene	36.21	10	50	16.34	39.7	46-116	0			S
Nitrobenzene	20.72	10	50	0	41.4	48-126	0			S
Pentachlorophenol	102.6	10	100	8.707	93.9	53-134	0			
Phenanthrene	45.2	10	50	0	90.4	57-123	0			
Phenol	1008	10	100	955.5	52.6	10-115	0			EO
Pyrene	45.06	10	50	0	90.1	40-130	0			
Surr: 2,4,6-Tribromophenol	95.33	0	100	0	95.3	39-153	0			
Surr: 2-Fluorobiphenyl	86.28	0	100	0	86.3	40-147	0			
Surr: 2-Fluorophenol	45.38	0	100	0	45.4	21-100	0			
Surr:4-Terphenyl-d14	97.58	0	100	0	97.6	39-141	0			
Surr: Nitrobenzene-d5	43.03	0	100	0	43	37-140	0			
Surr: Phenol-d6	31.82	0	100	0	31.8	11-100	0			

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6980** InstrumentID: **SV-2**

MSD Sample ID: **0310174-12HMSD** Test Code: **SW8270** Units: **µg/L** Analysis Date: **10/21/03 20:21**
Client ID: Run ID: **SV-2_031021A** SeqNo: **383379** Prep Date: **10/21/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	18.64	10	50	0	37.3	45-115	18.97	1.78	30	S
2,4,5-Trichlorophenol	86.96	10	100	0	87	47-129	90.44	3.92	30	
2,4,6-Trichlorophenol	87.88	10	100	0	87.9	45-127	88.68	0.898	30	
2-Methylnaphthalene	32.04	10	50	11.91	40.3	30-144	33.15	3.4	30	
2-Methylphenol	2801	10	100	2579	222	42-115	2711	3.27	30	SEO
2-Nitroaniline	44.91	10	50	0	89.8	48-129	48.01	6.67	30	
2-Nitrophenol	40.18	10	100	0	40.2	32-144	40.54	0.888	30	
3-Nitroaniline	24.78	10	50	0	49.6	23-122	26.7	7.47	30	
4-Methylphenol	3082	10	150	2835	164	35-115	2974	3.57	30	SEO
4-Nitroaniline	28.65	10	50	0	57.3	12-138	32.79	13.5	30	
4-Nitrophenol	32.5	10	100	0	32.5	10-80	35.6	9.11	30	
Acenaphthene	46.5	10	50	0	93	55-117	44.82	3.68	30	
Acenaphthylene	41.12	10	50	0	82.2	39-128	42.11	2.38	30	
Anthracene	48.02	10	50	0	96	58-129	49.1	2.21	30	
Benz(a)anthracene	48.14	10	50	0	96.3	42-135	48.52	0.8	30	
Benzidine	ND	10	50	0	0	10-127	0	0	30	S
Hexachloroethane	41.52	10	50	0	83	45-115	42.95	3.38	30	
Indeno(1,2,3-cd)pyrene	46.05	10	50	0	92.1	32-132	44.37	3.73	30	
Isophorone	17.42	10	50	0	34.8	51-122	17.44	0.135	30	S
N-Nitrosodi-n-propylamine	49.82	10	50	0	99.6	55-115	43.76	12.9	30	
N-Nitrosodimethylamine	30.36	10	50	0	60.7	30-115	31.94	5.08	30	
N-Nitrosodiphenylamine	58.53	10	50	0	117	47-146	61.5	4.95	30	
Naphthalene	35.8	10	50	16.34	38.9	46-116	36.21	1.13	30	S
Nitrobenzene	20.54	10	50	0	41.1	48-126	20.72	0.86	30	S
Pentachlorophenol	103.1	10	100	8.707	94.4	53-134	102.6	0.478	30	
Phenanthrene	44.85	10	50	0	89.7	57-123	45.2	0.777	30	
Phenol	1038	10	100	955.5	82.2	10-115	1008	2.89	30	EO
Pyrene	42.82	10	50	0	85.6	40-130	45.06	5.09	30	
Surr: 2,4,6-Tribromophenol	95.87	0	100	0	95.9	39-153	95.33	0.564	30	
Surr: 2-Fluorobiphenyl	85.2	0	100	0	85.2	40-147	86.28	1.26	30	
Surr: 2-Fluorophenol	46.55	0	100	0	46.6	21-100	45.38	2.55	30	
Surr:4-Terphenyl-d14	96.93	0	100	0	96.9	39-141	97.58	0.662	30	
Surr: Nitrobenzene-d5	42.33	0	100	0	42.3	37-140	43.03	1.65	30	
Surr: Phenol-d6	32.6	0	100	0	32.6	11-100	31.82	2.41	30	

Thefollowingsampleswereanalyzedinthisbatch: 0310201-01B

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MBLK Sample ID: **VBLKW-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 11:43**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382009** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	49.28	5.0	50	0	98.6	70-130	0			
Surr: 4-Bromofluorobenzene	47.48	5.0	50	0	95	70-130	0			
Surr: Dibromofluoromethane	48.16	5.0	50	0	96.3	70-130	0			
Surr: Toluene-d8	48.14	5.0	50	0	96.3	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

LCS Sample ID: **VLCSW-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 10:50**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382007** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.84	5.0	50	0	104	75-118	0			
1,1,2,2-Tetrachloroethane	42.06	5.0	50	0	84.1	79-120	0			
1,1,2-Trichloroethane	46.47	5.0	50	0	92.9	81-119	0			
1,1-Dichloroethane	51.25	5.0	50	0	103	80-120	0			
1,1-Dichloroethene	52.57	5.0	50	0	105	80-120	0			
1,2-Dichloroethane	51.23	5.0	50	0	102	80-120	0			
2-Butanone	77.82	10	100	0	77.8	70-130	0			
2-Chloroethyl vinyl ether	81.24	10	100	0	81.2	72-120	0			
2-Hexanone	74.07	10	100	0	74.1	70-130	0			
4-Methyl-2-pentanone	80.5	10	80.5	0	100	78-120	0			
Acetone	93.56	10	100	0	93.6	60-135	0			
Benzene	45.85	5.0	50	0	91.7	82-119	0			
Bromodichloromethane	50.42	5.0	50	0	101	81-119	0			
Bromoform	45.67	5.0	50	0	91.3	80-120	0			
Bromomethane	54.57	5.0	50	0	109	75-130	0			
Carbon disulfide	102.2	10	100	0	102	78-120	0			
Carbontetrachloride	51.9	5.0	50	0	104	77-120	0			
Chlorobenzene	47.42	5.0	50	0	94.8	82-118	0			
Chloroethane	52.45	5.0	50	0	105	78-122	0			
Chloroform	51.96	5.0	50	0	104	78-120	0			
Chloromethane	47.7	5.0	50	0	95.4	75-125	0			
cis-1,3-Dichloropropene	51.78	5.0	50	0	104	81-120	0			
Dibromochloromethane	49.32	5.0	50	0	98.6	81-118	0			
Ethylbenzene	48.97	5.0	50	0	97.9	82-120	0			
m,p-Xylene	96.43	10	100	0	96.4	82-122	0			
Methylene chloride	46.51	10	50	0	93	80-122	0			
Styrene	51	5.0	50	0	102	82-121	0			
Tetrachloroethene	47.65	5.0	50	0	95.3	79-118	0			
Toluene	49.89	5.0	50	0	99.8	81-119	0			
trans-1,3-Dichloropropene	55.18	5.0	50	0	110	82-121	0			
Trichloroethene	47.62	5.0	50	0	95.2	78-118	0			
Vinyl acetate	96.94	10	100	0	96.9	75-120	0			
Vinyl chloride	49.42	2.0	50	0	98.8	73-127	0			
Xylenes, Total	145.1	15	150	0	96.7	80-120	0			
Surr:1,2-Dichloroethane-d4	47.63	5.0	50	0	95.3	70-130	0			
Surr:4-Bromofluorobenzene	49.73	5.0	50	0	99.5	70-130	0			
Surr: Dibromofluoromethane	46.8	5.0	50	0	93.6	70-130	0			
Surr: Toluene-d8	48.32	5.0	50	0	96.6	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

LCSD Sample ID: **VLCSWD-1020** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 11:17**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382008** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.43	5.0	50	0	103	75-118	51.84	0.799	20	
1,1,2,2-Tetrachloroethane	43.84	5.0	50	0	87.7	79-120	42.06	4.15	20	
1,1,2-Trichloroethane	46.47	5.0	50	0	92.9	81-119	46.47	0.0198	20	
1,1-Dichloroethane	51.55	5.0	50	0	103	80-120	51.25	0.578	20	
1,1-Dichloroethene	51.22	5.0	50	0	102	80-120	52.57	2.6	20	
1,2-Dichloroethane	51.49	5.0	50	0	103	80-120	51.23	0.509	20	
2-Butanone	81.55	10	100	0	81.5	70-130	77.82	4.68	20	
2-Chloroethyl vinyl ether	82.95	10	100	0	83	72-120	81.24	2.09	20	
2-Hexanone	74.74	10	100	0	74.7	70-130	74.07	0.894	20	
4-Methyl-2-pentanone	80.05	10	80.5	0	99.4	78-120	80.5	0.554	20	
Acetone	102.9	10	100	0	103	60-135	93.56	9.47	20	
Benzene	45.39	5.0	50	0	90.8	82-119	45.85	1	20	
Bromodichloromethane	50.57	5.0	50	0	101	81-119	50.42	0.301	20	
Bromoform	47	5.0	50	0	94	80-120	45.67	2.86	20	
Bromomethane	55.24	5.0	50	0	110	75-130	54.57	1.23	20	
Carbon disulfide	100.7	10	100	0	101	78-120	102.2	1.5	20	
Carbon tetrachloride	50.98	5.0	50	0	102	77-120	51.9	1.79	20	
Chlorobenzene	47.31	5.0	50	0	94.6	82-118	47.42	0.231	20	
Chloroethane	52.14	5.0	50	0	104	78-122	52.45	0.594	20	
Chloroform	51.97	5.0	50	0	104	78-120	51.96	0.0219	20	
Chloromethane	48.58	5.0	50	0	97.2	75-125	47.7	1.83	20	
cis-1,3-Dichloropropene	51.82	5.0	50	0	104	81-120	51.78	0.0892	20	
Dibromochloromethane	49.37	5.0	50	0	98.7	81-118	49.32	0.0895	20	
Ethylbenzene	47.29	5.0	50	0	94.6	82-120	48.97	3.47	20	
m,p-Xylene	95.49	10	100	0	95.5	82-122	96.43	0.978	20	
Methylene chloride	46.3	10	50	0	92.6	80-122	46.51	0.464	20	
Styrene	49.99	5.0	50	0	100	82-121	51	1.99	20	
Tetrachloroethene	46.33	5.0	50	0	92.7	79-118	47.65	2.8	20	
Toluene	47.25	5.0	50	0	94.5	81-119	49.89	5.43	20	
trans-1,3-Dichloropropene	54.77	5.0	50	0	110	82-121	55.18	0.75	20	
Trichloroethene	47.13	5.0	50	0	94.3	78-118	47.62	1.02	20	
Vinyl acetate	96.85	10	100	0	96.9	75-120	96.94	0.0844	20	
Vinyl chloride	49.39	2.0	50	0	98.8	73-127	49.42	0.0583	20	
Xylenes, Total	143.2	15	150	0	95.4	80-120	145.1	1.32	20	
Surr: 1,2-Dichloroethane-d4	47.7	5.0	50	0	95.4	70-130	47.63	0.151	20	
Surr: 4-Bromofluorobenzene	48.96	5.0	50	0	97.9	70-130	49.73	1.55	20	
Surr: Dibromofluoromethane	47.21	5.0	50	0	94.4	70-130	46.8	0.871	20	
Surr: Toluene-d8	47.64	5.0	50	0	95.3	70-130	48.32	1.42	20	

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CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MS Sample ID: **0310129-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 14:54**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382249** Prep Date: DF: **10000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	514900	50,000	500000	0	103	75-125	0			
1,1,2,2-Tetrachloroethane	470600	50,000	500000	0	94.1	75-125	0			
1,1,2-Trichloroethane	495800	50,000	500000	0	99.2	75-125	0			
1,1-Dichloroethane	543300	50,000	500000	0	109	75-125	0			
1,1-Dichloroethene	505000	50,000	500000	0	101	65-130	0			
1,2-Dichloroethane	519900	50,000	500000	0	104	70-130	0			
2-Butanone	864200	100,000	1000000	0	86.4	64-128	0			
2-Chloroethyl vinyl ether	810300	100,000	1000000	0	81	75-125	0			
2-Hexanone	732000	100,000	1000000	0	73.2	72-124	0			
4-Methyl-2-pentanone	884400	100,000	805000	0	110	75-125	0			
Acetone	835700	100,000	1000000	0	83.6	60-130	0			
Benzene	479300	50,000	500000	0	95.9	76-127	0			
Bromodichloromethane	495000	50,000	500000	0	99	75-125	0			
Bromoform	481900	50,000	500000	0	96.4	75-125	0			
Bromomethane	524400	50,000	500000	0	105	75-125	0			
Carbon disulfide	1008000	100,000	1000000	0	101	75-125	0			
Carbon tetrachloride	504600	50,000	500000	0	101	70-130	0			
Chlorobenzene	487300	50,000	500000	0	97.5	75-126	0			
Chloroethane	503700	50,000	500000	0	101	70-130	0			
Chloroform	524400	50,000	500000	0	105	75-125	0			
Chloromethane	482100	50,000	500000	0	96.4	75-125	0			
cis-1,3-Dichloropropene	526400	50,000	500000	0	105	75-125	0			
Dibromochloromethane	498000	50,000	500000	0	99.6	75-125	0			
Ethylbenzene	505800	50,000	500000	0	101	75-125	0			
m,p-Xylene	1006000	100,000	1000000	0	101	75-125	0			
Methylene chloride	475700	100,000	500000	0	95.1	75-125	0			
Styrene	524400	50,000	500000	0	105	75-125	0			
Tetrachloroethene	481200	50,000	500000	0	96.2	75-125	0			
Toluene	500000	50,000	500000	0	100	76-125	0			
trans-1,3-Dichloropropene	550400	50,000	500000	0	110	70-130	0			
Trichloroethene	470200	50,000	500000	0	94	71-120	0			
Vinyl acetate	1084000	100,000	1000000	0	108	75-125	0			
Vinyl chloride	470400	20,000	500000	0	94.1	60-135	0			
Xylenes, Total	1510000	150,000	1500000	0	101	75-125	0			
Surr:1,2-Dichloroethane-d4	470000	50,000	500000	0	94	70-130	0			
Surr:4-Bromofluorobenzene	500000	50,000	500000	0	100	70-130	0			
Surr:Dibromofluoromethane	466000	50,000	500000	0	93.2	70-130	0			
Surr:Toluene-d8	495300	50,000	500000	0	99.1	70-130	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0310201
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R16755** InstrumentID: **VOA_I**

MSD Sample ID: **0310129-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **10/20/03 15:21**
Client ID: Run ID: **VOA_I_031020A** SeqNo: **382250** Prep Date: DF: **10000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	503400	50,000	500000	0	101	75-125	514900	2.25	20	
1,1,2,2-Tetrachloroethane	457100	50,000	500000	0	91.4	75-125	470600	2.9	20	
1,1,2-Trichloroethane	485300	50,000	500000	0	97.1	75-125	495800	2.13	20	
1,1-Dichloroethane	535400	50,000	500000	0	107	75-125	543300	1.47	20	
1,1-Dichloroethene	496900	50,000	500000	0	99.4	65-130	505000	1.63	20	
1,2-Dichloroethane	504100	50,000	500000	0	101	70-130	519900	3.08	20	
2-Butanone	833400	100,000	1000000	0	83.3	64-128	864200	3.63	20	
2-Chloroethyl vinyl ether	839400	100,000	1000000	0	83.9	75-125	810300	3.52	20	
2-Hexanone	721800	100,000	1000000	0	72.2	72-124	732000	1.4	20	
4-Methyl-2-pentanone	851400	100,000	805000	0	106	75-125	884400	3.81	20	
Acetone	804100	100,000	1000000	0	80.4	60-130	835700	3.85	20	
Benzene	478800	50,000	500000	0	95.8	76-127	479300	0.12	20	
Bromodichloromethane	494200	50,000	500000	0	98.8	75-125	495000	0.148	20	
Bromoform	466100	50,000	500000	0	93.2	75-125	481900	3.34	20	
Bromomethane	503900	50,000	500000	0	101	75-125	524400	3.99	20	
Carbon disulfide	994300	100,000	1000000	0	99.4	75-125	1008000	1.39	20	
Carbon tetrachloride	494300	50,000	500000	0	98.9	70-130	504600	2.07	20	
Chlorobenzene	478200	50,000	500000	0	95.6	75-126	487300	1.89	20	
Chloroethane	494300	50,000	500000	0	98.9	70-130	503700	1.88	20	
Chloroform	517000	50,000	500000	0	103	75-125	524400	1.42	20	
Chloromethane	476900	50,000	500000	0	95.4	75-125	482100	1.08	20	
cis-1,3-Dichloropropene	524200	50,000	500000	0	105	75-125	526400	0.431	20	
Dibromochloromethane	484000	50,000	500000	0	96.8	75-125	498000	2.85	20	
Ethylbenzene	496400	50,000	500000	0	99.3	75-125	505800	1.87	20	
m,p-Xylene	980500	100,000	1000000	0	98	75-125	1006000	2.61	20	
Methylene chloride	463800	100,000	500000	0	92.8	75-125	475700	2.53	20	
Styrene	514600	50,000	500000	0	103	75-125	524400	1.89	20	
Tetrachloroethene	470400	50,000	500000	0	94.1	75-125	481200	2.27	20	
Toluene	492200	50,000	500000	0	98.4	76-125	500000	1.57	20	
trans-1,3-Dichloropropene	534100	50,000	500000	0	107	70-130	550400	3.01	20	
Trichloroethene	460100	50,000	500000	0	92	71-120	470200	2.17	20	
Vinyl acetate	1059000	100,000	1000000	0	106	75-125	1084000	2.32	20	
Vinyl chloride	458000	20,000	500000	0	91.6	60-135	470400	2.66	20	
Xylenes, Total	1471000	150,000	1500000	0	98.1	75-125	1510000	2.6	20	
Surr: 1,2-Dichloroethane-d4	464700	50,000	500000	0	92.9	70-130	470000	1.14	20	
Surr: 4-Bromofluorobenzene	501900	50,000	500000	0	100	70-130	500000	0.37	20	
Surr: Dibromofluoromethane	462700	50,000	500000	0	92.5	70-130	466000	0.712	20	
Surr: Toluene-d8	491000	50,000	500000	0	98.2	70-130	495300	0.873	20	

Thefollowingsampleswereanalyzedinthisbatch: 0310201-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2022 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab
QUALITY • INTEGRITY • SERVICE

☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager:		e-Lab Work Order #:	193020

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Wells	A	See List
Work Order		Project Number		B	
Company Name	Navajo	Bill To Company		C	
Send Report To	Charlie Plymale / Darrell Moore	Invoice Attn.	Charlie Plymale	D	
Address	501 E. Main	Address		E	
				F	
City/State/Zip	Artesia NM 88210	City/State/Zip		G	
Phone	505 748 3311	Phone		H	
Fax	505 746 5421	Fax		I	
e-Mail Address				J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. Wells	10/15/03	1020			5	X										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign: Charlie Plymale

Shipment Method: FedEx

Required Turnaround Time: ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
	10/16/03	1615		
Relinquished by:	Date:	Time:	Received by (Laboratory): 10/16 10/17/03 08:45	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

QC Package: (Check Box Below)

- ☐ Level II: Standard QC
- ☐ Level III: Standard QC + Raw Data
- ☐ Level IV: SW846 Methods/CLP
- ☐ Other: _____

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING Date/Time Received: 10/17/2003 8:45:00 AM

Work Order Number 0310201 Received by: RNG

Checklist completed by [signature] 10/17/03 (Signature / Date) Reviewed by LT 10/17/03 (Initials / Date)

Matrix: W Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.5c	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

October 9, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2003 to September 30, 2003. We have disposed a total of 16,577,663 bbls. of fluid into the two wells as of September 30, 2003. This is broken down as follows: 11,500,262 bbls. into WDW-1 and 5,077,401 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Jul-03	191	274	94	181	215	143	477	500	417	6204	7387	4901	192,336
Aug-03	155	251	52	186	245	102	378	497	203	6361	8386	3486	197,176
Sep-03	190	353	113	198	284	110	364	500	249	6802	9737	3775	210,853
WDW-2													
Jul-03	195	285	59	142	164	83	138	144	132	4868	5630	2847	150,906
Aug-03	175	261	72	137	172	80	151	193	142	4707	5909	2759	145,913
Sep-03	216	389	57	152	203	43	152	161	148	5220	6958	1486	161,810

e-Lab, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5887

September 08, 2003

Darrell Moore
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5281
Fax: (505) 746-5421

Re: Inj. Wells Work Order : **0308325**

Dear Darrell Moore,

e-Lab, Inc. received 1 sample on 8/29/2003 9:30:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Inc. The total number of pages in this report is 14. If you have any questions regarding this report, please feel free to call me.

Sincerely,

Lora Terrill

Electronically approved by: Georgia Jones

Lora Terrill
VP Lab Operations

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Project: Inj. Wells
Work Order: **0308325**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0308325-01	Injection Wells	Wate1		8/28/2003 10:0C	8/29/2003 09:3C	☐

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells
Lab ID: 0308325-01

Client Sample ID: Injection Wells
Collection Date: 8/28/2003 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMIVOLATILE ORGANICS BY GC/MS		**SW8270**			Prep Date: **8/29/2003**		Analyst: **HV**
1,2,4-Trichlorobenzene	U	0.83	10		µg/L	1	9/3/2003
2,4,5-Trichlorophenol	U	2.4	10		µg/L	1	9/3/2003
2,4,6-Trichlorophenol	U	2.7	10		µg/L	1	9/3/2003
2-Methylnaphthalene	U	0.86	10		µg/L	1	9/3/2003
2-Methylphenol	U	2.8	10		µg/L	1	9/3/2003
2-Nitroaniline	U	1.1	10		µg/L	1	9/3/2003
2-Nitrophenol	U	2.6	10		µg/L	1	9/3/2003
3-Nitroaniline	U	1.2	10		µg/L	1	9/3/2003
4-Methylphenol	U	4.6	10		µg/L	1	9/3/2003
4-Nitroaniline	U	0.95	10		µg/L	1	9/3/2003
4-Nitrophenol	U	2.7	10		µg/L	1	9/3/2003
Acenaphthene	U	1.1	10		µg/L	1	9/3/2003
Acenaphthylene	U	1.0	10		µg/L	1	9/3/2003
Aniline	U	10	10		µg/L	1	9/3/2003
Anthracene	U	0.36	10		µg/L	1	9/3/2003
Benz(a)anthracene	U	0.77	10		µg/L	1	9/3/2003
Benzidine	U	0.34	10		µg/L	1	9/3/2003
Hexachloroethane	U	0.64	10		µg/L	1	9/3/2003
Indeno(1,2,3-cd)pyrene	U	0.77	10		µg/L	1	9/3/2003
Isophorone	U	1.2	10		µg/L	1	9/3/2003
N-Nitrosodi-n-propylamine	U	1.5	10		µg/L	1	9/3/2003
N-Nitrosodimethylamine	U	1.1	10		µg/L	1	9/3/2003
N-Nitrosodiphenylamine	U	1.3	10		µg/L	1	9/3/2003
Naphthalene	U	1.0	10		µg/L	1	9/3/2003
Nitrobenzene	U	1.7	10		µg/L	1	9/3/2003
Pentachlorophenol	U	1.5	10		µg/L	1	9/3/2003
Phenanthrene	U	1.2	10		µg/L	1	9/3/2003
Phenol	U	3.5	10		µg/L	1	9/3/2003
Pyrene	U	0.92	10		µg/L	1	9/3/2003
Surr: 2,4,6-Tribromophenol	103	0	10-123		%REC	1	9/3/2003
Surr: 2-Fluorobiphenyl	92.9	0	43-116		%REC	1	9/3/2003
Surr: 2-Fluorophenol	37.2	0	21-100		%REC	1	9/3/2003
Surr: 4-Terphenyl-d14	99.3	0	33-141		%REC	1	9/3/2003
Surr: Nitrobenzene-d5	88.4	0	35-114		%REC	1	9/3/2003
Surr: Phenol-d6	23.9	0	10-94		%REC	1	9/3/2003
VOLATILES BY GC/MS		**SW8260**			Prep Date:		Analyst: **HLBW**
1,1,1-Trichloroethane	U	0.62	5.0		µg/L	1	9/4/2003
1,1,2,2-Tetrachloroethane	U	0.58	5.0		µg/L	1	9/4/2003
1,1,2-Trichloroethane	U	0.41	5.0		µg/L	1	9/4/2003

Qualifiers

U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *September 05, 2003*

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells
Lab ID: 0308325-01

Client Sample ID: Injection Wells
Collection Date: 8/28/2003 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
1,1-Dichloroethane	U	0.43	5.0		µg/L	1	9/4/2003
1,1-Dichloroethene	U	0.53	5.0		µg/L	1	9/4/2003
1,2-Dichloroethane	U	0.38	5.0		µg/L	1	9/4/2003
2-Butanone	3.5	0.70	10	J	µg/L	1	9/4/2003
2-Chloroethyl vinyl ether	U	0.63	10		µg/L	1	9/4/2003
2-Hexanone	U	1.1	10		µg/L	1	9/4/2003
4-Methyl-2-pentanone	U	0.64	10		µg/L	1	9/4/2003
Acetone	41	1.2	10		µg/L	1	9/4/2003
Benzene	U	0.66	5.0		µg/L	1	9/4/2003
Bromodichloromethane	U	0.45	5.0		µg/L	1	9/4/2003
Bromoform	U	0.40	5.0		µg/L	1	9/4/2003
Bromomethane	U	0.70	5.0		µg/L	1	9/4/2003
Carbon disulfide	U	0.76	10		µg/L	1	9/4/2003
Carbon tetrachloride	U	0.65	5.0		µg/L	1	9/4/2003
Chlorobenzene	U	0.43	5.0		µg/L	1	9/4/2003
Chloroethane	U	0.56	5.0		µg/L	1	9/4/2003
Chloroform	U	0.52	5.0		µg/L	1	9/4/2003
Chloromethane	U	1.1	5.0		µg/L	1	9/4/2003
cis-1,3-Dichloropropene	U	0.47	5.0		µg/L	1	9/4/2003
Dibromochloromethane	U	0.53	5.0		µg/L	1	9/4/2003
Ethylbenzene	1.8	0.77	5.0	J	µg/L	1	9/4/2003
m,p-Xylene	3.0	1.3	10	J	µg/L	1	9/4/2003
Methyl tert-butyl ether	1.9	0.30	5.0	J	µg/L	1	9/4/2003
Methylene chloride	U	0.60	10		µg/L	1	9/4/2003
Styrene	U	0.56	5.0		µg/L	1	9/4/2003
Tetrachloroethene	U	0.43	5.0		µg/L	1	9/4/2003
Toluene	U	0.69	5.0		µg/L	1	9/4/2003
trans-1,3-Dichloropropene	U	0.44	5.0		µg/L	1	9/4/2003
Trichloroethene	U	0.70	5.0		µg/L	1	9/4/2003
Vinyl acetate	U	0.92	10		µg/L	1	9/4/2003
Vinyl chloride	U	0.79	2.0		µg/L	1	9/4/2003
Xylenes, Total	3.0	1.8	15	J	µg/L	1	9/4/2003
Surr: 1,2-Dichloroethane-d4	84.2	0	70-130		%REC	1	9/4/2003
Surr: 4-Bromofluorobenzene	92.1	0	70-130		%REC	1	9/4/2003
Surr: Dibromofluoromethane	93.3	0	70-130		%REC	1	9/4/2003
Surr: Toluene-d8	97.8	0	70-130		%REC	1	9/4/2003

Qualifiers

U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc.

Date: *Sep 05 2003*

CLIENT: Navajo Refining Company

QC BATCH REPORT

Work Order: 0308325

Project: Inj. Wells

Batch ID: **6544** InstrumentID: **SV-2**

MBLK Sample ID: **SBLKW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 20:27**

Client ID: Run ID: **SV-2_030902A** SeqNo: **363914** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	U	10								
2,4,5-Trichlorophenol	U	10								
2,4,6-Trichlorophenol	U	10								
2-Methylnaphthalene	U	10								
2-Methylphenol	U	10								
2-Nitroaniline	U	10								
2-Nitrophenol	U	10								
3-Nitroaniline	U	10								
4-Methylphenol	U	10								
4-Nitroaniline	U	10								
4-Nitrophenol	U	10								
Acenaphthene	U	10								
Acenaphthylene	U	10								
Aniline	U	10								
Anthracene	U	10								
Benz(a)anthracene	U	10								
Benzidine	U	10								
Hexachloroethane	U	10								
Indeno(1,2,3-cd)pyrene	U	10								
Isophorone	U	10								
N-Nitrosodi-n-propylamine	U	10								
N-Nitrosodimethylamine	U	10								
N-Nitrosodiphenylamine	U	10								
Naphthalene	U	10								
Nitrobenzene	U	10								
Pentachlorophenol	U	10								
Phenanthrene	U	10								
Phenol	U	10								
Pyrene	U	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	94.95	0	100	0	94.9	10-123	0			
Surr: 2-Fluorobiphenyl	83.93	0	100	0	83.9	43-116	0			
Surr: 2-Fluorophenol	47.33	0	100	0	47.3	21-100	0			
Surr:4-Terphenyl-d14	96.76	0	100	0	96.8	33-141	0			
Surr: Nitrobenzene-d5	83.45	0	100	0	83.5	35-114	0			
Surr: Phenol-d6	29.37	0	100	0	29.4	10-94	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6544** InstrumentID: **SV-2**

LCS Sample ID: **SLCSW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 20:52**
Client ID: Run ID: **SV-2_030902A** SeqNo: **363915** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	36.24	10	50	0	72.5	51-110	0			
2,4,5-Trichlorophenol	99.21	10	100	0	99.2	55-130	0			
2,4,6-Trichlorophenol	96.5	10	100	0	96.5	55-130	0			
2-Methylnaphthalene	37.11	10	50	0	74.2	50-125	0			
2-Methylphenol	75.67	10	100	0	75.7	45-120	0			
2-Nitroaniline	48.86	10	50	0	97.7	55-130	0			
2-Nitrophenol	92.95	10	100	0	92.9	55-125	0			
3-Nitroaniline	50.32	10	50	0	101	55-120	0			
4-Methylphenol	102.9	10	150	0	68.6	40-120	0			
4-Nitroaniline	49.51	10	50	0	99	60-130	0			
4-Nitrophenol	56.88	10	100	0	56.9	25-100	0			
Acenaphthene	44.06	10	50	0	88.1	50-120	0			
Acenaphthylene	44.04	10	50	0	88.1	55-130	0			
Anthracene	49.51	10	50	0	99	60-130	0			
Benz(a)anthracene	47.1	10	50	0	94.2	60-130	0			
Benzidine	18.48	10	50	0	37	10-85	0			
Hexachloroethane	33.99	10	50	0	68	40-120	0			
Indeno(1,2,3-cd)pyrene	48.89	10	50	0	97.8	60-130	0			
Isophorone	47.07	10	50	0	94.1	60-130	0			
N-Nitrosodi-n-propylamine	46.01	10	50	0	92	55-120	0			
N-Nitrosodimethylamine	25.79	10	50	0	51.6	35-110	0			
N-Nitrosodiphenylamine	53.89	10	50	0	108	60-130	0			
Naphthalene	38.88	10	50	0	77.8	55-130	0			
Nitrobenzene	45.5	10	50	0	91	60-130	0			
Pentachlorophenol	92.37	10	100	0	92.4	45-125	0			
Phenanthrene	47.78	10	50	0	95.6	60-130	0			
Phenol	35.14	10	100	0	35.1	20-100	0			
Pyrene	45.89	10	50	0	91.8	45-120	0			
Surr: 2,4,6-Tribromophenol	104.1	0	100	0	104	10-123	0			
Surr: 2-Fluorobiphenyl	90.54	0	100	0	90.5	43-116	0			
Surr: 2-Fluorophenol	54.46	0	100	0	54.5	21-100	0			
Surr:4-Terphenyl-d14	99.22	0	100	0	99.2	33-141	0			
Surr: Nitrobenzene-d5	90.28	0	100	0	90.3	35-114	0			
Surr: Phenol-d6	34.99	0	100	0	35	10-94	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **6544** InstrumentID: **SV-2**

LCSD Sample ID: **SLCSDW1-030829** Test Code: **SW8270** Units: **µg/L** Analysis Date: **09/02/03 21:18**
Client ID: Run ID: **SV-2_030902A** SeqNo: **363917** Prep Date: **8/29/2003** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	36.57	10	50	0	73.1	51-110	36.24	0.907	30	
2,4,5-Trichlorophenol	100.9	10	100	0	101	55-130	99.21	1.73	30	
2,4,6-Trichlorophenol	96.17	10	100	0	96.2	55-130	96.5	0.35	30	
2-Methylnaphthalene	37.8	10	50	0	75.6	50-125	37.11	1.85	30	
2-Methylphenol	76.54	10	100	0	76.5	45-120	75.67	1.14	30	
2-Nitroaniline	50.36	10	50	0	101	55-130	48.86	3.03	30	
2-Nitrophenol	93.07	10	100	0	93.1	55-125	92.95	0.131	30	
3-Nitroaniline	52.17	10	50	0	104	55-120	50.32	3.61	30	
4-Methylphenol	105.4	10	150	0	70.2	40-120	102.9	2.41	30	
4-Nitroaniline	51.7	10	50	0	103	60-130	49.51	4.33	30	
4-Nitrophenol	58.66	10	100	0	58.7	25-100	56.88	3.09	30	
Acenaphthene	43.86	10	50	0	87.7	50-120	44.06	0.443	30	
Acenaphthylene	44.01	10	50	0	88	55-130	44.04	0.0744	30	
Anthracene	49.66	10	50	0	99.3	60-130	49.51	0.298	30	
Benz(a)anthracene	46.45	10	50	0	92.9	60-130	47.1	1.39	30	
Benzidine	30.71	10	50	0	61.4	10-85	18.48	49.7	30	R
Hexachloroethane	34.69	10	50	0	69.4	40-120	33.99	2.05	30	
Indeno(1,2,3-cd)pyrene	45.54	10	50	0	91.1	60-130	48.89	7.11	30	
Isophorone	47.79	10	50	0	95.6	60-130	47.07	1.52	30	
N-Nitrosodi-n-propylamine	46.64	10	50	0	93.3	55-120	46.01	1.35	30	
N-Nitrosodimethylamine	26.37	10	50	0	52.7	35-110	25.79	2.2	30	
N-Nitrosodiphenylamine	53.46	10	50	0	107	60-130	53.89	0.802	30	
Naphthalene	39.15	10	50	0	78.3	55-130	38.88	0.703	30	
Nitrobenzene	45.91	10	50	0	91.8	60-130	45.5	0.893	30	
Pentachlorophenol	87.99	10	100	0	88	45-125	92.37	4.86	30	
Phenanthrene	47.34	10	50	0	94.7	60-130	47.78	0.921	30	
Phenol	36.53	10	100	0	36.5	20-100	35.14	3.9	30	
Pyrene	46.24	10	50	0	92.5	45-120	45.89	0.777	30	
Surr: 2,4,6-Tribromophenol	101.1	0	100	0	101	10-123	104.1	2.89	30	
Surr: 2-Fluorobiphenyl	90.67	0	100	0	90.7	43-116	90.54	0.141	30	
Surr: 2-Fluorophenol	54.74	0	100	0	54.7	21-100	54.46	0.517	30	
Surr:4-Terphenyl-d14	100.8	0	100	0	101	33-141	99.22	1.55	30	
Surr: Nitrobenzene-d5	91.28	0	100	0	91.3	35-114	90.28	1.1	30	
Surr: Phenol-d6	35.67	0	100	0	35.7	10-94	34.99	1.94	30	

Thefollowingsampleswereanalyzedinthisbatch: 0308325-01B

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
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U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MBLK Sample ID: **VBLKW-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 11:19**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364169** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2-Dichloroethane	U	5.0								
2-Butanone	U	10								
2-Chloroethyl vinyl ether	U	10								
2-Hexanone	U	10								
4-Methyl-2-pentanone	U	10								
Acetone	U	10								
Benzene	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	5.0								
Carbon disulfide	U	10								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Dibromochloromethane	U	5.0								
Ethylbenzene	U	5.0								
m,p-Xylene	U	10								
Methyl tert-butyl ether	U	5.0								
Methylene chloride	U	10								
Styrene	U	5.0								
Tetrachloroethene	U	5.0								
Toluene	U	5.0								
trans-1,3-Dichloropropene	U	5.0								
Trichloroethene	U	5.0								
Vinyl acetate	U	10								
Vinyl chloride	U	2.0								
Xylenes, Total	U	15								
Surr: 1,2-Dichloroethane-d4	44.69	5.0	50	0	89.4	70-130	0			
Surr: 4-Bromofluorobenzene	46.1	5.0	50	0	92.2	70-130	0			
Surr: Dibromofluoromethane	48.14	5.0	50	0	96.3	70-130	0			
Surr: Toluene-d8	47.88	5.0	50	0	95.8	70-130	0			

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CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

LCS Sample ID: **VLCSW-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 9:51**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364167** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	50.1	5.0	50	0	100	75-118	0			
1,1,2,2-Tetrachloroethane	51.87	5.0	50	0	104	79-120	0			
1,1,2-Trichloroethane	52.32	5.0	50	0	105	81-119	0			
1,1-Dichloroethane	52.71	5.0	50	0	105	80-120	0			
1,1-Dichloroethene	55.71	5.0	50	0	111	80-120	0			
1,2-Dichloroethane	52.78	5.0	50	0	106	80-120	0			
2-Butanone	98.7	10	100	0	98.7	70-130	0			
2-Chloroethyl vinyl ether	93.51	10	100	0	93.5	72-120	0			
2-Hexanone	101.5	10	100	0	102	70-130	0			
4-Methyl-2-pentanone	99.44	10	100	0	99.4	78-120	0			
Acetone	92.2	10	100	0	92.2	60-135	0			
Benzene	53.97	5.0	50	0	108	82-119	0			
Bromodichloromethane	52.6	5.0	50	0	105	81-119	0			
Bromoform	52.48	5.0	50	0	105	80-120	0			
Bromomethane	44.47	5.0	50	0	88.9	75-130	0			
Carbon disulfide	103.7	10	100	0	104	78-120	0			
Carbon tetrachloride	52.38	5.0	50	0	105	77-120	0			
Chlorobenzene	51.44	5.0	50	0	103	82-118	0			
Chloroethane	49.51	5.0	50	0	99	78-122	0			
Chloroform	51.9	5.0	50	0	104	78-120	0			
Chloromethane	45.43	5.0	50	0	90.9	75-125	0			
cis-1,3-Dichloropropene	53.12	5.0	50	0	106	81-120	0			
Dibromochloromethane	52.07	5.0	50	0	104	81-118	0			
Ethylbenzene	51.27	5.0	50	0	103	82-120	0			
m,p-Xylene	103.4	10	100	0	103	82-122	0			
Methyl tert-butyl ether	51.57	5.0	50	0	103	79-120	0			
Methylene chloride	51.14	10	50	0	102	80-122	0			
Styrene	52.77	5.0	50	0	106	82-121	0			
Tetrachloroethene	40.92	5.0	50	0	81.8	79-118	0			
Toluene	52.09	5.0	50	0	104	81-119	0			
trans-1,3-Dichloropropene	53.38	5.0	50	0	107	82-121	0			
Trichloroethene	53.57	5.0	50	0	107	78-118	0			
Vinyl acetate	108.7	10	100	0	109	75-120	0			
Vinyl chloride	49.29	2.0	50	0	98.6	73-127	0			
Xylenes, Total	155	15	150	0	103	80-120	0			
Surr:1,2-Dichloroethane-d4	43.49	5.0	50	0	87	70-130	0			
Surr:4-Bromofluorobenzene	47.03	5.0	50	0	94.1	70-130	0			
Surr:Dibromofluoromethane	46.93	5.0	50	0	93.9	70-130	0			
Surr: Toluene-d8	47.28	5.0	50	0	94.6	70-130	0			

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

LCSD Sample ID: **VLCSWD-0904** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 10:20**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364168** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.77	5.0	50	0	104	75-118	50.1	3.29	20	
1,1,2,2-Tetrachloroethane	54.18	5.0	50	0	108	79-120	51.87	4.35	20	
1,1,2-Trichloroethane	53.26	5.0	50	0	107	81-119	52.32	1.79	20	
1,1-Dichloroethane	53.86	5.0	50	0	108	80-120	52.71	2.14	20	
1,1-Dichloroethene	57.86	5.0	50	0	116	80-120	55.71	3.78	20	
1,2-Dichloroethane	53.38	5.0	50	0	107	80-120	52.78	1.14	20	
2-Butanone	99.95	10	100	0	100	70-130	98.7	1.26	20	
2-Chloroethyl vinyl ether	93.68	10	100	0	93.7	72-120	93.51	0.182	20	
2-Hexanone	104.3	10	100	0	104	70-130	101.5	2.63	20	
4-Methyl-2-pentanone	103	10	100	0	103	78-120	99.44	3.49	20	
Acetone	104.1	10	100	0	104	60-135	92.2	12.1	20	
Benzene	55.75	5.0	50	0	112	82-119	53.97	3.25	20	
Bromodichloromethane	53.22	5.0	50	0	106	81-119	52.6	1.17	20	
Bromoform	53.44	5.0	50	0	107	80-120	52.48	1.81	20	
Bromomethane	45.67	5.0	50	0	91.3	75-130	44.47	2.65	20	
Carbon disulfide	108.4	10	100	0	108	78-120	103.7	4.43	20	
Carbon tetrachloride	55.55	5.0	50	0	111	77-120	52.38	5.87	20	
Chlorobenzene	52.68	5.0	50	0	105	82-118	51.44	2.38	20	
Chloroethane	50.08	5.0	50	0	100	78-122	49.51	1.14	20	
Chloroform	52.38	5.0	50	0	105	78-120	51.9	0.912	20	
Chloromethane	45.93	5.0	50	0	91.9	75-125	45.43	1.09	20	
cis-1,3-Dichloropropene	53.98	5.0	50	0	108	81-120	53.12	1.6	20	
Dibromochloromethane	52.74	5.0	50	0	105	81-118	52.07	1.28	20	
Ethylbenzene	53.86	5.0	50	0	108	82-120	51.27	4.92	20	
m,p-Xylene	106.1	10	100	0	106	82-122	103.4	2.63	20	
Methyl tert-butyl ether	53.01	5.0	50	0	106	79-120	51.57	2.74	20	
Methylene chloride	54.25	10	50	0	108	80-122	51.14	5.89	20	
Styrene	53.8	5.0	50	0	108	82-121	52.77	1.93	20	
Tetrachloroethene	49.07	5.0	50	0	98.1	79-118	40.92	18.1	20	
Toluene	53.44	5.0	50	0	107	81-119	52.09	2.57	20	
trans-1,3-Dichloropropene	53.15	5.0	50	0	106	82-121	53.38	0.431	20	
Trichloroethene	54.67	5.0	50	0	109	78-118	53.57	2.02	20	
Vinyl acetate	106.9	10	100	0	107	75-120	108.7	1.69	20	
Vinyl chloride	48.41	2.0	50	0	96.8	73-127	49.29	1.8	20	
Xylenes, Total	159.1	15	150	0	106	80-120	155	2.57	20	
Surr: 1,2-Dichloroethane-d4	45.22	5.0	50	0	90.4	70-130	43.49	3.89	20	
Surr: 4-Bromofluorobenzene	46.99	5.0	50	0	94	70-130	47.03	0.0948	20	
Surr: Dibromofluoromethane	47.99	5.0	50	0	96	70-130	46.93	2.23	20	
Surr: Toluene-d8	47.65	5.0	50	0	95.3	70-130	47.28	0.774	20	

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CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MS Sample ID: **0309018-01AMS** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 15:47**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364394** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	515	50	500	0	103	75-125	0			
1,1,2,2-Tetrachloroethane	543.4	50	500	0	109	75-125	0			
1,1,2-Trichloroethane	532.2	50	500	0	106	75-125	0			
1,1-Dichloroethane	567.7	50	500	11.67	111	75-125	0			
1,1-Dichloroethene	603.4	50	500	0	121	65-130	0			
1,2-Dichloroethane	482.3	50	500	0	96.5	70-130	0			
2-Butanone	1033	100	1000	0	103	64-128	0			
2-Chloroethyl vinyl ether	81.14	100	1000	0	8.11	75-125	0			JS
2-Hexanone	1050	100	1000	0	105	72-124	0			
4-Methyl-2-pentanone	1042	100	1000	0	104	75-125	0			
Acetone	772.7	100	1000	53.14	72	60-130	0			
Benzene	558.9	50	500	0	112	76-127	0			
Bromodichloromethane	501.3	50	500	0	100	75-125	0			
Bromoform	517.9	50	500	0	104	75-125	0			
Bromomethane	472.4	50	500	0	94.5	75-125	0			
Carbon disulfide	1120	100	1000	0	112	75-125	0			
Carbontetrachloride	2713	50	500	1890	165	70-130	0			SE
Chlorobenzene	510	50	500	0	102	75-126	0			
Chloroethane	486.6	50	500	0	97.3	70-130	0			
Chloroform	854.1	50	500	288.6	113	75-125	0			
Chloromethane	471	50	500	0	94.2	75-125	0			
cis-1,3-Dichloropropene	526.1	50	500	0	105	75-125	0			
Dibromochloromethane	499.6	50	500	0	99.9	75-125	0			
Ethylbenzene	522.2	50	500	0	104	75-125	0			
m,p-Xylene	1040	100	1000	0	104	75-125	0			
Methyl tert-butyl ether	529	50	500	0	106	75-125	0			
Methylene chloride	620.2	100	500	50.99	114	75-125	0			
Styrene	525.3	50	500	0	105	75-125	0			
Tetrachloroethene	406.4	50	500	20.72	77.1	75-125	0			
Toluene	533.9	50	500	0	107	76-125	0			
trans-1,3-Dichloropropene	506.8	50	500	0	101	70-130	0			
Trichloroethene	1042	50	500	447.3	119	71-120	0			
Vinyl acetate	1178	100	1000	0	118	75-125	0			
Vinyl chloride	502.1	20	500	0	100	60-135	0			
Xylenes, Total	1560	150	1500	0	104	75-125	0			
Surr:1,2-Dichloroethane-d4	428.6	50	500	0	85.7	70-130	0			
Surr:4-Bromofluorobenzene	444.2	50	500	0	88.8	70-130	0			
Surr: Dibromofluoromethane	477.1	50	500	0	95.4	70-130	0			
Surr: Toluene-d8	487.1	50	500	0	97.4	70-130	0			

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0308325
Project: Inj. Wells

QC BATCH REPORT

Batch ID: **R15993** InstrumentID: **VOA3**

MSD Sample ID: **0309018-01AMSD** Test Code: **SW8260** Units: **µg/L** Analysis Date: **09/04/03 16:17**
Client ID: Run ID: **VOA3_030904A** SeqNo: **364553** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	536.2	50	500	0	107	75-125	515	4.05	20	
1,1,2,2-Tetrachloroethane	572.7	50	500	0	115	75-125	543.4	5.25	20	
1,1,2-Trichloroethane	562.9	50	500	0	113	75-125	532.2	5.61	20	
1,1-Dichloroethane	589.5	50	500	11.67	116	75-125	567.7	3.77	20	
1,1-Dichloroethene	627.1	50	500	0	125	65-130	603.4	3.86	20	
1,2-Dichloroethane	498	50	500	0	99.6	70-130	482.3	3.19	20	
2-Butanone	1103	100	1000	0	110	64-128	1033	6.56	20	
2-Chloroethyl vinyl ether	16.9	100	1000	0	1.69	75-125	81.14	0	20	JS
2-Hexanone	1106	100	1000	0	111	72-124	1050	5.16	20	
4-Methyl-2-pentanone	1115	100	1000	0	112	75-125	1042	6.8	20	
Acetone	861.8	100	1000	53.14	80.9	60-130	772.7	10.9	20	
Benzene	608.7	50	500	0	122	76-127	558.9	8.54	20	
Bromodichloromethane	530.8	50	500	0	106	75-125	501.3	5.71	20	
Bromoform	548.7	50	500	0	110	75-125	517.9	5.77	20	
Bromomethane	471.8	50	500	0	94.4	75-125	472.4	0.119	20	
Carbon disulfide	1171	100	1000	0	117	75-125	1120	4.44	20	
Carbontetrachloride	2764	50	500	1890	175	70-130	2713	1.85	20	SE
Chlorobenzene	545.2	50	500	0	109	75-126	510	6.67	20	
Chloroethane	551.8	50	500	0	110	70-130	486.6	12.6	20	
Chloroform	882.7	50	500	288.6	119	75-125	854.1	3.29	20	
Chloromethane	514	50	500	0	103	75-125	471	8.73	20	
cis-1,3-Dichloropropene	554.8	50	500	0	111	75-125	526.1	5.3	20	
Dibromochloromethane	528.8	50	500	0	106	75-125	499.6	5.68	20	
Ethylbenzene	556.5	50	500	0	111	75-125	522.2	6.35	20	
m,p-Xylene	1106	100	1000	0	111	75-125	1040	6.09	20	
Methyl tert-butyl ether	549.4	50	500	0	110	75-125	529	3.78	20	
Methylene chloride	621.1	100	500	50.99	114	75-125	620.2	0.148	20	
Styrene	558.2	50	500	0	112	75-125	525.3	6.09	20	
Tetrachloroethene	426.8	50	500	20.72	81.2	75-125	406.4	4.9	20	
Toluene	568.6	50	500	0	114	76-125	533.9	6.29	20	
trans-1,3-Dichloropropene	525.6	50	500	0	105	70-130	506.8	3.65	20	
Trichloroethene	1083	50	500	447.3	127	71-120	1042	3.87	20	S
Vinyl acetate	1204	100	1000	0	120	75-125	1178	2.22	20	
Vinyl chloride	543.7	20	500	0	109	60-135	502.1	7.96	20	
Xylenes, Total	1665	150	1500	0	111	75-125	1560	6.53	20	
Surr:1,2-Dichloroethane-d4	426	50	500	0	85.2	70-130	428.6	0.621	20	
Surr:4-Bromofluorobenzene	459.3	50	500	0	91.9	70-130	444.2	3.34	20	
Surr:Dibromofluoromethane	465.5	50	500	0	93.1	70-130	477.1	2.45	20	
Surr:Toluene-d8	490.6	50	500	0	98.1	70-130	487.1	0.705	20	

Thefollowingsampleswereanalyzedinthisbatch: 0308325-01A

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

Released to Imaging: 7/12/2022 11:49:15 AM
Received by OCD: 5/16/2022 2:12:41 PM

e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager:

e-Lab Work Order #: 0308325

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Inj. Wells	A	TCLP VOCs (1311/8260)
Work Order		Project Number		B	TCLP SVOCs (1311/8270)
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company	C	TCLP Metals (1311/6020/7470)
Send Report To	Darrell Moore/Charlie Plymale	Invoice Attn	Charlie Plymale	D	Semi volatiles
Address	P.O. Box 159	Address	P.O. Box 159	E	Volatiles
				F	
City/State/Zip	Artesia, New Mexico 88211	City/State/Zip	Artesia, New Mexico 88211	G	
Phone	(505) 748-3311	Phone	(505) 748-3311	H	
Fax	(505) 746-5421	Fax	(505) 746-5421	I	
e-Mail Address				J	

No	Sample Description	Date	Time	Matrix	Pres	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Inj. wells	8/28/03	1000			5				X	X						
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign: Charles Plymale

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) ☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
	8/28/03	1615		
Relinquished by:	Date:	Time:	Received by (Laboratory): RICHARD SANDOVAL 8/29/03	0930
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

e-Lab Cooler ID	Cooler Temp.	QC Package: (Check Box Below)	
		Level II: Standard QC	X
		Level III: Standard QC + Raw Data	
		Level IV: SW846 Methods/CLP	
		Other:	

Preservative Key: 1- HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING COMPAN Date/Time Received: 8/29/2003 9:30:00 AM

Work Order Number 0308325 Received by: RSZ

Checklist completed by RICHARD SANCHEZ 8.29.03 (Signature / Date) Reviewed by LT 9/2/03 (Initials / Date)

Matrix: W Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.2c	003	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

REFINING COMPANY, L.P.

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

RECEIVED
JUL 14 2003
OIL CONSERVATION DIVISION

July 11, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2003 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2003 to March 31, 2003. We have disposed a total of 13,448,129 bbls. of fluid into the two wells as of March 31 2003. This is broken down as follows: 9,732,076 bbls. into WDW-1 and 3,715,473 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

TRACEANALYSIS, INC.
6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 2 of 15
N/A | Injection Wells | N/A

Analytical Report

Sample: 215473 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC25706	Date Analyzed:	12/17/02
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB23811	Date Prepared:	12/17/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		146	mg/L as CaCo3	1	4
Total Alkalinity		146	mg/L as CaCo3	1	4

Sample: 215473 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC25592	Date Analyzed:	12/16/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB23722	Date Prepared:	12/16/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5070	µMHOS/cm	1	

Sample: 215473 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC25828	Date Analyzed:	12/26/02
Analyst:	JH	Preparation Method:	N/A	Prep Batch:	PB23933	Date Prepared:	12/26/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non-corrosive	mm/yr	1	
pH		8.2	s.u.	1	

Sample: 215473 - Inj Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC25555	Date Analyzed:	12/12/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB23652	Date Prepared:	12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		0.00022	mg/L	1	0.0002

Sample: 215473 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC25826	Date Analyzed:	12/26/02
Analyst:	JH	Preparation Method:	N/A	Prep Batch:	PB23931	Date Prepared:	12/26/02

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 215473 - Inj Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC25539	Date Analyzed:	12/11/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB23675	Date Prepared:	12/11/02

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 15
N/A Injection Wells N/A

Param	Flag	Result	Units	Dilution	RDL
Chloride		1000	mg/L	100	1
Fluoride		66.05	mg/L	5	0.20
Nitrate-N		<1.0	mg/L	5	0.20
Sulfate		663	mg/L	100	1

Sample: 215473 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC25829 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23934 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 215473 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC25566 Date Analyzed: 12/12/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB23664 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		158	mg/L	1	0.50
Dissolved Magnesium		31.5	mg/L	1	0.50
Dissolved Potassium		17.2	mg/L	1	0.50
Dissolved Sodium		698	mg/L	1	0.50

Sample: 215473 - Inj Wells

Analysis: TDS Analytical Method: E 160.1 QC Batch: QC25540 Date Analyzed: 12/12/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23674 Date Prepared: 12/10/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		3005	mg/L	5	10

Sample: 215473 - Inj Wells

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC25543 Date Analyzed: 12/12/02
Analyst: RR Preparation Method: N/A Prep Batch: PB23651 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.411	mg/L	1	0.05
Total Arsenic		0.135	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.158	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		0.950	mg/L	1	0.05

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

Page 58 of 5828

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 4 of 15
N/A Injection Wells N/A

... *Continued* Sample: 215473 Analysis: Total Metals

Param	Flag	Result	Units	Dilution	RDL
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.0672	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.122	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.0586	mg/L	1	0.02

Sample: 215473 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC25623	Date Analyzed:	12/14/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB23747	Date Prepared:	12/14/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1

Continued ...

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 5 of 15
N/A Injection Wells N/A

... *Continued* Sample: 215473 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.6	µg/L	5	50	99	70 - 130
Toluene-d8		50.1	µg/L	5	50	100	70 - 130
4-Bromofluorobenzene		45.6	µg/L	5	50	91	70 - 130

Sample: 215473 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC25527	Date Analyzed:	12/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB23667	Date Prepared:	12/10/02

Param	Flag	Result	Units	Dilution	RDL
pH	[2]	7.5	s.u.	1	1

[1] elevated reporting limit due to matrix difficulty.
[2] The sample was received out of holding time

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 6 of 15
N/A | Injection Wells | N/A

Quality Control Report
Method Blank

Method Blank QCBatch: QC25539

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC25540

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC25543

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.05
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		0.0166	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC25555

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank QCBatch: QC25566

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank QCBatch: QC25592

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		9.25	µMHOS/cm	

Method Blank QCBatch: QC25623

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene	3	<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1

Continued ...

[3]estimated concentration=0.16 µg/L. Reported between MDL (.054 µg/L) and reporting limit.

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 8 of 15
N/A | Injection Wells | N/A

... Continued

Param	Flag	Results	Units	Reporting Limit
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene	4	<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene	5	<1.00	µg/L	1
m,p-Xylene	6	<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene	7	<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	70 - 130
Toluene-d8		52.8	µg/L	1	50	106	70 - 130
4-Bromofluorobenzene		47.7	µg/L	1	50	95	70 - 130

[4]estimated concentration=0.19 µg/L. Reported between MDL (.042 µg/L) and reporting limit.
[5]estimated concentration=0.04 µg/L. Reported between MDL (.018 µg/L) and reporting limit.
[6]estimated concentration=0.09 µg/L. Reported between MDL (.051 µg/L) and reporting limit.
[7]estimated concentration=0.05 µg/L. Reported between MDL (.028 µg/L) and reporting limit.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 9 of 15
N/A | Injection Wells | N/A

Method Blank QCBatch: QC25706

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	4
Total Alkalinity		<4.0	mg/L as CaCo3	4

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC25527

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.8	8.8	s.u.	1	0	0

Duplicate QCBatch: QC25540

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1270	1234	mg/L	1	2	9.7

Duplicate QCBatch: QC25592

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4130	4040	µMHOS/cm	1	2	20

Duplicate QCBatch: QC25706

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		690	684	mg/L as CaCo3	1	0	9.2
Total Alkalinity		690	684	mg/L as CaCo3	1	0	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC25539

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 10 of 15
N/A Injection Wells N/A

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.63	13.13	mg/L	1	12.50	<1.0	93	12	90 - 110	20
Fluoride	2.36	2.38	mg/L	1	2.50	<0.2	94	0	90 - 110	20
Nitrate-N	2.45	2.45	mg/L	1	2.50	<0.2	98	0	90 - 110	20
Sulfate	12.12	12.26	mg/L	1	12.50	<1.0	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25543

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Calcium	99.4	98.8	mg/L	1	100	<0.5	99	0	75 - 125	20
Total Iron	0.512	0.515	mg/L	1	0.50	<0.050	102	0	75 - 125	20
Total Magnesium	103	99.8	mg/L	1	100	<0.5	103	3	75 - 125	20
Total Potassium	105	105	mg/L	1	100	<0.5	105	0	75 - 125	20
Total Sodium	106	104	mg/L	1	100	<0.5	106	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25555

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00113	0.00116	mg/L	1	0.001	<0.0002	113	2	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25623

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	91.7	91.7	µg/L	1	100	<1.00	92	0	70 - 130	20
Benzene	98.7	100	µg/L	1	100	<1.00	99	1	70 - 130	20
Trichloroethene (TCE)	89.8	89.8	µg/L	1	100	<1.00	90	0	70 - 130	20
Toluene	98.8	99.6	µg/L	1	100	<1.00	99	1	70 - 130	20
Chlorobenzene	96.5	96.6	µg/L	1	100	<1.00	96	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	47.7	47.6	µg/L	1	50	95	95	70 - 130
Toluene-d8	50.5	50.0	µg/L	1	50	101	100	70 - 130
4-Bromofluorobenzene	47.2	45.4	µg/L	1	50	94	91	70 - 130

Quality Control Report
Matrix Spikes and Duplicate Spikes

Released to Imaging: 7/12/2024 10:49:45 AM

06/13/2003 10:52 8057941298 TRACEANALYSIS PAGE 11/15
Received by OCD: 5/16/2022 2:12:41 PM

Matrix Spikes

QCBatch: QC25539

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	1300	1270	mg/L	1	1250	225	86	2	48 - 127	20
Fluoride	235	236	mg/L	1	250	4.10	92	0	82 - 101	20
Nitrate-N	260	258	mg/L	1	250	2.34	103	0	87 - 100	20
Sulfate	3030	3040	mg/L	1	1250	1840	95	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25543

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	0.971	0.965	mg/L	1	1		97	0	75 - 125	20
Total Arsenic	0.495	0.490	mg/L	1	0.50		99	1	75 - 125	20
Total Barium	1.06	1.05	mg/L	1	1		106	0	75 - 125	20
Total Beryllium	0.0233	0.023	mg/L	1	0.02		93	1	75 - 125	20
Total Boron	0.127	0.128	mg/L	1	0.05		95	2	75 - 125	20
Total Cadmium	0.218	0.216	mg/L	1	0.25		87	0	75 - 125	20
Total Chromium	0.0878	0.087	mg/L	1	0.10		87	0	75 - 125	20
Total Iron	0.855	0.843	mg/L	1	0.50	0.0801	98	2	75 - 125	20
Total Lead	0.453	0.455	mg/L	1	0.50		90	0	75 - 125	20
Total Molybdenum	0.537	0.533	mg/L	1	0.50		107	0	75 - 125	20
Total Selenium	0.458	0.455	mg/L	1	0.50		91	0	75 - 125	20
Total Silver	0.126	0.125	mg/L	1	0.12		100	0	75 - 125	20
Total Uranium	0.991	0.981	mg/L	1	1		99	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25555

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00110	0.00116	mg/L	1	0.001	<0.0002	110	5	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

ICV (1) QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

CCV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.83	94	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.38	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.46	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.32	98	90 - 110	12/11/02

ICV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	12.01	96	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.39	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.47	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.59	100	90 - 110	12/11/02

CCV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1013	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	995	99	90 - 110	12/12/02

CCV (1) QCBatch: QC25543

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 13 of 15
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	23.6	94	90 - 110	12/12/02
Total Iron		mg/L	1	1.028	103	90 - 110	12/12/02
Total Magnesium		mg/L	25	23.8	95	90 - 110	12/12/02
Total Potassium		mg/L	25	26.1	104	90 - 110	12/12/02
Total Sodium		mg/L	25	26.4	105	90 - 110	12/12/02

ICV (1) QCBatch: QC25543

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	25.1	100	90 - 110	12/12/02
Total Iron		mg/L	1	1.04	104	90 - 110	12/12/02
Total Magnesium		mg/L	25	24.4	97	90 - 110	12/12/02
Total Potassium		mg/L	25	25	100	90 - 110	12/12/02
Total Sodium		mg/L	25	24.3	97	90 - 110	12/12/02

CCV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00098	98	80 - 120	12/12/02

ICV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	12/12/02

CCV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	24.6	98	90 - 110	12/12/02
Dissolved Magnesium		mg/L	25	24.8	99	90 - 110	12/12/02
Dissolved Potassium		mg/L	25	25.6	102	90 - 110	12/12/02
Dissolved Sodium		mg/L	25	25.3	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25566

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 14 of 15
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.1	100	95 - 105	12/12/02
Dissolved Magnesium		mg/L	25	24.4	97	95 - 105	12/12/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	12/12/02
Dissolved Sodium		mg/L	25	24.3	97	95 - 105	12/12/02

CCV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1414	100	90 - 110	12/16/02

ICV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1437	101	90 - 110	12/16/02

CCV (1) QCBatch: QC25623

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	49.0	98	80 - 120	12/14/02
1,1-Dichloroethene		µg/L	50	49.0	98	80 - 120	12/14/02
Chloroform		µg/L	50	54.0	108	80 - 120	12/14/02
1,2-Dichloropropane		µg/L	50	53.0	106	80 - 120	12/14/02
Toluene		µg/L	50	55.0	110	80 - 120	12/14/02
Chlorobenzene		µg/L	50	53.0	106	80 - 120	12/14/02
Ethylbenzene		µg/L	50	55.0	110	80 - 120	12/14/02
Dibromofluoromethane		µg/L	50	50.2	100	80 - 120	12/14/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	12/14/02
4-Bromofluorobenzene		µg/L	50	50.2	100	80 - 120	12/14/02

CCV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	16	0	-	12/17/02

Continued ...

Report Date: December 31, 2002 | Order Number: A02121013 | Page Number: 15 of 15
N/A | Injection Wells | N/A

... Continued

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

ICV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	20	0	-	12/17/02
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215473 - Inj Wells

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		146	mg/L as CaCo3
Total Alkalinity		146	mg/L as CaCo3
Specific Conductance		5070	µMHOS/cm
Corrosivity		Non-corrosive	mm/yr
pH		8.2	s.u.
Total Mercury		0.00022	mg/L
Ignitability		non-ignitable	
Chloride		1000	mg/L
Fluoride		66.05	mg/L
Nitrate-N		<1.0	mg/L
Sulfate		663	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		158	mg/L
Dissolved Magnesium		31.5	mg/L
Dissolved Potassium		17.2	mg/L
Dissolved Sodium		698	mg/L
Total Dissolved Solids		3005	mg/L
Total Aluminum		0.411	mg/L
Total Arsenic		0.135	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.158	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

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Report Date: December 31, 2002 Order Number: A02121013 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215479 continued ...

Param	Flag	Result	Units
Total Copper		<0.0125	mg/L
Total Iron		0.950	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.0672	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.122	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.0586	mg/L
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<25.0	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone		<50.0	µg/L
Iodomethane (methyl iodide)		<25.0	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

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Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215479 continued ...

Param	Flag	Result	Units
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroethene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene (meta)		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortho)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Test Comments	1	note:	µg/L
pH	2	7.5	s.u.

[1]elevated reporting limit due to matrix difficulty.
[2]The sample was received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

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Page ____ of ____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
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1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A02121013

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 746 5421
Contact Person: Darrell Moore
Invoice to: (If different from above)
Project #:
Project Name: Inj. wells
Project Location: Artesia
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
15473	Inj. wells	4	40ml	X				X				X		12/9/02	940
	" "	1	500ml	X					X			X		12/9/02	940
	" "	2	1L	X								X	X	12/9/02	940

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | X 8240, 8260 | X anions, cations, TDS, cond, pH | X Al, As, Ba, B, Cd, Ca, Co, Cr, Mn, Pb | X Hg, Ni, Se, Ag, V, Zn, U, Mo | Turn Around Time if different from standard | Hold

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	12/9/02	1615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Crowley	Date: 12-10-02	Time: 1000

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact (Y) / N
Headspace Y (N)
Temp -1° C
Log-in Review MH

REMARKS:
8270 will be re-sampled per Charlie 12/10
12/31 CP
☐ Check if Special Reporting Limits Are Needed

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TRACEANALYSIS

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 2, 2003

Order ID Number: A02121224

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215707	Inj Well	Water	12/11/02	14:30	12/12/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.
Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 8 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 2 of 8
N/A Injection Wells N/A

Analytical Report

Sample: 215707 - Inj Well

Analysis: Semivolatiles Analytical Method: S 8270C QC Batch: QC25941 Date Analyzed: 12/16/02
Analyst: RC Preparation Method: E 3510C Prep Batch: PB23757 Date Prepared: 12/12/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 3 of 8
N/A Injection Wells N/A

... *Continued* Sample: 215707 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		14.66	mg/L	1	80	18	0 - 66
Phenol-d5		11.44	mg/L	1	80	14	0 - 70

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 4 of 8
N/A Injection Wells N/A

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		33.80	mg/L	1	80	42	23 - 99
2-Fluorobiphenyl		39.19	mg/L	1	80	48	27 - 95
2,4,6-Tribromophenol		22.97	mg/L	1	80	28	0 - 199
Terphenyl-d14		25.21	mg/L	1	80	31	20 - 96

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Page 5601 of 5828

Report Date: January 2, 2003 | Order Number: A02121224 | Page Number: 5 of 8
N/A | Injection Wells | N/A

Quality Control Report
Method Blank

Method Blank QCBatch: QC25941

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005

Continued ...

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Report Date: January 2, 2003 | Order Number: A02121224 | Page Number: 6 of 8
N/A | Injection Wells | N/A

... *Continued*

Param	Flag	Results	Units	Reporting Limit
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		44.87	mg/L	1	80	56	0 - 66

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 7 of 8
N/A Injection Wells N/A

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Phenol-d5		43.42	mg/L	1	80	54	0 - 70
Nitrobenzene-d5		78.46	mg/L	1	80	98	23 - 99
2-Fluorobiphenyl		71.61	mg/L	1	80	89	27 - 95
2,4,6-Tribromophenol		53.86	mg/L	1	80	67	0 - 199
Terphenyl-d14		79.78	mg/L	1	80	99	20 - 96

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC25941

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	26.07	26.38	mg/L	1	80	<0.005	32	1	0 - 81	20
2-Chlorophenol	54.17	54.37	mg/L	1	80	<0.005	67	0	12 - 83	20
1,4-Dichlorobenzene	55.34	55.94	mg/L	1	80	<0.005	69	1	13 - 88	20
n-Nitrosodi-n-propylamine	64.45	63.76	mg/L	1	80	<0.005	80	1	9 - 101	20
1,2,4-Trichlorobenzene	57.51	57.66	mg/L	1	80	<0.005	71	0	21 - 87	20
4-Chloro-3-methylphenol	61.52	57.96	mg/L	1	80	<0.005	76	5	14 - 92	20
Acenaphthene	59.82	60.39	mg/L	1	80	<0.005	74	0	26 - 86	20
4-Nitrophenol	27.77	29.00	mg/L	1	80	<0.005	34	4	0 - 104	20
2,4-Dinitrotoluene	75.52	76.08	mg/L	1	80	<0.005	94	0	29 - 94	20
Pentachlorophenol	46.25	47.91	mg/L	1	80	<0.005	57	3	1 - 97	20
Pyrene	62.21	61.37	mg/L	1	80	<0.005	77	1	25 - 90	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	44.68	44.6	mg/L	1	80	55	55	0 - 66
Phenol-d5	33.33	37.22	mg/L	1	80	41	46	0 - 70
Nitrobenzene-d5	66.47	66.99	mg/L	1	80	83	83	23 - 99
2-Fluorobiphenyl	60.84	65.5	mg/L	1	80	76	81	27 - 95
2,4,6-Tribromophenol	67.69	68.69	mg/L	1	80	84	85	0 - 199
Terphenyl-d14	70.81	68.74	mg/L	1	80	88	85	20 - 96

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25941

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	63.89	106	80 - 120	12/16/02
1,4-Dichlorobenzene		mg/L	60	62.2	103	80 - 120	12/16/02
2-Nitrophenol		mg/L	60	66.21	110	80 - 120	12/16/02
2,4-Dichlorophenol		mg/L	60	67.75	112	80 - 120	12/16/02
Hexachlorobutadiene		mg/L	60	54.23	90	80 - 120	12/16/02

Continued ...

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 8 of 8
N/A Injection Wells N/A

... *Continued*

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
4-Chloro-3-methylphenol		mg/L	60	69.15	115	80 - 120	12/16/02
2,4,6-Trichlorophenol		mg/L	60	58.89	98	80 - 120	12/16/02
Acenaphthene		mg/L	60	60.52	100	80 - 120	12/16/02
Diphenylamine		mg/L	60	58.92	98	80 - 120	12/16/02
Pentachlorophenol		mg/L	60	58.79	97	80 - 120	12/16/02
Fluoranthene		mg/L	60	55.22	92	80 - 120	12/16/02
Di-n-octylphthalate		mg/L	60	59.71	99	80 - 120	12/16/02
Benzo(a)pyrene		mg/L	60	64.45	107	80 - 120	12/16/02
2-Fluorophenol		mg/L	60	63.66	106	80 - 120	12/16/02
Phenol-d5		mg/L	60	71.01	118	80 - 120	12/16/02
Nitrobenzene-d5		mg/L	60	60.76	101	80 - 120	12/16/02
2-Fluorobiphenyl		mg/L	60	57.7	96	80 - 120	12/16/02
2,4,6-Tribromophenol		mg/L	60	52.2	87	80 - 120	12/16/02
Terphenyl-d14		mg/L	60	49.65	82	80 - 120	12/16/02

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 2, 2003

Order ID Number: A02121224

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215707	Inj Well	Water	12/11/02	14:30	12/12/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215707 - Inj Well

Param	Flag	Result	Units
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene (meta)		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

Received by OCD: 5/16/2022 2:12:41 PM

Page 5606 of 5828

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215707 continued ...

Param	Flag	Result	Units
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene*		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L

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This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 2, 2003 Order Number: A02121224 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215707 continued ...

Param	Flag	Result	Units
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L

This is only a summary. Please, refer to the complete report package for quality control data.

15707

Page ____ of ____

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 1202122-4

Company Name: Navajo
Phone #: 505748-3311
Address: (Street, City, Zip) 501 E. Main
Fax #: 505746-5421
Contact Person: Darrell Moore
Invoice to: (if different from above)
Project #:
Project Name: Inj. wells
Project Location: Artesia
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
15707	Inj. Wells	1	1L	X								X	X	12/1/02	1430

ANALYSIS REQUEST (Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Turn Around Time if different from standard	Hold

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

January 15, 2003

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2002 to December 31, 2003. We have disposed a total of 12,330,037 bbls. of fluid into the two wells as of December 31 2002. This is broken down as follows: 9,100,909 bbls. into WDW-1 and 3,229,128 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

0 This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 215473 - Inj Wells

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		146	mg/L as CaCo3
Total Alkalinity		146	mg/L as CaCo3
Specific Conductance		5070	μMHOS/cm
Corrosivity		Non-corrosive	mm/yr
pH		8.2	s.u.
Total Mercury		0.00022	mg/L
Ignitability		non-ignitable	
Chloride		1000	mg/L
Fluoride		66.05	mg/L
Nitrate-N		<1.0	mg/L
Sulfate		663	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		158	mg/L
Dissolved Magnesium		31.5	mg/L
Dissolved Potassium		17.2	mg/L
Dissolved Sodium		698	mg/L
Total Dissolved Solids		3005	mg/L
Total Aluminum		0.411	mg/L
Total Arsenic		0.135	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.158	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 215473 continued ...

Param	Flag	Result	Units
Total Copper		<0.0125	mg/L
Total Iron		0.950	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.0672	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.122	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.0586	mg/L
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<25.0	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone		<50.0	µg/L
Iodomethane (methyl iodide)		<25.0	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 215473 continued ...

Param	Flag	Result	Units
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroetbene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene (meta)		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortbo)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Test Comments	[1]	note:	µg/L
pH	[2]	7.5	s.u.

[1]elevated reporting limit due to matrix difficulty.
[2]The sample was received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: December 31, 2002

Order ID Number: A02121013

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
215473	Inj Wells	Water	12/9/02	9:40	12/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Analytical Report

Sample: 215473 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC25706	Date Analyzed:	12/17/02
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB23811	Date Prepared:	12/17/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		146	mg/L as CaCo3	1	4
Total Alkalinity		146	mg/L as CaCo3	1	4

Sample: 215473 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC25592	Date Analyzed:	12/16/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB23722	Date Prepared:	12/16/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5070	μMHOS/cm	1	

Sample: 215473 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC25828	Date Analyzed:	12/26/02
Analyst:	JH	Preparation Method:	N/A	Prep Batch:	PB23933	Date Prepared:	12/26/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non-corrosive	mm/yr	1	
pH		8.2	s.u.	1	

Sample: 215473 - Inj Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC25555	Date Analyzed:	12/12/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB23652	Date Prepared:	12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		0.00022	mg/L	1	0.0002

Sample: 215473 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC25826	Date Analyzed:	12/26/02
Analyst:	JH	Preparation Method:	N/A	Prep Batch:	PB23931	Date Prepared:	12/26/02

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 215473 - Inj Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC25539	Date Analyzed:	12/11/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB23675	Date Prepared:	12/11/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		1000	mg/L	100	1
Fluoride		66.05	mg/L	5	0.20
Nitrate-N		<1.0	mg/L	5	0.20
Sulfate		663	mg/L	100	1

Sample: 215473 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC25829 Date Analyzed: 12/26/02
Analyst: JH Preparation Method: N/A Prep Batch: PB23934 Date Prepared: 12/26/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 215473 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC25566 Date Analyzed: 12/12/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB23664 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		158	mg/L	1	0.50
Dissolved Magnesium		31.5	mg/L	1	0.50
Dissolved Potassium		17.2	mg/L	1	0.50
Dissolved Sodium		698	mg/L	1	0.50

Sample: 215473 - Inj Wells

Analysis: TDS Analytical Method: E 160.1 QC Batch: QC25540 Date Analyzed: 12/12/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB23674 Date Prepared: 12/10/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		3005	mg/L	5	10

Sample: 215473 - Inj Wells

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC25543 Date Analyzed: 12/12/02
Analyst: RR Preparation Method: N/A Prep Batch: PB23651 Date Prepared: 12/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.411	mg/L	1	0.05
Total Arsenic		0.135	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.158	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		0.950	mg/L	1	0.05

Continued ...

... *Continued* Sample: 215473 Analysis: Total Metals

Param	Flag	Result	Units	Dilution	RDL
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.0672	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.122	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.0586	mg/L	1	0.02

Sample: 215473 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC25623	Date Analyzed:	12/14/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB23747	Date Prepared:	12/14/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1

Continued ...

... *Continued* Sample: 215473 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.6	µg/L	5	50	99	70 - 130
Toluene-d8		50.1	µg/L	5	50	100	70 - 130
4-Bromofluorobenzene		45.6	µg/L	5	50	91	70 - 130

Sample: 215473 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC25527	Date Analyzed:	12/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB23667	Date Prepared:	12/10/02

Param	Flag	Result	Units	Dilution	RDL
pH	[2]	7.5	s.u.	1	1

[1] elevated reporting limit due to matrix difficulty.
[2] The sample was received out of holding time

Quality Control Report
Method Blank

Method Blank QCBatch: QC25539

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC25540

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC25543

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.05
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		0.0166	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC25555

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank

QCBatch: QC25566

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank

QCBatch: QC25592

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		9.25	μMHOS/cm	

Method Blank

QCBatch: QC25623

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene	[3]	<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1

Continued ...

[3]estimated concentration=0.16 μg/L. Reported between MDL (.054 μg/L) and reporting limit.

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued*

Param	Flag	Results	Units	Reporting Limit
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene	[4]	<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene	[5]	<1.00	µg/L	1
m,p-Xylene	[6]	<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene	[7]	<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	70 - 130
Toluene-d8		52.8	µg/L	1	50	106	70 - 130
4-Bromofluorobenzene		47.7	µg/L	1	50	95	70 - 130

[4]estimated concentration=0.19 µg/L. Reported between MDL (.042 µg/L) and reporting limit.
[5]estimated concentration=0.04 µg/L. Reported between MDL (.018 µg/L) and reporting limit.
[6]estimated concentration=0.09 µg/L. Reported between MDL (.051 µg/L) and reporting limit.
[7]estimated concentration=0.05 µg/L. Reported between MDL (.028 µg/L) and reporting limit.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Method Blank QCBatch: QC25706

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	4
Total Alkalinity		<4.0	mg/L as CaCo3	4

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC25527

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.8	8.8	s.u.	1	0	0

Duplicate QCBatch: QC25540

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1270	1234	mg/L	1	2	9.7

Duplicate QCBatch: QC25592

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4130	4040	µMHOS/cm	1	2	20

Duplicate QCBatch: QC25706

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		690	684	mg/L as CaCo3	1	0	9.2
Total Alkalinity		690	684	mg/L as CaCo3	1	0	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC25539

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Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.63	13.13	mg/L	1	12.50	<1.0	93	12	90 - 110	20
Fluoride	2.36	2.38	mg/L	1	2.50	<0.2	94	0	90 - 110	20
Nitrate-N	2.45	2.45	mg/L	1	2.50	<0.2	98	0	90 - 110	20
Sulfate	12.12	12.26	mg/L	1	12.50	<1.0	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25543

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Calcium	99.4	98.8	mg/L	1	100	<0.5	99	0	75 - 125	20
Total Iron	0.512	0.515	mg/L	1	0.50	<0.050	102	0	75 - 125	20
Total Magnesium	103	99.8	mg/L	1	100	<0.5	103	3	75 - 125	20
Total Potassium	105	105	mg/L	1	100	<0.5	105	0	75 - 125	20
Total Sodium	106	104	mg/L	1	100	<0.5	106	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25555

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00113	0.00116	mg/L	1	0.001	<0.0002	113	2	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC25623

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	91.7	91.7	µg/L	1	100	<1.00	92	0	70 - 130	20
Benzene	98.7	100	µg/L	1	100	<1.00	99	1	70 - 130	20
Trichloroethene (TCE)	89.8	89.8	µg/L	1	100	<1.00	90	0	70 - 130	20
Toluene	98.8	99.6	µg/L	1	100	<1.00	99	1	70 - 130	20
Chlorobenzene	96.5	96.6	µg/L	1	100	<1.00	96	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	47.7	47.6	µg/L	1	50	95	95	70 - 130
Toluene-d8	50.5	50.0	µg/L	1	50	101	100	70 - 130
4-Bromofluorobenzene	47.2	45.4	µg/L	1	50	94	91	70 - 130

Quality Control Report
Matrix Spikes and Duplicate Spikes

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Matrix Spikes

QCBatch: QC25539

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	1300	1270	mg/L	1	1250	225	86	2	48 - 127	20
Fluoride	235	236	mg/L	1	250	4.10	92	0	82 - 101	20
Nitrate-N	260	258	mg/L	1	250	2.34	103	0	87 - 100	20
Sulfate	3030	3040	mg/L	1	1250	1840	95	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25543

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	0.971	0.965	mg/L	1	1		97	0	75 - 125	20
Total Arsenic	0.495	0.490	mg/L	1	0.50		99	1	75 - 125	20
Total Barium	1.06	1.05	mg/L	1	1		106	0	75 - 125	20
Total Beryllium	0.0233	0.023	mg/L	1	0.02		93	1	75 - 125	20
Total Boron	0.127	0.128	mg/L	1	0.05		95	2	75 - 125	20
Total Cadmium	0.218	0.216	mg/L	1	0.25		87	0	75 - 125	20
Total Chromium	0.0878	0.087	mg/L	1	0.10		87	0	75 - 125	20
Total Iron	0.855	0.843	mg/L	1	0.50	0.0801	98	2	75 - 125	20
Total Lead	0.453	0.455	mg/L	1	0.50		90	0	75 - 125	20
Total Molybdenum	0.537	0.533	mg/L	1	0.50		107	0	75 - 125	20
Total Selenium	0.458	0.455	mg/L	1	0.50		91	0	75 - 125	20
Total Silver	0.126	0.125	mg/L	1	0.12		100	0	75 - 125	20
Total Uranium	0.991	0.981	mg/L	1	1		99	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC25555

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00110	0.00116	mg/L	1	0.001	<0.0002	110	5	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

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ICV (1) QCBatch: QC25527

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.1	101	-0.1 s.u. - +0.1 s.u.	12/10/02

CCV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.83	94	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.38	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.46	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.32	98	90 - 110	12/11/02

ICV (1) QCBatch: QC25539

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	12.01	96	90 - 110	12/11/02
Fluoride		mg/L	2.50	2.39	95	90 - 110	12/11/02
Nitrate-N		mg/L	2.50	2.47	98	90 - 110	12/11/02
Sulfate		mg/L	12.50	12.59	100	90 - 110	12/11/02

CCV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1013	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	995	99	90 - 110	12/12/02

CCV (1) QCBatch: QC25543

Report Date: December 31, 2002 Order Number: A02121013 Page Number: 13 of 15
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	23.6	94	90 - 110	12/12/02
Total Iron		mg/L	1	1.028	103	90 - 110	12/12/02
Total Magnesium		mg/L	25	23.8	95	90 - 110	12/12/02
Total Potassium		mg/L	25	26.1	104	90 - 110	12/12/02
Total Sodium		mg/L	25	26.4	105	90 - 110	12/12/02

ICV (1) QCBatch: QC25543

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	25	25.1	100	90 - 110	12/12/02
Total Iron		mg/L	1	1.04	104	90 - 110	12/12/02
Total Magnesium		mg/L	25	24.4	97	90 - 110	12/12/02
Total Potassium		mg/L	25	25	100	90 - 110	12/12/02
Total Sodium		mg/L	25	24.3	97	90 - 110	12/12/02

CCV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00098	98	80 - 120	12/12/02

ICV (1) QCBatch: QC25555

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	12/12/02

CCV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	24.6	98	90 - 110	12/12/02
Dissolved Magnesium		mg/L	25	24.8	99	90 - 110	12/12/02
Dissolved Potassium		mg/L	25	25.6	102	90 - 110	12/12/02
Dissolved Sodium		mg/L	25	25.3	101	90 - 110	12/12/02

ICV (1) QCBatch: QC25566

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.1	100	95 - 105	12/12/02
Dissolved Magnesium		mg/L	25	24.4	97	95 - 105	12/12/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	12/12/02
Dissolved Sodium		mg/L	25	24.3	97	95 - 105	12/12/02

CCV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1414	100	90 - 110	12/16/02

ICV (1) QCBatch: QC25592

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1437	101	90 - 110	12/16/02

CCV (1) QCBatch: QC25623

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	49.0	98	80 - 120	12/14/02
1,1-Dichloroethene		µg/L	50	49.0	98	80 - 120	12/14/02
Chloroform		µg/L	50	54.0	108	80 - 120	12/14/02
1,2-Dichloropropane		µg/L	50	53.0	106	80 - 120	12/14/02
Toluene		µg/L	50	55.0	110	80 - 120	12/14/02
Chlorobenzene		µg/L	50	53.0	106	80 - 120	12/14/02
Ethylbenzene		µg/L	50	55.0	110	80 - 120	12/14/02
Dibromofluoromethane		µg/L	50	50.2	100	80 - 120	12/14/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	12/14/02
4-Bromofluorobenzene		µg/L	50	50.2	100	80 - 120	12/14/02

CCV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	16	0	-	12/17/02

Continued ...

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... *Continued*

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

ICV (1) QCBatch: QC25706

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	-	12/17/02
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	-	12/17/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	20	0	-	12/17/02
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	12/17/02

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Page ____ of ____

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon,Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 402121013

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 746 5421
Contact Person: Darrell Moore
Invoice to: (if different from above)
Project #:
Project Name: Inj. wells
Project Location: Artesia
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
215473	Inj. wells	4 2	40ml	X				X				X		12/9/02	940
	" "	1	500ml	X					X			X		12/9/02	940
	" "	2	1L	X								X	X	12/9/02	940

ANALYSIS REQUEST (Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	8240, RCI	anions, cations, TDS, cond, pH	Al, As, Be, B, Cd, Ca, Co, Cu, Fe, Mg, Mn, Pb	Hg, Ni, Se, Ag, V, Zn, Li, Mo	Turn Around Time if different from standard	Hold
				See List											X	X	X	X		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	12/9/02	1615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Crowley	12-10-02	10:00

LAB USE ONLY
Intact (Y) / N
Headspace Y (N)
Temp -1° C
Log-in Review MS

REMARKS:
8270 will be re-sampled per Charlie 12/10
12/31 FIP
☐ Check If Special Reporting Limits Are Needed

Carrier # FedEx 7906-4982-1807

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

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FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo Refining Company

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
WDW-1													
Oct-02	217	386	115	184	240	113	196	495	140	6325	8240	3882	196,066
Nov-02	158	279	70	197	266	141	128	210	1	6747	9118	4840	209,162
Dec-02	145	197	1	177	218	78	143	342	0	6084	7472	2667	188,597
WDW-2													
Oct-02	218	420	21	121	178	10	189	344	116	4161	6100	357	128,994
Nov-02	92	197	0	79	150	0	375	500	22	2699	5141	4	83,655
Dec-02	189	233	129	136	151	117	129	145	34	4676	5185	4011	144,963

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

October 15, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2002 to September 30, 2002. We have disposed a total of 11,378,600 bbls. of fluid into the two wells as of September 30 2002. This is broken down as follows: 8,507,084 bbls. into WDW-1 and 2,871,516 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Received by OCD: 5/16/2022 2:12:41 PM

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Summary Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: September 20, 2002

Order ID Number: A02091009

Project Number: N/A
Project Name: ABT Inlet/RO Reject
Project Location: Artesia

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
207619	ABT Inlet Tk 836	Water	9/9/02	14:45	9/10/02
207620	RO Reject	Water	9/9/02	15:30	9/10/02

0 This report consists of a total of 2 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 207619 - ABT Inlet Tk 836

Param	Flag	Result	Units
Biological Oxygen Demand		1440	mg/L
Chemical Oxygen Demand		2820	mg/L
Phenolics		114	mg/L
Total Kjeldahl Nitrogen - N		166	mg/L

Sample: 207620 - RO Reject

Param	Flag	Result	Units
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		618	mg/L as CaCo3
Total Alkalinity		618	mg/L as CaCo3
Total Mercury		<0.0002	mg/L
Chloride		166	mg/L
Fluoride	[1]	3.46	mg/L
Nitrate-N	[2]	2.21	mg/L
Sulfate		1760	mg/L
Dissolved Calcium		609	mg/L
Dissolved Magnesium		205	mg/L
Dissolved Potassium		7.21	mg/L
Dissolved Sodium		114	mg/L
Total Aluminum		<0.100	mg/L
Total Arsenic		<0.050	mg/L

Continued on next page ...

[1]Reran on IC091602-2: LCS = 90 RPD = 4; ICV = 90 and CCV = 94.
[2]Reran on IC091602-2: LCS = 92 RPD = 0; ICV = 92 and CCV = 92.

This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: September 20, 2002 Order Number: A02091009 Page Number: 2 of 2
N/A ABT Inlet/RO Reject Artesia

Sample 207620 continued ...

Param	Flag	Result	Units
Total Barium		0.110	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.0713	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		<0.0125	mg/L
Total Iron		<0.050	mg/L
Total Lead		<0.010	mg/L
Total Manganese		<0.025	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		<0.050	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		<0.020	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		<0.025	mg/L

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: September 20, 2002

Order ID Number: A02091009

Project Number: N/A
Project Name: ABT Inlet/RO Reject
Project Location: Artesia

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
207619	ABT Inlet Tk 836	Water	9/9/02	14:45	9/10/02
207620	RO Reject	Water	9/9/02	15:30	9/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 13 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

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Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report

Sample: 207619 - ABT Inlet Tk 836

Analysis:	BOD5	Analytical Method:	SM 5210B	QC Batch:	QC23572	Date Analyzed:	9/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22068	Date Prepared:	9/11/02

Param	Flag	Result	Units	Dilution	RDL
Biological Oxygen Demand		1440	mg/L	1	1

Sample: 207619 - ABT Inlet Tk 836

Analysis:	COD	Analytical Method:	E 410.4	QC Batch:	QC23573	Date Analyzed:	9/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22067	Date Prepared:	9/16/02

Param	Flag	Result	Units	Dilution	RDL
Chemical Oxygen Demand		2820	mg/L	10	20

Sample: 207619 - ABT Inlet Tk 836

Analysis:	Phenolics	Analytical Method:	SM 5530D	QC Batch:	QC23594	Date Analyzed:	9/17/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB22084	Date Prepared:	9/17/02

Param	Flag	Result	Units	Dilution	RDL
Phenolics		114	mg/L	200	0.12

Sample: 207619 - ABT Inlet Tk 836

Analysis:	TKN	Analytical Method:	E 351.3	QC Batch:	QC23460	Date Analyzed:	9/11/02
Analyst:	MW	Preparation Method:	N/A	Prep Batch:	PB21990	Date Prepared:	9/11/02

Param	Flag	Result	Units	Dilution	RDL
Total Kjeldahl Nitrogen - N		166	mg/L	1	4

Sample: 207620 - RO Reject

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC23490	Date Analyzed:	9/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB22006	Date Prepared:	9/10/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		618	mg/L as CaCo3	1	1
Total Alkalinity		618	mg/L as CaCo3	1	1

Sample: 207620 - RO Reject

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC23549	Date Analyzed:	9/16/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB22048	Date Prepared:	9/16/02

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 207620 - RO Reject

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC23557 Date Analyzed: 9/11/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB22050 Date Prepared: 9/11/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		166	mg/L	5	1
Fluoride	[1]	3.46	mg/L	5	0.20
Nitrate-N	[2]	2.21	mg/L	5	0.20
Sulfate		1760	mg/L	50	1

Sample: 207620 - RO Reject

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC23525 Date Analyzed: 9/14/02
Analyst: RR Preparation Method: S 3005A Prep Batch: PB21982 Date Prepared: 9/11/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		609	mg/L	1.10	0.50
Dissolved Magnesium		205	mg/L	1.10	0.50
Dissolved Potassium		7.21	mg/L	1.10	0.50
Dissolved Sodium		114	mg/L	1.10	0.50

Sample: 207620 - RO Reject

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC23583 Date Analyzed: 9/17/02
Analyst: RR Preparation Method: S 3010A Prep Batch: PB22031 Date Prepared: 9/13/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.100	mg/L	1	0.10
Total Arsenic		<0.050	mg/L	1	0.05
Total Barium		0.110	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.0713	mg/L	1	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		<0.050	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		<0.025	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		<0.050	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		<0.025	mg/L	1	0.02

[1]Reran on IC091602-2: LCS = 90 RPD = 4; ICV = 90 and CCV = 94.
[2]Reran on IC091602-2: LCS = 92 RPD = 0; ICV = 92 and CCV = 92.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Method Blank QCBatch: QC23460

Param	Flag	Results	Units	Reporting Limit
Total Kjeldahl Nitrogen - N		<4.0	mg/L	4

Method Blank QCBatch: QC23490

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank QCBatch: QC23525

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.550	mg/L	0.50
Dissolved Magnesium		<0.550	mg/L	0.50
Dissolved Potassium		<0.550	mg/L	0.50
Dissolved Sodium		<0.550	mg/L	0.50

Method Blank QCBatch: QC23549

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank QCBatch: QC23557

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Sulfate		<1.0	mg/L	1

Method Blank QCBatch: QC23572

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Results	Units	Reporting Limit
Biological Oxygen Demand		< 1	mg/L	1

Method Blank QCBatch: QC23573

Param	Flag	Results	Units	Reporting Limit
Chemical Oxygen Demand		<20	mg/L	20

Method Blank QCBatch: QC23583

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.10
Total Arsenic		<0.050	mg/L	0.05
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		<0.0125	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.02	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank QCBatch: QC23594

Param	Flag	Results	Units	Reporting Limit
Phenolics		<0.12	mg/L	0.12

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC23490

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		50	49	mg/L as CaCo3	1	2	9.2
Total Alkalinity		50	49	mg/L as CaCo3	1	2	9.2

Duplicate

QCBatch: QC23572

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Biological Oxygen Demand		295	277	mg/L	1	6	25

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC23460

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Kjeldahl Nitrogen - N	45.1	44.0	mg/L	1	50	<4.0	90	2	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23525

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	98.2	99.9	mg/L	1.12	100	<0.550	98	1	75 - 125	20
Dissolved Magnesium	97.4	99.5	mg/L	1.12	100	<0.550	97	2	75 - 125	20
Dissolved Potassium	92.1	93.2	mg/L	1.12	100	<0.550	92	1	75 - 125	20
Dissolved Sodium	94.3	94.4	mg/L	1.12	100	<0.550	94	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23549

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00106	0.00107	mg/L	1	0.001	<0.0002	106	0	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23557

Released to Imaging: 7/12/2024 10:49:45 AM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.23	11.19	mg/L	1	12.50	<1.0	89	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23572

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Biological Oxygen Demand	206	196	mg/L	1	198	0.24	104	4	76 - 132	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23573

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chemical Oxygen Demand	246	251	mg/L	1	250	<20	98	2	95 - 105	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23583

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	1.01	1.00	mg/L	1	1	<0.100	101	1	75 - 125	20
Total Arsenic	0.569	0.585	mg/L	1	0.50	<0.050	114	3	75 - 125	20
Total Barium	1.06	1.06	mg/L	1	1	<0.100	106	0	75 - 125	20
Total Beryllium	0.0257	0.0257	mg/L	1	0.02	<0.0025	103	0	75 - 125	20
Total Boron	0.0479	0.0465	mg/L	1	0.05	<0.005	96	3	75 - 125	20
Total Cadmium	0.263	0.263	mg/L	1	0.25	<0.005	100	0	75 - 125	20
Total Chromium	0.105	0.105	mg/L	1	0.10	<0.010	105	0	75 - 125	20
Total Cobalt	0.262	0.262	mg/L	1	0.25	<0.025	105	0	75 - 125	20
Total Copper	0.133	0.132	mg/L	1	0.12	<0.0125	106	0	75 - 125	20
Total Iron	0.521	0.518	mg/L	1	0.50	<0.050	104	0	75 - 125	20
Total Lead	0.515	0.522	mg/L	1	0.50	<0.01	98	1	75 - 125	20
Total Manganese	0.265	0.263	mg/L	1	0.25	<0.025	106	1	75 - 125	20
Total Molybdenum	0.545	0.548	mg/L	1	0.50	<0.050	109	0	75 - 125	20
Total Nickel	0.265	0.265	mg/L	1	0.25	<0.025	106	0	75 - 125	20
Total Selenium	0.449	0.444	mg/L	1	0.50	<0.050	90	1	75 - 125	20
Total Silver	0.129	0.129	mg/L	1	0.12	<0.0125	103	0	75 - 125	20
Total Uranium	0.522	0.529	mg/L	1	0.50	<0.02	99	1	75 - 125	20
Total Vanadium	0.266	0.265	mg/L	1	0.25	<0.025	106	0	75 - 125	20
Total Zinc	0.268	0.268	mg/L	1	0.25	<0.025	107	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC23594

Received by OCD: 5/16/2022 2:12:41 PM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenolics	0.829	0.850	mg/L	1	0.80	<0.12	103	2	95 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC23460

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Kjeldahl Nitrogen - N	[3] 23.8	[4] 24.6	mg/L	1	50	<4.0	47	3	18 - 158	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23525

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Calcium	118	116	mg/L	1.12	100	23.1	94	2	75 - 125	20
Dissolved Magnesium	128	126	mg/L	1.12	100	38.4	89	2	75 - 125	20
Dissolved Potassium	105	104	mg/L	1.12	100	14.6	90	1	75 - 125	20
Dissolved Sodium	195	195	mg/L	1.12	100	86.6	108	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23549

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00140	0.00141	mg/L	1	0.001	0.00021	119	0	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23557

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	2131	2135	mg/L	1	1250	974	92	0	48 - 127	20
Sulfate	2402	2387	mg/L	1	1250	1190	96	1	59 - 121	20

[3]Matrix spike difficulties.
[4]Matrix spike difficulties.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23573

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chemical Oxygen Demand	291	287	mg/L	1	250	61.4	91	1	75 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23583

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Aluminum	1.16	1.18	mg/L	1	1	<0.100	116	2	75 - 125	20
Total Arsenic	0.552	0.542	mg/L	1	0.50	<0.050	110	2	75 - 125	20
Total Barium	1.05	1.06	mg/L	1	1	0.110	93	1	75 - 125	20
Total Beryllium	0.0233	0.0237	mg/L	1	0.02	<0.0025	93	2	75 - 125	20
Total Boron	0.119	0.120	mg/L	1	0.05	0.0713	95	2	75 - 125	20
Total Cadmium	0.233	0.234	mg/L	1	0.25	<0.005	93	0	75 - 125	20
Total Chromium	0.0979	0.0979	mg/L	1	0.10	<0.010	98	0	75 - 125	20
Total Cobalt	0.247	0.250	mg/L	1	0.25	<0.025	99	1	75 - 125	20
Total Copper	0.141	0.144	mg/L	1	0.12	<0.0125	112	2	75 - 125	20
Total Iron	0.495	0.494	mg/L	1	0.50	<0.050	99	0	75 - 125	20
Total Lead	0.510	0.513	mg/L	1	0.50	<0.010	102	0	75 - 125	20
Total Manganese	0.249	0.253	mg/L	1	0.25	<0.025	100	2	75 - 125	20
Total Molybdenum	0.513	0.518	mg/L	1	0.50	<0.050	103	1	75 - 125	20
Total Nickel	0.238	0.240	mg/L	1	0.25	<0.025	95	1	75 - 125	20
Total Selenium	0.460	0.474	mg/L	1	0.50	<0.050	92	3	75 - 125	20
Total Silver	0.125	0.128	mg/L	1	0.12	<0.0125	100	2	75 - 125	20
Total Uranium	0.528	0.542	mg/L	1	0.50	<0.020	106	3	75 - 125	20
Total Vanadium	0.254	0.259	mg/L	1	0.25	<0.025	102	2	75 - 125	20
Total Zinc	0.238	0.240	mg/L	1	0.25	<0.025	95	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC23594

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenolics	0.801	0.818	mg/L	1	0.80	<0.10	100	2	68 - 154	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC23460

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5	4.48	89	85 - 115	9/11/02

ICV (1) QCBatch: QC23460

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5	4.82	96	85 - 115	9/11/02

CCV (1) QCBatch: QC23490

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	9/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	240	0	90 - 110	9/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	9/10/02
Total Alkalinity		mg/L as CaCo3	250	246	98	90 - 110	9/10/02

ICV (1) QCBatch: QC23490

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	9/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	90 - 110	9/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	11	0	90 - 110	9/10/02
Total Alkalinity		mg/L as CaCo3	250	243	97	90 - 110	9/10/02

CCV (1) QCBatch: QC23525

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.0	100	90 - 110	9/14/02
Dissolved Magnesium		mg/L	25	24.7	99	90 - 110	9/14/02
Dissolved Potassium		mg/L	25	25.1	100	90 - 110	9/14/02
Dissolved Sodium		mg/L	25	25.0	100	90 - 110	9/14/02

ICV (1) QCBatch: QC23525

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.2	101	95 - 105	9/14/02
Dissolved Magnesium		mg/L	25	25.0	100	95 - 105	9/14/02
Dissolved Potassium		mg/L	25	25.4	102	95 - 105	9/14/02
Dissolved Sodium		mg/L	25	25.3	101	95 - 105	9/14/02

CCV (1) QCBatch: QC23549

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00099	99	80 - 120	9/16/02

ICV (1) QCBatch: QC23549

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00107	107	80 - 120	9/16/02

CCV (1) QCBatch: QC23557

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.19	89	90 - 110	9/11/02

ICV (1) QCBatch: QC23557

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.51	92	90 - 110	9/11/02

CCV (1) QCBatch: QC23573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chemical Oxygen Demand		mg/L	250	246	98	95 - 105	9/16/02

Received by OCD: 5/16/2022 2:12:41 PM

ICV (1) QCBatch: QC23573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chemical Oxygen Demand		mg/L	250	242	96	95 - 105	9/16/02

CCV (1) QCBatch: QC23583

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.98	99	90 - 110	9/17/02
Total Arsenic		mg/L	1	0.987	99	90 - 110	9/17/02
Total Barium		mg/L	2	2.00	100	90 - 110	9/17/02
Total Beryllium		mg/L	0.05	0.0499	100	90 - 110	9/17/02
Total Boron		mg/L	0.10	0.105	105	90 - 110	9/17/02
Total Cadmium		mg/L	0.50	0.496	97	90 - 110	9/17/02
Total Chromium		mg/L	0.20	0.200	100	90 - 110	9/17/02
Total Cobalt		mg/L	0.50	0.498	100	90 - 110	9/17/02
Total Copper		mg/L	0.25	0.250	100	90 - 110	9/17/02
Total Iron		mg/L	1	0.983	98	90 - 110	9/17/02
Total Lead		mg/L	1	0.989	96	90 - 110	9/17/02
Total Manganese		mg/L	0.50	0.501	100	90 - 110	9/17/02
Total Molybdenum		mg/L	1	1.00	100	90 - 110	9/17/02
Total Nickel		mg/L	0.50	0.502	100	90 - 110	9/17/02
Total Selenium		mg/L	1	0.993	99	90 - 110	9/17/02
Total Silver		mg/L	0.25	0.249	100	90 - 110	9/17/02
Total Uranium		mg/L	1	0.990	96	90 - 110	9/17/02
Total Vanadium		mg/L	0.50	0.501	100	90 - 110	9/17/02
Total Zinc		mg/L	0.50	0.499	100	90 - 110	9/17/02

ICV (1) QCBatch: QC23583

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	2.02	101	95 - 105	9/17/02
Total Arsenic		mg/L	1	1.03	103	95 - 105	9/17/02
Total Barium		mg/L	2	2.06	103	95 - 105	9/17/02
Total Beryllium		mg/L	0.05	0.0513	103	95 - 105	9/17/02
Total Boron		mg/L	0.10	0.109	109	95 - 105	9/17/02
Total Cadmium		mg/L	0.50	0.512	100	95 - 105	9/17/02
Total Chromium		mg/L	0.20	0.206	103	95 - 105	9/17/02
Total Cobalt		mg/L	0.50	0.513	103	95 - 105	9/17/02
Total Copper		mg/L	0.25	0.255	102	95 - 105	9/17/02
Total Iron		mg/L	1	1.03	103	95 - 105	9/17/02
Total Lead		mg/L	1	1.02	100	95 - 105	9/17/02
Total Manganese		mg/L	0.50	0.515	103	95 - 105	9/17/02
Total Molybdenum		mg/L	1	1.03	103	95 - 105	9/17/02
Total Nickel		mg/L	0.50	0.515	103	95 - 105	9/17/02

Continued ...

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... Continued

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1	1.02	102	95 - 105	9/17/02
Total Silver		mg/L	0.25	0.256	102	95 - 105	9/17/02
Total Uranium		mg/L	1	1.01	98	95 - 105	9/17/02
Total Vanadium		mg/L	0.50	0.514	103	95 - 105	9/17/02
Total Zinc		mg/L	0.50	0.515	103	95 - 105	9/17/02

CCV (1)

QCBatch: QC23594

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenolics		mg/L	0.80	0.801	100	85 - 115	9/17/02

ICV (1)

QCBatch: QC23594

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenolics		mg/L	0.80	0.822	102	85 - 115	9/17/02

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207619-20

Page_____of_____

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon,Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 1D0291009

Company Name: NAVAJO
Phone #: 5057483311
Address: (Street, City, Zip) 501 E Main
Fax #: 5057465421
Contact Person: Charlie Plymale
Invoice to: (If different from above)
Project #:
Project Name: ABT Inlet/RO Reject
Project Location: Artesia
Sampler Signature:

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
207619	ABT Inlet JK836	1	1L	X						X		X		9/9/02	1445
	" "	1	1L	X								X	X	9/9/02	1445
	" "	1	500ml	X						X		X		9/9/02	1445
207620	RO Reject	1	1L	X								X	X	9/9/02	1530
	" "	1	1L	X					X			X		9/9/02	1530

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Turn Around Time if different from standard	Hold
				See List												

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	9/9/02	1615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
				9-10-02	10am

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp -1 °
Log-in Review MS

REMARKS:

☐ Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

Carrier # Fed Ex 7900-5576-0049

Page 5646 of 5828

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MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

Navajo refining Company

WDW-1	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Total Volume (brrls)
Jul-02	443	500	0	205	232	0	213	240	0	7037	7939	0	218,136
Aug-02	279	500	157	197	232	149	169	240	146	6744	7949	5112	209,077
Sep-02	198	261	97	167	199	117	145	152	142	5737	6809	3999	177,855
WDW-2													
Jul-02	172	268	0	113	160	0	99	152	0	3887	5485	0	120,499
Aug-02	219	303	104	130	160	58	187	311	112	4448	5472	1976	137,893
Sep-02	228	287	128	130	154	94	180	257	128	4473	5271	3223	138,649

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NAVAJO REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

October 30, 2001

RECEIVED
NOV 13 2001
Environmental Bureau
Oil Conservation Division

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 3rd quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2001 to September 30, 2001. We have disposed a total of 8,443,165 bbls. of fluid down the two wells as of September 30, 2001. This is broken down as follows: 6,446,668 bbls. down WDW-1 and 1,996,497 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 1 of 3
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 17, 2001

Order ID Number: A01100310

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
180928	Inj Well	Water	10/2/01	14:00	10/3/01

This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 180928 - Inj Well

Param	Flag	Result	Units
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L

Continued on next page ...

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 2 of 3
N/A Injection Wells N/A

Sample 180928 continued ...

Param	Flag	Result	Units
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L

Continued on next page ...

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: October 17, 2001 Order Number: A01100310 Page Number: 3 of 3
N/A Injection Wells N/A

Sample 180928 continued ...

Param	Flag	Result	Units
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 17, 2001

Order ID Number: A01100310

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
180928	Inj Well	Water	10/2/01	14:00	10/3/01

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 7 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report

Sample: 180928 - Inj Well

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC14881	Date Analyzed:	10/11/01
Analyst:	RC	Preparation Method:	E 3510C	Prep Batch:	PB12651	Date Prepared:	10/4/01

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 180928 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		16.26	mg/L	1	80	20	21 - 100
Phenol-d5		9.68	mg/L	1	80	12	11 - 94
Nitrobenzene-d5		47.77	mg/L	1	80	59	35 - 114
2-Fluorobiphenyl		47.08	mg/L	1	80	58	43 - 116
2,4,6-Tribromophenol		53.59	mg/L	1	80	66	10 - 123
Terphenyl-d14		28.71	mg/L	1	80	35	33 - 141

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Quality Control Report
Method Blank

Method Blank QCBatch: QC14881

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2.6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005

Continued ...

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... Continued

Param	Flag	Results	Units	Reporting Limit
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		14.24	mg/L	1	80	17	21 - 100
Phenol-d5		11.8	mg/L	1	80	14	11 - 94
Nitrobenzene-d5		68.41	mg/L	1	80	85	35 - 114
2-Fluorobiphenyl		63.26	mg/L	1	80	79	43 - 116
2,4,6-Tribromophenol		41.79	mg/L	1	80	52	10 - 123

Continued ...

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Terphenyl-d14		45.95	mg/L	1	80	57	33 - 141

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC14881

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	11.26	12.83	mg/L	1	80	<0.005	14	13	5 - 112	20
2-Chlorophenol	38.17	38.8	mg/L	1	80	<0.005	47	1	23 - 134	20
1,4-Dichlorobenzene	43.6	40.39	mg/L	1	80	<0.005	54	7	20 - 124	20
n-Nitrosodi-n-propylamine	46.61	48.78	mg/L	1	80	<0.005	58	4	0 - 230	20
1,2,4-Trichlorobenzene	53.13	55.74	mg/L	1	80	<0.005	66	4	44 - 142	20
4-Chloro-3-methylphenol	53.26	56.33	mg/L	1	80	<0.005	66	5	22 - 147	20
Acenaphthene	52.05	56.45	mg/L	1	80	<0.005	65	8	47 - 145	20
4-Nitrophenol	42.19	43.08	mg/L	1	80	<0.005	52	2	0 - 132	20
2,4-Dinitrotoluene	66.19	63.9	mg/L	1	80	<0.005	82	3	39 - 139	20
Pentachlorophenol	40.55	40.31	mg/L	1	80	<0.005	50	0	14 - 176	20
Pyrene	45.78	43.03	mg/L	1	80	<0.005	57	6	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	18.4	17.84	mg/L	1	80	23	22	21 - 100
Phenol-d5	10.42	10.48	mg/L	1	80	13	13	11 - 94
Nitrobenzene-d5	52.8	55.69	mg/L	1	80	66	69	35 - 114
2-Fluorobiphenyl	53.81	58.92	mg/L	1	80	67	73	43 - 116
2,4,6-Tribromophenol	71.61	67.1	mg/L	1	80	89	83	10 - 123
Terphenyl-d14	52.04	46.76	mg/L	1	80	65	58	33 - 141

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC14881

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	48.43	35.14	mg/L	1	80	<0.005	60	31	5 - 112	20
2-Chlorophenol	61.18	45.54	mg/L	1	80	<0.005	76	29	23 - 134	20
1,4-Dichlorobenzene	63.47	46.48	mg/L	1	80	<0.005	79	30	20 - 124	20
n-Nitrosodi-n-propylamine	63.08	47.76	mg/L	1	80	<0.005	78	27	0 - 230	20
1,2,4-Trichlorobenzene	77.67	60.88	mg/L	1	80	<0.005	97	24	44 - 142	20
4-Chloro-3-methylphenol	77.4	65.29	mg/L	1	80	<0.005	96	16	22 - 147	20
Acenaphthene	65.07	59.15	mg/L	1	80	<0.005	81	9	47 - 145	20
4-Nitrophenol	58.12	51.88	mg/L	1	80	<0.005	72	11	0 - 132	20
2,4-Dinitrotoluene	70.23	64.91	mg/L	1	80	<0.005	87	7	39 - 139	20
Pentachlorophenol	50.86	40.63	mg/L	1	80	<0.005	63	22	14 - 176	20
Pyrene	44.83	43.46	mg/L	1	80	<0.005	56	3	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dilution	Spike Amount	MS % Rec	MSD % Rec	Recovery Limits
2-Fluorophenol	51.96	38.64	mg/L	1	80	64	48	21 - 100
Phenol-d5	48.84	35.33	mg/L	1	80	61	44	11 - 94
Nitrobenzene-d5	71.74	57.13	mg/L	1	80	89	71	35 - 114
2-Fluorobiphenyl	70.11	60.74	mg/L	1	80	87	75	43 - 116
2,4,6-Tribromophenol	76.72	67.75	mg/L	1	80	95	84	10 - 123
Terphenyl-d14	45.3	41.26	mg/L	1	80	56	51	33 - 141

Quality Control Report
Continuing Calibration Verification Standards

CCV (1) QCBatch: QC14881

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	61.43	102	80 - 120	10/11/01
1,4-Dichlorobenzene		mg/L	60	62.38	103	80 - 120	10/11/01
2-Nitrophenol		mg/L	60	65.94	109	80 - 120	10/11/01
2,4-Dichlorophenol		mg/L	60	63.42	105	80 - 120	10/11/01
Hexachlorobutadiene		mg/L	60	66.39	110	80 - 120	10/11/01
4-Chloro-3-methylphenol		mg/L	60	60.2	100	80 - 120	10/11/01
2,4,6-Trichlorophenol		mg/L	60	65.44	109	80 - 120	10/11/01
Acenaphthene		mg/L	60	63.64	106	80 - 120	10/11/01
Diphenylamine		mg/L	60	60.27	100	80 - 120	10/11/01
Pentachlorophenol		mg/L	60	50.96	84	80 - 120	10/11/01
Fluoranthene		mg/L	60	68.23	113	80 - 120	10/11/01
Di-n-octylphthalate		mg/L	60	55.81	93	80 - 120	10/11/01
Benzo(a)pyrene		mg/L	60	60.73	101	80 - 120	10/11/01
2-Fluorophenol		mg/L	60	61.9	103	80 - 120	10/11/01
Phenol-d5		mg/L	60	61.44	102	80 - 120	10/11/01
Nitrobenzene-d5		mg/L	60	62.82	104	80 - 120	10/11/01
2-Fluorobiphenyl		mg/L	60	66.48	110	80 - 120	10/11/01
2,4,6-Tribromophenol		mg/L	60	67.15	111	80 - 120	10/11/01
Terphenyl-d14		mg/L	60	46.12	76	80 - 120	10/11/01

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180928

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A0110031O

Company Name: Navajo
Phone #: 505 7483311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 7465421
Contact Person: Darrell Moore or Charlie Bynum
Invoice to: (if different from above)
Project #:
Project Name: Inj well
Project Location:
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
180928	Inj well	1	1L	X								X	X	10/2/01	200

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See list

Extra bottle requested by Vicki

	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
		10/2/01	1615			
	Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Hensley	10-3-01	10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact Y / N
Headspace Y / N
Temp 4 °
Log-in Review MF

REMARKS:

10/8

☐ Check If Special Reporting Limits Are Needed

Carrier # UPS 1Z 762 46 6 03 452 3845

Page 5660 of 5828

Quarterly Injection Pressures, Rates, and Volumes

NAVAJO REFINING COMPANY

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max Pressure (psig)	Monthly Min Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max Flow Volume (bpd)	Monthly Min Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min Annular Pressure (psig)	Total Volume (bbls)
July 2001	258	412	0	200	393	0	6850	8267	5608	259	360	120	212,543
August 2001	262	500	0	195	482	0	6773	8857	1782	255	372	118	207,732
September 2001	201	326	0	259	381	0	8876	10148	5044	188	328	113	266,295
WDW-2	**Monthly Avg. Pressure (psig)**	**Monthly Max Pressure (psig)**	**Monthly Min Pressure (psig)**	**Monthly Avg. Flow Rate (gpm)**	**Monthly Max Flow Rate (gpm)**	**Monthly Min. Flow Rate (gpm)**	**Monthly Avg. Flow Volume (bpd)**	**Monthly Max Flow Volume (bpd)**	**Monthly Min Flow Volume (bpd)**	**Monthly Avg. Annular Pressure (psig)**	**Monthly Max Annular Pressure (psig)**	**Monthly Min Annular Pressure (psig)**	**Total Volume (bbls)**
July 2001	143	341	0	28	178	0	3281	5913	25	161	500	17	98,443
August 2001	183	500	0	106	520	0	3529	7171	6	213	495	25	108,769
September 2001	48	277	0	94	206	0	1101	6097	4	132	500	22	33,040

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Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

February 12, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 4th quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2001 to December 31, 2001. We have disposed a total of 9,429,075 bbls. of fluid down the two wells as of December 31, 2001. This is broken down as follows: 7,171,582 bbls. down WDW-1 and 2,257,493 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 1 of 5
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 30, 2002

Order ID Number: A02010402

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
188362	Inj. Wells	Water	1/3/01	9:00	1/4/02

0 This report consists of a total of 5 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 188362 - Inj. Wells

Param	Flag	Result	Units
Bromochloromethane		<1.00	µg/L
Dichlorodifluoromethane		<1.00	µg/L
Chloromethane (methyl chloride)		<1.00	µg/L
Vinyl Chloride		<1.00	µg/L
Bromomethane (methyl bromide)		<5.00	µg/L
Chloroethane		<1.00	µg/L
Trichlorofluoromethane		<1.00	µg/L
Acetone		17.4	µg/L
Iodomethane (methyl iodide)		<5.00	µg/L
Carbon Disulfide		<1.00	µg/L
Acrylonitrile		<1.00	µg/L
2-Butanone (MEK)		<5.00	µg/L
4-methyl-2-pentanone (MIBK)		<5.00	µg/L
2-hexanone		<5.00	µg/L
trans 1,4-Dichloro-2-butene		<10.0	µg/L
1,1-Dichloroethene		<1.00	µg/L
Methylene chloride		<5.00	µg/L
MTBE		<1.00	µg/L
trans-1,2-Dichloroethene		<1.00	µg/L
1,1-Dichloroethane		<1.00	µg/L
cis-1,2-Dichloroethene		<1.00	µg/L
2,2-Dichloropropane		<1.00	µg/L
1,2-Dichloroethane (EDC)		<1.00	µg/L
Chloroform		<1.00	µg/L
1,1,1-Trichloroethane		<1.00	µg/L
1,1-Dichloropropene		<1.00	µg/L
Benzene		<1.00	µg/L
Carbon Tetrachloride		<1.00	µg/L
1,2-Dichloropropane		<1.00	µg/L
Trichloroethene (TCE)		<1.00	µg/L
Dibromomethane (methylene bromide)		<1.00	µg/L
Bromodichloromethane		<1.00	µg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 2 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
2-Chloroethyl vinyl ether		<5.00	µg/L
cis-1,3-Dichloropropene		<1.00	µg/L
trans-1,3-Dichloropropene		<1.00	µg/L
Toluene		<1.00	µg/L
1,1,2-Trichloroethane		<1.00	µg/L
1,3-Dichloropropane		<1.00	µg/L
Dibromochloromethane		<1.00	µg/L
1,2-Dibromoethane (EDB)		<1.00	µg/L
Tetrachloroethene (PCE)		<1.00	µg/L
Chlorobenzene		<1.00	µg/L
1,1,1,2-Tetrachloroethane		<1.00	µg/L
Ethylbenzene		2.20	µg/L
m,p-Xylene		3.72	µg/L
Bromoform		<1.00	µg/L
Styrene		<1.00	µg/L
o-Xylene		1.19	µg/L
1,1,2,2-Tetrachloroethane		<1.00	µg/L
2-Chlorotoluene		<1.00	µg/L
1,2,3-Trichloropropane		<1.00	µg/L
Isopropylbenzene		<1.00	µg/L
Bromobenzene		<1.00	µg/L
n-Propylbenzene		<1.00	µg/L
1,3,5-Trimethylbenzene		<1.00	µg/L
tert-Butylbenzene		<1.00	µg/L
1,2,4-Trimethylbenzene		1.08	µg/L
1,4-Dichlorobenzene (para)		<1.00	µg/L
sec-Butylbenzene		<1.00	µg/L
1,3-Dichlorobenzene		<1.00	µg/L
p-Isopropyltoluene		<1.00	µg/L
4-Chlorotoluene		<1.00	µg/L
1,2-Dichlorobenzene (ortho)		<1.00	µg/L
n-Butylbenzene		<1.00	µg/L
1,2-Dibromo-3-chloropropane		<5.00	µg/L
1,2,3-Trichlorobenzene		<5.00	µg/L
1,2,4-Trichlorobenzene		<5.00	µg/L
Naphthalene		<5.00	µg/L
Hexachlorobutadiene		<5.00	µg/L
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L
bis (2-chloroisopropyl) ether		<0.005	mg/L
4-Methylphenol/3-Methylphenol		<0.005	mg/L

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 3 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 4 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		12	mg/L as CaCo3
Bicarbonate Alkalinity		282	mg/L as CaCo3
Total Alkalinity		294	mg/L as CaCo3
Specific Conductance		4150	μMHOS/cm
Corrosivity		non-corrosive	mm/yr
pH		8.5	s.u.
Flashpoint	[1]	>150	F
Total Mercury		<0.0002	mg/L
Chloride		718	mg/L
Sulfate	[2]	500	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	mg/L
Hydrogen Cyanide		<2.5	mg/L
Dissolved Calcium		157	mg/L
Dissolved Magnesium		25.3	mg/L
Dissolved Potassium		38.3	mg/L
Dissolved Sodium		452	mg/L
Total Dissolved Solids		1990	mg/L
Total Aluminum		0.842	mg/L
Total Arsenic		0.181	mg/L
Total Barium		<0.100	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.207	mg/L
Total Cadmium		<0.005	mg/L
Total Chromium		<0.010	mg/L

Continued on next page ...

[1]There was not enough sample to duplicate.
[2]Sulfate re-ran on IC011002-1.sch (PB17016; QC17285). ICV %IA = 94; CCV %IA = 93; matrix spikes RPD = 0, %EA = 85; LCS spikes RPD = 1, %EA = 93.

This is only a summary. Please, refer to the complete report package for quality control data.

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: January 30, 2002 Order Number: A02010402 Page Number: 5 of 5
N/A Injection Wells N/A

Sample 188362 continued ...

Param	Flag	Result	Units
Total Cobalt		<0.025	mg/L
Total Copper		0.0129	mg/L
Total Iron		1.77	mg/L
Total Lead		<0.010	mg/L
Total Manganese		0.080	mg/L
Total Molybdenum		<0.050	mg/L
Total Nickel		<0.025	mg/L
Total Selenium		0.292	mg/L
Total Silver		<0.0125	mg/L
Total Uranium		0.0759	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.182	mg/L
pH	[3]	8.5	s.u.

[3] received out of holding time

This is only a summary. Please, refer to the complete report package for quality control data.

TRACEANALYSIS, INC.

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155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: January 30, 2002

Order ID Number: A02010402

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
188362	Inj. Wells	Water	1/3/01	9:00	1/4/02

0
These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.

This report consists of a total of 19 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

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Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report

Sample: 188362 - Inj. Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC17387	Date Analyzed:	1/7/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB17091	Date Prepared:	1/7/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<1.00	µg/L	1	1
Dichlorodifluoromethane		<1.00	µg/L	1	1
Chloromethane (methyl chloride)		<1.00	µg/L	1	1
Vinyl Chloride		<1.00	µg/L	1	1
Bromomethane (methyl bromide)		<5.00	µg/L	1	5
Chloroethane		<1.00	µg/L	1	1
Trichlorofluoromethane		<1.00	µg/L	1	1
Acetone		17.4	µg/L	1	10
Iodomethane (methyl iodide)		<5.00	µg/L	1	5
Carbon Disulfide		<1.00	µg/L	1	1
Acrylonitrile		<1.00	µg/L	1	1
2-Butanone (MEK)		<5.00	µg/L	1	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	1	5
2-hexanone		<5.00	µg/L	1	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	1	10
1,1-Dichloroethene		<1.00	µg/L	1	1
Methylene chloride		<5.00	µg/L	1	5
MTBE		<1.00	µg/L	1	1
trans-1,2-Dichloroethene		<1.00	µg/L	1	1
1,1-Dichloroethane		<1.00	µg/L	1	1
cis-1,2-Dichloroethene		<1.00	µg/L	1	1
2,2-Dichloropropane		<1.00	µg/L	1	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1
Chloroform		<1.00	µg/L	1	1
1,1,1-Trichloroethane		<1.00	µg/L	1	1
1,1-Dichloropropene		<1.00	µg/L	1	1
Benzene		<1.00	µg/L	1	1
Carbon Tetrachloride		<1.00	µg/L	1	1
1,2-Dichloropropane		<1.00	µg/L	1	1
Trichloroethene (TCE)		<1.00	µg/L	1	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1
Bromodichloromethane		<1.00	µg/L	1	1
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5
cis-1,3-Dichloropropene		<1.00	µg/L	1	1
trans-1,3-Dichloropropene		<1.00	µg/L	1	1
Toluene		<1.00	µg/L	1	1
1,1,2-Trichloroethane		<1.00	µg/L	1	1
1,3-Dichloropropane		<1.00	µg/L	1	1
Dibromochloromethane		<1.00	µg/L	1	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1
Tetrachloroethene (PCE)		<1.00	µg/L	1	1
Chlorobenzene		<1.00	µg/L	1	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1
Ethylbenzene		2.20	µg/L	1	1
m,p-Xylene		3.72	µg/L	1	1
Bromoform		<1.00	µg/L	1	1
Styrene		<1.00	µg/L	1	1
o-Xylene		1.19	µg/L	1	1

Continued ...

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... *Continued* Sample: 188362 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1
2-Chlorotoluene		<1.00	µg/L	1	1
1,2,3-Trichloropropane		<1.00	µg/L	1	1
Isopropylbenzene		<1.00	µg/L	1	1
Bromobenzene		<1.00	µg/L	1	1
n-Propylbenzene		<1.00	µg/L	1	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1
tert-Butylbenzene		<1.00	µg/L	1	1
1,2,4-Trimethylbenzene		1.08	µg/L	1	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1
sec-Butylbenzene		<1.00	µg/L	1	1
1,3-Dichlorobenzene		<1.00	µg/L	1	1
p-Isopropyltoluene		<1.00	µg/L	1	1
4-Chlorotoluene		<1.00	µg/L	1	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1	1
n-Butylbenzene		<1.00	µg/L	1	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	1	5
1,2,3-Trichlorobenzene		<5.00	µg/L	1	5
1,2,4-Trichlorobenzene		<5.00	µg/L	1	5
Naphthalene		<5.00	µg/L	1	5
Hexachlorobutadiene		<5.00	µg/L	1	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50	99	84 - 122
Toluene-d8		48.5	µg/L	1	50	97	95 - 105
4-Bromofluorobenzene		50	µg/L	1	50	100	91 - 108

Sample: 188362 - Inj. Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC17449	Date Analyzed:	1/10/02
Analyst:	RC	Preparation Method:	E 3510C	Prep Batch:	PB17140	Date Prepared:	1/7/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005

Continued ...

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Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 188362 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		<0.005	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 188362 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		11.27	mg/L	1	80	14	21 - 100
Phenol-d5	[1]	6.21	mg/L	1	80	7	11 - 94
Nitrobenzene-d5		33.48	mg/L	1	80	41	35 - 114
2-Fluorobiphenyl		31.91	mg/L	1	80	39	43 - 116
2,4,6-Tribromophenol		55.66	mg/L	1	80	69	10 - 123
Terphenyl-d14		33.05	mg/L	1	80	41	33 - 141

Sample: 188362 - Inj. Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC17283	Date Analyzed:	1/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB17018	Date Prepared:	1/10/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		12	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		282	mg/L as CaCo3	1	1
Total Alkalinity		294	mg/L as CaCo3	1	1

Sample: 188362 - Inj. Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC17280	Date Analyzed:	1/9/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17013	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		4150	μMHOS/cm	1	

[1] Sample surrogate out of limits due to sample matrix.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 188362 - Inj. Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC17689	Date Analyzed:	1/24/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17318	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		non-corrosive	mm/yr	1	
pH		8.5	s.u.	1	

Sample: 188362 - Inj. Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC17688	Date Analyzed:	1/23/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17317	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Flashpoint	[2]	>150	F	1	

Sample: 188362 - Inj. Wells

Analysis:	Hg, Total	Analytical Method:	E 245.2	QC Batch:	QC17473	Date Analyzed:	1/17/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB17163	Date Prepared:	1/16/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 188362 - Inj. Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC17284	Date Analyzed:	1/8/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17015	Date Prepared:	1/8/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		718	mg/L	50	0.50
Sulfate	[3]	500	mg/L	50	0.50

Sample: 188362 - Inj. Wells

Analysis:	Reactivity	Analytical Method:	ASTM D 5049-90/4978-95	QC Batch:	QC17690	Date Analyzed:	1/23/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB17319	Date Prepared:	1/23/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 188362 - Inj. Wells

Analysis:	Salts	Analytical Method:	E 200.7	QC Batch:	QC17367	Date Analyzed:	1/14/02
Analyst:	BC	Preparation Method:	S 3005A	Prep Batch:	PB16960	Date Prepared:	1/10/02

[2]There was not enough sample to duplicate.
[3]Sulfate re-ran on IC011002-1.sch (PB17016; QC17285). ICV %IA = 94; CCV %IA = 93; matrix spikes RPD = 0, %EA = 85; LCS spikes RPD = 1, %EA = 93.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		157	mg/L	1	0.50
Dissolved Magnesium		25.3	mg/L	1	0.50
Dissolved Potassium		38.3	mg/L	1	0.50
Dissolved Sodium		452	mg/L	1	0.50

Sample: 188362 - Inj. Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC17251	Date Analyzed:	1/10/02
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB16995	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		1990	mg/L	5	10

Sample: 188362 - Inj. Wells

Analysis:	Total Metals	Analytical Method:	E 200.7	QC Batch:	QC17264	Date Analyzed:	1/11/01
Analyst:	RR	Preparation Method:	N/A	Prep Batch:	PB16946	Date Prepared:	1/9/02

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.842	mg/L	1	0.10
Total Arsenic		0.181	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.207	mg/L	1	0.01
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		0.0129	mg/L	1	0.01
Total Iron		1.77	mg/L	1	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.080	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.292	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		0.0759	mg/L	1	0.05
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.182	mg/L	1	0.02

Sample: 188362 - Inj. Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC17324	Date Analyzed:	1/8/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB17046	Date Prepared:	1/8/02

Param	Flag	Result	Units	Dilution	RDL
pH	[4]	8.5	s.u.	1	1

[4] received out of holding time

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Method Blank QCBatch: QC17251

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Method Blank QCBatch: QC17280

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		10.3	µMHOS/cm	

Method Blank QCBatch: QC17283

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank QCBatch: QC17284

Param	Flag	Results	Units	Reporting Limit
Chloride		<2.0	mg/L	0.50

Method Blank QCBatch: QC17367

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Method Blank QCBatch: QC17387

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		48.6	µg/L	1	50	97	84 - 122
Toluene-d8		48.6	µg/L	1	50	97	95 - 105
4-Bromofluorobenzene		48.1	µg/L	1	50	96	91 - 108

Method Blank

QCBatch: QC17449

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Results	Units	Reporting Limit
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		34.33	mg/L	1	80	42	21 - 100
Phenol-d5		15.74	mg/L	1	80	19	11 - 94
Nitrobenzene-d5		88.13	mg/L	1	80	110	35 - 114
2-Fluorobiphenyl		90.46	mg/L	1	80	113	43 - 116
2,4,6-Tribromophenol		50.64	mg/L	1	80	63	10 - 123
Terphenyl-d14		101.21	mg/L	1	80	126	33 - 141

Method Blank

QCBatch: QC17473

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Quality Control Report
Duplicate Samples

Duplicate

QCBatch: QC17251

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		2035	1990	mg/L	1	2	8.9

Duplicate

QCBatch: QC17280

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		4494	4490	µMHOS/cm	1	0	5.9

Received by OCD: 5/16/2022 2:12:41 PM

Duplicate

QCBatch: QC17283

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	7
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	7
Bicarbonate Alkalinity		528	532	mg/L as CaCo3	1	0	7
Total Alkalinity		528	532	mg/L as CaCo3	1	0	7

Duplicate

QCBatch: QC17324

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	0.99

Duplicate

QCBatch: QC17689

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		non-corrosive	non-corrosive	mm/yr	1	0	20
pH		8.5	8.5	s.u.	1	0	20

Duplicate

QCBatch: QC17690

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		non-reactive	Non-reactive		1	0	20

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC17284

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.40	11.43	mg/L	1	12.50	<2.0	91	0	90 - 110	20
Nitrate-N	2.39	2.40	mg/L	1	2.50	<0.2	95	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC17387

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	105	107	µg/L	1	100	<1.00	105	1	92 - 129	20
Benzene	100	102	µg/L	1	100	<1.00	100	1	94 - 112	20
Trichloroethene (TCE)	105	107	µg/L	1	100	<1.00	105	1	90 - 113	20
Toluene	98	99	µg/L	1	100	<1.00	98	1	89 - 109	20
Chlorobenzene	101	104	µg/L	1	100	<1.00	101	2	93 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	48.8	48.5	µg/L	1	50	97	97	84 - 122
Toluene-d8	48.2	48.4	µg/L	1	50	96	96	95 - 105
4-Bromofluorobenzene	49.6	48.9	µg/L	1	50	99	97	91 - 108

Laboratory Control Spikes

QCBatch: QC17449

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	18.67	15.7	mg/L	1	80	<0.005	23	17	5 - 112	20
2-Chlorophenol	54.98	48.68	mg/L	1	80	<0.005	68	12	23 - 134	20
1,4-Dichlorobenzene	77.53	73.98	mg/L	1	80	<0.005	96	4	20 - 124	20
n-Nitrosodi-n-propylamine	69.29	53.43	mg/L	1	80	<0.005	86	25	0 - 230	20
1,2,4-Trichlorobenzene	88.58	87.4	mg/L	1	80	<0.005	110	1	44 - 142	20
4-Chloro-3-methylphenol	50.17	41.2	mg/L	1	80	<0.005	62	19	22 - 147	20
Acenaphthene	89.13	92.62	mg/L	1	80	<0.005	111	3	47 - 145	20
4-Nitrophenol	7.99	7.97	mg/L	1	80	<0.005	9	0	0 - 132	20
2,4-Dinitrotoluene	84.12	78.26	mg/L	1	80	<0.005	105	7	39 - 139	20
Pentachlorophenol	44.65	27.62	mg/L	1	80	<0.005	55	47	14 - 176	20
Pyrene	79.77	70.62	mg/L	1	80	<0.005	99	12	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	27.55	24.99	mg/L	1	80	34	31	21 - 100
Phenol-d5	14.57	11.59	mg/L	1	80	18	14	11 - 94
Nitrobenzene-d5	84.82	79.23	mg/L	1	80	106	99	35 - 114
2-Fluorobiphenyl	84.29	78.19	mg/L	1	80	105	97	43 - 116
2,4,6-Tribromophenol	70.76	62.61	mg/L	1	80	88	78	10 - 123
Terphenyl-d14	82.84	67.84	mg/L	1	80	103	84	33 - 141

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC17284

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	187.73	188.76	mg/L	1	125	72.0	90	0	52 - 131	20

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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1) QCBatch: QC17251

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1014	101	90 - 110	1/10/02

ICV (1) QCBatch: QC17251

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	998	99	90 - 110	1/10/02

CCV (1) QCBatch: QC17264

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.97	98	90 - 110	1/11/01
Total Arsenic		mg/L	1	1.01	101	90 - 110	1/11/01
Total Barium		mg/L	2	2.00	100	90 - 110	1/11/01
Total Beryllium		mg/L	0.05	0.0495	99	90 - 110	1/11/01
Total Boron		mg/L	0.10	0.102	102	90 - 110	1/11/01
Total Cadmium		mg/L	0.50	0.502	100	90 - 110	1/11/01
Total Chromium		mg/L	0.20	0.200	100	90 - 110	1/11/01
Total Cobalt		mg/L	0.50	0.501	100	90 - 110	1/11/01
Total Copper		mg/L	0.25	0.249	100	90 - 110	1/11/01
Total Iron		mg/L	1	1.01	101	90 - 110	1/11/01
Total Lead		mg/L	1	0.995	100	90 - 110	1/11/01
Total Manganese		mg/L	0.50	0.498	100	90 - 110	1/11/01
Total Molybdenum		mg/L	1	0.995	100	90 - 110	1/11/01
Total Nickel		mg/L	0.50	0.500	100	90 - 110	1/11/01
Total Selenium		mg/L	1	0.991	99	90 - 110	1/11/01
Total Silver		mg/L	0.25	0.247	99	90 - 110	1/11/01
Total Uranium		mg/L	1	1.03	103	90 - 110	1/11/01
Total Vanadium		mg/L	0.50	0.493	99	90 - 110	1/11/01
Total Zinc		mg/L	0.50	0.508	102	90 - 110	1/11/01

ICV (1) QCBatch: QC17264

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	2	1.97	98	90 - 110	1/11/01
Total Arsenic		mg/L	1	1.02	102	90 - 110	1/11/01
Total Barium		mg/L	2	2.01	100	90 - 110	1/11/01
Total Beryllium		mg/L	0.05	0.050	100	90 - 110	1/11/01
Total Boron		mg/L	0.10	0.104	104	90 - 110	1/11/01
Total Cadmium		mg/L	0.50	0.504	101	90 - 110	1/11/01
Total Chromium		mg/L	0.20	0.202	101	90 - 110	1/11/01
Total Cobalt		mg/L	0.50	0.507	101	90 - 110	1/11/01
Total Copper		mg/L	0.25	0.250	100	90 - 110	1/11/01
Total Iron		mg/L	1	1.01	101	90 - 110	1/11/01
Total Lead		mg/L	1	1.01	101	90 - 110	1/11/01
Total Manganese		mg/L	0.50	0.503	101	90 - 110	1/11/01
Total Molybdenum		mg/L	1	1.01	101	90 - 110	1/11/01
Total Nickel		mg/L	0.50	0.504	101	90 - 110	1/11/01
Total Selenium		mg/L	1	1.01	101	90 - 110	1/11/01
Total Silver		mg/L	0.25	0.250	100	90 - 110	1/11/01
Total Uranium		mg/L	1	1.01	101	90 - 110	1/11/01
Total Vanadium		mg/L	0.50	0.500	100	90 - 110	1/11/01
Total Zinc		mg/L	0.50	0.502	100	90 - 110	1/11/01

CCV (1) QCBatch: QC17280

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1447	102	90 - 110	1/9/02

ICV (1) QCBatch: QC17280

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1400	1449	103	90 - 110	1/9/02

CCV (1) QCBatch: QC17283

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	1/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	224	0	90 - 110	1/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	12	0	90 - 110	1/10/02
Total Alkalinity		mg/L as CaCo3	250	236	94	90 - 110	1/10/02

ICV (1) QCBatch: QC17283

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	1/10/02
Carbonate Alkalinity		mg/L as CaCo3	0	236	0	90 - 110	1/10/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	1/10/02
Total Alkalinity		mg/L as CaCo3	250	242	96	90 - 110	1/10/02

CCV (1) QCBatch: QC17284

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.44	91	90 - 110	1/8/02
Nitrate-N		mg/L	2.50	2.39	95	90 - 110	1/8/02

ICV (1) QCBatch: QC17284

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.31	90	90 - 110	1/8/02
Nitrate-N		mg/L	2.50	2.37	94	90 - 110	1/8/02

CCV (1) QCBatch: QC17324

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	1/8/02

ICV (1) QCBatch: QC17324

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	1/8/02

CCV (1) QCBatch: QC17367

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	27.2	108	90 - 110	1/14/02
Dissolved Magnesium		mg/L	25	27.5	110	90 - 110	1/14/02
Dissolved Potassium		mg/L	25	23.5	94	90 - 110	1/14/02

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Sodium		mg/L	25	26.1	104	90 - 110	1/14/02

ICV (1)

QCBatch: QC17367

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	25.6	102	95 - 105	1/14/02
Dissolved Magnesium		mg/L	25	25.4	101	95 - 105	1/14/02
Dissolved Potassium		mg/L	25	25.7	102	95 - 105	1/14/02
Dissolved Sodium		mg/L	25	25.8	103	95 - 105	1/14/02

CCV (1)

QCBatch: QC17387

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	86	86	80 - 120	1/7/02
1,1-Dichloroethene		µg/L	100	100	100	80 - 120	1/7/02
Chloroform		µg/L	100	96	96	80 - 120	1/7/02
1,2-Dichloropropane		µg/L	100	96	96	80 - 120	1/7/02
Toluene		µg/L	100	98	98	80 - 120	1/7/02
Chlorobenzene		µg/L	100	100	100	80 - 120	1/7/02
Ethylbenzene		µg/L	100	99	99	80 - 120	1/7/02
Dibromofluoromethane		µg/L	50	48.8	97	80 - 120	1/7/02
Toluene-d8		µg/L	50	47.9	95	80 - 120	1/7/02
4-Bromofluorobenzene		µg/L	50	51.7	103	80 - 120	1/7/02

CCV (1)

QCBatch: QC17449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	58.4	97	80 - 120	1/10/02
1,4-Dichlorobenzene		mg/L	60	61.28	102	80 - 120	1/10/02
2-Nitrophenol		mg/L	60	50.66	84	80 - 120	1/10/02
2,4-Dichlorophenol		mg/L	60	59.77	99	80 - 120	1/10/02
Hexachlorobutadiene		mg/L	60	67.23	112	80 - 120	1/10/02
4-Chloro-3-methylphenol		mg/L	60	57.54	95	80 - 120	1/10/02
2,4,6-Trichlorophenol		mg/L	60	63.18	105	80 - 120	1/10/02
Acenaphthene		mg/L	60	63.72	106	80 - 120	1/10/02
Diphenylamine		mg/L	60	60.31	100	80 - 120	1/10/02
Pentachlorophenol		mg/L	60	64.31	107	80 - 120	1/10/02
Fluoranthene		mg/L	60	63.95	106	80 - 120	1/10/02
Di-n-octylphthalate		mg/L	60	57.07	95	80 - 120	1/10/02
Benzo(a)pyrene		mg/L	60	53.49	89	80 - 120	1/10/02

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
2-Fluorophenol		mg/L	60	62.05	103	80 - 120	1/10/02
Phenol-d5		mg/L	60	59.75	99	80 - 120	1/10/02
Nitrobenzene-d5		mg/L	60	65.33	108	80 - 120	1/10/02
2-Fluorobiphenyl		mg/L	60	71.3	118	80 - 120	1/10/02
2,4,6-Tribromophenol		mg/L	60	66.34	110	80 - 120	1/10/02
Terphenyl-d14		mg/L	60	71.42	119	80 - 120	1/10/02

CCV (1)

QCBatch: QC17473

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00091	91	80 - 120	1/17/02

ICV (1)

QCBatch: QC17473

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00099	99	80 - 120	1/17/02

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Page_____of_____

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TraceAnalysis, Inc.

155 McCutcheon,Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 102010402

Company Name: NAVASO Phone #:

Address: (Street, City, Zip) Fax #:

Contact Person: Darrell Moore

Invoice to: (If different from above)

Project #: Project Name: Inj. wells

Project Location: Artesia Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
188362	Inj. Wells	2	1L	X								X	X	1/3/02	900
	" "	1	500ml	X					X			X		1/3/02	900
	" "	2	40ml	X				X				X		1/3/02	900

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See L-57

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	1/3/02	615			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Beasley	Date: 1-4-01	Time: 10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact Y N
Headspace Y / N
Temp 1 °
Log-in Review MS

REMARKS:
1/31P
☐ Check If Special Reporting Limits Are Needed

Carrier # Fed Ex 3462642211

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Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max. Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max. Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Oct-01	236	350	0	262	393	0	8982	13474	0	197	269	140	278,442
Nov-01	223	363	0	214	649	0	7337	22251	0	192	414	110	220,110
Dec-01	500	500	111	219	647	0	7508	22182	0	239	499	108	232,748

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max. Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max. Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Oct-01	71	299	0	45	647	0	1542	22182	0	161	466	22	47,802
Nov-01	93	336	0	52	647	0	1782	22182	0	146	448	15	53,460
Dec-01	462	500	44	155	647	0	5314	22182	0	225	339	160	164,734

NAVAJO REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXEC/MKTG
(505) 746-5421 ENGINEERING
(505) 746-5480 PIPELINE

September 3, 2002

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 2nd quarter of 2002 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from April 1, 2002 to June 30, 2002. We have disposed a total of 10,376,491 bbls. of fluid into the two wells as of December 31, 2001. This is broken down as follows: 7,902,016 bbls. into WDW-1 and 2,474,475 bbls. into WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: August 29, 2002

Order ID Number: A02071026

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
201170	Inj Wells	Water	7/9/02	9:00	7/10/02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed. Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 20 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Received by OCD: 5/16/2022 2:12:41 PM

Analytical Report

Sample: 201170 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC21973	Date Analyzed:	7/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20783	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		90	mg/L as CaCo3	1	1
Total Alkalinity		90	mg/L as CaCo3	1	1

Sample: 201170 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC21780	Date Analyzed:	7/11/02
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB20631	Date Prepared:	7/11/02

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5830	μMHOS/cm	1	

Sample: 201170 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC21915	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:		Prep Batch:	PB20741	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		0.4970 non-corrosive	mm/yr	1	
pH		7.57	s.u.	1	

Sample: 201170 - Inj Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC21917	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB20743	Date Prepared:	7/16/02

Param	Flag	Result	Units	Dilution	RDL
Flashpoint		>140	F	1	

Sample: 201170 - Inj Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC22023	Date Analyzed:	7/19/02
Analyst:	BC	Preparation Method:	N/A	Prep Batch:	PB20842	Date Prepared:	7/19/02

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 201170 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC21914	Date Analyzed:	7/16/02
Analyst:	BC	Preparation Method:		Prep Batch:	PB20740	Date Prepared:	7/16/02

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: August 29, 2002 Order Number: A02071026 Page Number: 3 of 20
N/A Injection Wells N/A

Param	Flag	Result	Units	Dilution	RDL

Sample: 201170 - Inj Wells

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC21805 Date Analyzed: 7/10/02
Analyst: JSW Preparation Method: N/A Prep Batch: PB20648 Date Prepared: 7/10/02

Param	Flag	Result	Units	Dilution	RDL
Chloride		1090	mg/L	100	1
Nitrate-N		<0.2	mg/L	5	0.20
Sulfate		934	mg/L	100	1

Sample: 201170 - Inj Wells

Analysis: Reactivity Analytical Method: ASTM D 5049-90/4978-95 QC Batch: QC21916 Date Analyzed: 7/16/02
Analyst: BC Preparation Method: Prep Batch: PB20742 Date Prepared: 7/16/02

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10	mg/L	1	
Hydrogen Cyanide		<2.5	mg/L	1	

Sample: 201170 - Inj Wells

Analysis: Salts Analytical Method: E 200.7 QC Batch: QC22163 Date Analyzed: 7/22/02
Analyst: BC Preparation Method: S 3005A Prep Batch: PB20704 Date Prepared: 7/15/02

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		170	mg/L	1	0.50
Dissolved Magnesium		31.7	mg/L	1	0.50
Dissolved Potassium		19.3	mg/L	1	0.50
Dissolved Sodium		691	mg/L	1	0.50

Sample: 201170 - Inj Wells

Analysis: Semivolatiles Analytical Method: S 8270C QC Batch: QC22072 Date Analyzed: 7/16/02
Analyst: RC Preparation Method: E 3510C Prep Batch: PB20791 Date Prepared: 7/15/02

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.017	mg/L	3.33	0.005
n-Nitrosodimethylamine		<0.017	mg/L	3.33	0.005
2-Picoline		<0.017	mg/L	3.33	0.005
Methyl methanesulfonate		<0.017	mg/L	3.33	0.005
Ethyl methanesulfonate		<0.017	mg/L	3.33	0.005
Phenol		<0.017	mg/L	3.33	0.005
Aniline		<0.017	mg/L	3.33	0.005
bis (2-chloroethyl) ether		<0.017	mg/L	3.33	0.005
2-Chlorophenol		<0.017	mg/L	3.33	0.005
1,3-Dichlorobenzene (meta)		<0.017	mg/L	3.33	0.005
1,4-Dichlorobenzene		<0.017	mg/L	3.33	0.005
Benzyl alcohol		<0.017	mg/L	3.33	0.005

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Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 201170 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
1,2-Dichlorobenzene		<0.017	mg/L	3.33	0.005
2-Methylphenol		<0.017	mg/L	3.33	0.005
bis (2-chloroisopropyl) ether		<0.017	mg/L	3.33	0.005
4-Methylphenol/3-Methylphenol		<0.017	mg/L	3.33	0.005
Acetophenone		<0.017	mg/L	3.33	0.005
n-Nitrosodi-n-propylamine		<0.017	mg/L	3.33	0.005
Hexachloroethane		<0.017	mg/L	3.33	0.005
Nitrobenzene		<0.017	mg/L	3.33	0.005
n-Nitrosopiperidine		<0.017	mg/L	3.33	0.005
Isophorone		<0.017	mg/L	3.33	0.005
2-Nitrophenol		<0.017	mg/L	3.33	0.005
2,4-Dimethylphenol		<0.017	mg/L	3.33	0.005
bis (2-chloroethoxy) methane		<0.017	mg/L	3.33	0.005
Benzoic acid		<0.017	mg/L	3.33	0.005
2,4-Dichlorophenol		<0.017	mg/L	3.33	0.005
1,2,4-Trichlorobenzene		<0.017	mg/L	3.33	0.005
a,a-Dimethylphenethylamine		<0.017	mg/L	3.33	0.005
Naphthalene		<0.017	mg/L	3.33	0.005
4-Chloroaniline		<0.017	mg/L	3.33	0.005
2,6-Dichlorophenol		<0.017	mg/L	3.33	0.005
Hexachlorobutadiene		<0.017	mg/L	3.33	0.005
n-Nitroso-di-n-butylamine		<0.017	mg/L	3.33	0.005
4-Chloro-3-methylphenol		<0.017	mg/L	3.33	0.005
1-Methylnaphthalene		<0.017	mg/L	3.33	0.005
2-Methylnaphthalene		<0.017	mg/L	3.33	0.005
1,2,4,5-Tetrachlorobenzene		<0.017	mg/L	3.33	0.005
Hexachlorocyclopentadiene		<0.017	mg/L	3.33	0.005
2,4,6-Trichlorophenol		<0.017	mg/L	3.33	0.005
2,4,5-Trichlorophenol		<0.017	mg/L	3.33	0.005
2-Chloronaphthalene		<0.017	mg/L	3.33	0.005
1-Chloronaphthalene		<0.017	mg/L	3.33	0.005
2-Nitroaniline		<0.017	mg/L	3.33	0.005
Dimethylphthalate		<0.017	mg/L	3.33	0.005
Acenaphthylene		<0.017	mg/L	3.33	0.005
2,6-Dinitrotoluene		<0.017	mg/L	3.33	0.005
3-Nitroaniline		<0.017	mg/L	3.33	0.005
Acenaphthene		<0.017	mg/L	3.33	0.005
2,4-Dinitrophenol		<0.017	mg/L	3.33	0.005
Dibenzofuran		<0.017	mg/L	3.33	0.005
Pentachlorobenzene		<0.017	mg/L	3.33	0.005
4-Nitrophenol		<0.017	mg/L	3.33	0.005
1-Naphthylamine		<0.017	mg/L	3.33	0.005
2,4-Dinitrotoluene		<0.017	mg/L	3.33	0.005
2-Naphthylamine		<0.017	mg/L	3.33	0.005
2,3,4,6-Tetrachlorophenol		<0.017	mg/L	3.33	0.005
Fluorene		<0.017	mg/L	3.33	0.005
Diethylphthalate		<0.017	mg/L	3.33	0.005
4-Chlorophenyl-phenylether		<0.017	mg/L	3.33	0.005
4-Nitroaniline		<0.017	mg/L	3.33	0.005
4,6-Dinitro-2-methylphenol		<0.017	mg/L	3.33	0.005
Diphenylamine		<0.017	mg/L	3.33	0.005
Diphenylhydrazine		<0.017	mg/L	3.33	0.005
4-Bromophenyl-phenylether		<0.017	mg/L	3.33	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 201170 Analysis: Semivolatiles

Param	Flag	Result	Units	Dilution	RDL
Phenacetin		<0.017	mg/L	3.33	0.005
Hexachlorobenzene		<0.017	mg/L	3.33	0.005
4-Aminobiphenyl		<0.017	mg/L	3.33	0.005
Pentachlorophenol		<0.017	mg/L	3.33	0.005
Pentachloronitrobenzene		<0.017	mg/L	3.33	0.005
Pronamide		<0.017	mg/L	3.33	0.005
Phenanthrene		<0.017	mg/L	3.33	0.005
Anthracene		<0.017	mg/L	3.33	0.005
Di-n-butylphthalate		<0.017	mg/L	3.33	0.005
Fluoranthene		<0.017	mg/L	3.33	0.005
Benzidine		<0.017	mg/L	3.33	0.005
Pyrene		<0.017	mg/L	3.33	0.005
p-Dimethylaminoazobenzene		<0.017	mg/L	3.33	0.005
Butylbenzylphthalate		<0.017	mg/L	3.33	0.005
Benzo(a)anthracene		<0.017	mg/L	3.33	0.005
3,3-Dichlorobenzidine		<0.017	mg/L	3.33	0.005
Chrysene		<0.017	mg/L	3.33	0.005
Bis (2-ethylhexyl) phthalate		<0.017	mg/L	3.33	0.005
Di-n-octylphthalate		<0.017	mg/L	3.33	0.005
Benzo(b)fluoranthene		<0.017	mg/L	3.33	0.005
7,12-Dimethylbenz(a)anthracene		<0.017	mg/L	3.33	0.005
Benzo(k)fluoranthene		<0.017	mg/L	3.33	0.005
Benzo(a)pyrene		<0.017	mg/L	3.33	0.005
3-Methylcholanthrene		<0.017	mg/L	3.33	0.005
Dibenzo(a,j)acridine		<0.017	mg/L	3.33	0.005
Indeno(1,2,3-cd)pyrene		<0.017	mg/L	3.33	0.005
Dibenzo(a,h)anthracene		<0.017	mg/L	3.33	0.005
Benzo(g,h,i)perylene		<0.017	mg/L	3.33	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		26.51	mg/L	3.33	80	33	0 - 66
Phenol-d5		25.68	mg/L	3.33	80	32	0 - 70
Nitrobenzene-d5		63.42	mg/L	3.33	80	79	23 - 99
2-Fluorobiphenyl		52.98	mg/L	3.33	80	66	27 - 95
2,4,6-Tribromophenol		47.99	mg/L	3.33	80	59	0 - 199
Terphenyl-d14		57.69	mg/L	3.33	80	72	20 - 96

Sample: 201170 - Inj Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC21968	Date Analyzed:	7/16/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20788	Date Prepared:	7/15/02

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2920	mg/L	5	10

Sample: 201170 - Inj Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC21824	Date Analyzed:	7/12/02
Analyst:	RR	Preparation Method:	S 3010A	Prep Batch:	PB20632	Date Prepared:	7/11/02

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.347	mg/L	1	0.10
Total Arsenic		0.142	mg/L	1	0.01
Total Barium		<0.100	mg/L	1	0.10
Total Beryllium		<0.0025	mg/L	1	0.0025
Total Boron		0.285	mg/L	10	0.005
Total Cadmium		<0.005	mg/L	1	0.005
Total Chromium		<0.010	mg/L	1	0.01
Total Cobalt		<0.025	mg/L	1	0.02
Total Copper		<0.0125	mg/L	1	0.01
Total Iron		4.08	mg/L	10	0.05
Total Lead		<0.010	mg/L	1	0.01
Total Manganese		0.124	mg/L	1	0.02
Total Molybdenum		<0.050	mg/L	1	0.05
Total Nickel		<0.025	mg/L	1	0.02
Total Selenium		0.422	mg/L	1	0.05
Total Silver		<0.0125	mg/L	1	0.01
Total Uranium		<0.020	mg/L	1	0.02
Total Vanadium		<0.025	mg/L	1	0.02
Total Zinc		0.316	mg/L	1	0.02

Sample: 201170 - Inj Wells

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC22002	Date Analyzed:	7/17/02
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB20818	Date Prepared:	7/17/02

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<5.00	µg/L	5	1
Dichlorodifluoromethane		<5.00	µg/L	5	1
Chloromethane (methyl chloride)		<5.00	µg/L	5	1
Vinyl Chloride		<5.00	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	5
Chloroethane		<5.00	µg/L	5	1
Trichlorofluoromethane		<5.00	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<25.0	µg/L	5	5
Carbon Disulfide		<5.00	µg/L	5	1
Acrylonitrile		<5.00	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<25.0	µg/L	5	5
trans 1,4-Dichloro-2-butene		<50.0	µg/L	5	10
1,1-Dichloroethene		<5.00	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<5.00	µg/L	5	1
trans-1,2-Dichloroethene		<5.00	µg/L	5	1
1,1-Dichloroethane		<5.00	µg/L	5	1
cis-1,2-Dichloroethene		<5.00	µg/L	5	1
2,2-Dichloropropane		<5.00	µg/L	5	1
1,2-Dichloroethane (EDC)		<5.00	µg/L	5	1
Chloroform		<5.00	µg/L	5	1
1,1,1-Trichloroethane		<5.00	µg/L	5	1
1,1-Dichloropropene		<5.00	µg/L	5	1
Benzene		<5.00	µg/L	5	1

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

... *Continued* Sample: 201170 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
Carbon Tetrachloride		<5.00	µg/L	5	1
1,2-Dichloropropane		<5.00	µg/L	5	1
Trichloroethene (TCE)		<5.00	µg/L	5	1
Dibromomethane (methylene bromide)		<5.00	µg/L	5	1
Bromodichloromethane		<5.00	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<5.00	µg/L	5	1
trans-1,3-Dichloropropene		<5.00	µg/L	5	1
Toluene		<5.00	µg/L	5	1
1,1,2-Trichloroethane		<5.00	µg/L	5	1
1,3-Dichloropropane		<5.00	µg/L	5	1
Dibromochloromethane		<5.00	µg/L	5	1
1,2-Dibromoethane (EDB)		<5.00	µg/L	5	1
Tetrachloroethene (PCE)		<5.00	µg/L	5	1
Chlorobenzene		<5.00	µg/L	5	1
1,1,1,2-Tetrachloroethane		<5.00	µg/L	5	1
Ethylbenzene		<5.00	µg/L	5	1
m,p-Xylene		<5.00	µg/L	5	1
Bromoform		<5.00	µg/L	5	1
Styrene		<5.00	µg/L	5	1
o-Xylene		<5.00	µg/L	5	1
1,1,2,2-Tetrachloroethane		<5.00	µg/L	5	1
2-Chlorotoluene		<5.00	µg/L	5	1
1,2,3-Trichloropropane		<5.00	µg/L	5	1
Isopropylbenzene		<5.00	µg/L	5	1
Bromobenzene		<5.00	µg/L	5	1
n-Propylbenzene		<5.00	µg/L	5	1
1,3,5-Trimethylbenzene		<5.00	µg/L	5	1
tert-Butylbenzene		<5.00	µg/L	5	1
1,2,4-Trimethylbenzene		<5.00	µg/L	5	1
1,4-Dichlorobenzene (para)		<5.00	µg/L	5	1
sec-Butylbenzene		<5.00	µg/L	5	1
1,3-Dichlorobenzene (meta)		<5.00	µg/L	5	1
p-Isopropyltoluene		<5.00	µg/L	5	1
4-Chlorotoluene		<5.00	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<5.00	µg/L	5	1
n-Butylbenzene		<5.00	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		<25.0	µg/L	5	5
Hexachlorobutadiene		<25.0	µg/L	5	5
Test Comments	[1]	note:	µg/L	1	

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		51.6	µg/L	5	50	103	77 - 122
Toluene-d8		54.9	µg/L	5	50	109	96 - 111
4-Bromofluorobenzene		45.9	µg/L	5	50	91	87 - 113

[1] elevated reporting limits due to matrix problems.

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Sample: 201170 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC21883	Date Analyzed:	7/10/02
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB20720	Date Prepared:	7/10/02

Param	Flag	Result	Units	Dilution	RDL
pH		7.2	s.u.	1	1

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Quality Control Report
Method Blank

Method Blank

QCBatch: QC21780

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		3.32	µMHOS/cm	

Method Blank

QCBatch: QC21805

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1
Nitrate-N		<0.2	mg/L	0.20
Sulfate		<1.0	mg/L	1

Method Blank

QCBatch: QC21824

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.100	mg/L	0.10
Total Arsenic		<0.050	mg/L	0.01
Total Barium		<0.100	mg/L	0.10
Total Beryllium		<0.0025	mg/L	0.0025
Total Boron		<0.005	mg/L	0.005
Total Cadmium		<0.005	mg/L	0.005
Total Chromium		<0.010	mg/L	0.01
Total Cobalt		<0.025	mg/L	0.02
Total Copper		<0.0125	mg/L	0.01
Total Iron		<0.050	mg/L	0.05
Total Lead		<0.010	mg/L	0.01
Total Manganese		<0.025	mg/L	0.02
Total Molybdenum		<0.050	mg/L	0.05
Total Nickel		<0.025	mg/L	0.02
Total Selenium		<0.050	mg/L	0.05
Total Silver		<0.0125	mg/L	0.01
Total Uranium		<0.020	mg/L	0.02
Total Vanadium		<0.025	mg/L	0.02
Total Zinc		<0.025	mg/L	0.02

Method Blank

QCBatch: QC21968

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Released to Imaging: 7/12/2024 10:49:45 AM

Method Blank QCBatch: QC21973

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Method Blank QCBatch: QC22002

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	µg/L	1
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1

Continued ...

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Param	Flag	Results	Units	Reporting Limit
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.7	µg/L	1	50	101	77 - 122
Toluene-d8		54.7	µg/L	1	50	109	96 - 111
4-Bromofluorobenzene		43.4	µg/L	1	50	86	87 - 113

Method Blank

QCBatch: QC22023

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Method Blank

QCBatch: QC22072

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005

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Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene (meta)		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		26.07	mg/L	1	80	32	0 - 66
Phenol-d5		25.47	mg/L	1	80	31	0 - 70
Nitrobenzene-d5		67.96	mg/L	1	80	84	23 - 99
2-Fluorobiphenyl		65.91	mg/L	1	80	82	27 - 95
2,4,6-Tribromophenol		38.44	mg/L	1	80	48	0 - 199
Terphenyl-d14		74.16	mg/L	1	80	92	20 - 96

Released to Imaging: 7/12/2024 10:49:45 AM

Method Blank QCBatch: QC22163

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.5	mg/L	0.50
Dissolved Magnesium		<0.5	mg/L	0.50
Dissolved Potassium		<0.5	mg/L	0.50
Dissolved Sodium		<0.5	mg/L	0.50

Quality Control Report
Duplicate Samples

Duplicate QCBatch: QC21780

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		5830	5830	µMHOS/cm	1	0	20

Duplicate QCBatch: QC21883

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		9.2	9.2	s.u.	1	0	0

Duplicate QCBatch: QC21915

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		0.7441 non-corrosive	0.4970 non-corrosive	mm/yr	1	39	20
pH		7.57	7.57	s.u.	1	0	0

Duplicate QCBatch: QC21916

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Reactivity		non-reactive	Non-reactive		1	0	20

Duplicate QCBatch: QC21917

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Flashpoint		>140	>140	F	1	0	20

Received by OCD: 5/16/2022 2:12:41 PM

Duplicate QCBatch: QC21968

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		3230	2920	mg/L	1	10	9.7

Duplicate QCBatch: QC21973

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	9.2
Bicarbonate Alkalinity		212	208	mg/L as CaCo3	1	1	9.2
Total Alkalinity		212	208	mg/L as CaCo3	1	1	9.2

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC21805

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	11.78	11.16	mg/L	1	12.50	<1.0	94	5	90 - 110	20
Nitrate-N	2.33	2.34	mg/L	1	2.50	<0.2	93	0	90 - 110	20
Sulfate	11.6	11.57	mg/L	1	12.50	<1.0	92	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes QCBatch: QC22002

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	110	111	µg/L	1	100	<1.00	110	0	84 - 124	20
Benzene	100	101	µg/L	1	100	<1.00	100	0	87 - 112	20
Trichloroethene (TCE)	91	92	µg/L	1	100	<1.00	91	1	81 - 105	20
Toluene	98	98	µg/L	1	100	<1.00	98	0	90 - 108	20
Chlorobenzene	98	97	µg/L	1	100	<1.00	98	1	84 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	50.4	50.0	µg/L	1	50	100	100	77 - 122
Toluene-d8	53.3	52.4	µg/L	1	50	106	104	96 - 111
4-Bromofluorobenzene	46.3	44.6	µg/L	1	50	92	89	87 - 113

Laboratory Control Spikes QCBatch: QC22023

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00116	0.00115	mg/L	1	0.001	<0.0002	116	0	87 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC22072

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Phenol	33.00	30.27	mg/L	1	80	<0.005	41	8	0 - 81	20
2-Chlorophenol	62.6	59.26	mg/L	1	80	<0.005	78	5	12 - 83	20
1,4-Dichlorobenzene	72.36	66.83	mg/L	1	80	<0.005	90	7	13 - 88	20
n-Nitrosodi-n-propylamine	76.72	72.71	mg/L	1	80	<0.005	95	5	9 - 101	20
1,2,4-Trichlorobenzene	69.72	67.82	mg/L	1	80	<0.005	87	2	21 - 87	20
4-Chloro-3-methylphenol	62.44	63.16	mg/L	1	80	<0.005	78	1	14 - 92	20
Acenaphthene	66.04	63.46	mg/L	1	80	<0.005	82	3	26 - 86	20
4-Nitrophenol	23.40	27.78	mg/L	1	80	<0.005	29	17	0 - 104	20
2,4-Dinitrotoluene	73.07	79.28	mg/L	1	80	<0.005	91	8	29 - 94	20
Pentachlorophenol	[2] 43.16	54.00	mg/L	1	80	<0.005	53	22	1 - 97	20
Pyrene	73.53	66.03	mg/L	1	80	<0.005	91	10	25 - 90	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
2-Fluorophenol	41.00	39.53	mg/L	1	80	51	49	0 - 66
Phenol-d5	27.97	26.74	mg/L	1	80	34	33	0 - 70
Nitrobenzene-d5	59.2	58.00	mg/L	1	80	74	72	23 - 99
2-Fluorobiphenyl	57.39	54.89	mg/L	1	80	71	68	27 - 95
2,4,6-Tribromophenol	53.32	58.67	mg/L	1	80	66	73	0 - 199
Terphenyl-d14	64.51	59.09	mg/L	1	80	80	73	20 - 96

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC21805

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	2210	2200	mg/L	1	1250		89	0	48 - 127	20
Chloride	2210	2200	mg/L	1	1250	1090	89	0	48 - 127	20
Nitrate-N	243	235	mg/L	1	250		97	3	87 - 100	20
Nitrate-N	243	235	mg/L	1	250	<0.2	97	3	87 - 100	20
Sulfate	2090	2090	mg/L	1	1250		92	0	59 - 121	20
Sulfate	2090	2090	mg/L	1	1250	934	92	0	59 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[2]Irradic recovery of penta chlorophenol other analytes show process is in control.

Released to Imaging: 7/12/2024 10:49:45 AM

Matrix Spikes

QCBatch: QC22023

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Total Mercury	0.00104	0.00105	mg/L	1	0.001	<0.0002	104	0	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC21780

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1412	1385	98	90 - 110	7/11/02

ICV (1)

QCBatch: QC21780

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		µMHOS/cm	1409	1400	99	90 - 110	7/11/02

CCV (1)

QCBatch: QC21805

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.74	93	90 - 110	7/10/02
Nitrate-N		mg/L	2.50	2.33	93	90 - 110	7/10/02
Sulfate		mg/L	12.50	11.49	91	90 - 110	7/10/02

ICV (1)

QCBatch: QC21805

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	11.89	95	90 - 110	7/10/02
Nitrate-N		mg/L	2.50	2.34	93	90 - 110	7/10/02
Sulfate		mg/L	12.50	11.69	93	90 - 110	7/10/02

CCV (1) QCBatch: QC21824

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	0.25	0.246	98	90 - 110	7/12/02
Total Zinc		mg/L	0.50	0.498	99	90 - 110	7/12/02

ICV (1) QCBatch: QC21824

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	0.25	0.248	99	95 - 105	7/12/02
Total Zinc		mg/L	0.50	0.500	100	95 - 105	7/12/02

CCV (1) QCBatch: QC21883

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	7/10/02

ICV (1) QCBatch: QC21883

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	-0.1 s.u. - +0.1 s.u.	7/10/02

CCV (1) QCBatch: QC21968

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	965	96	90 - 110	7/16/02

ICV (1) QCBatch: QC21968

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1029	102	90 - 110	7/16/02

Received by OCD: 5/16/2022 2:12:41 PM

CCV (1) QCBatch: QC21973

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	7/16/02
Carbonate Alkalinity		mg/L as CaCo3	0	228	0	90 - 110	7/16/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	8	0	90 - 110	7/16/02
Total Alkalinity		mg/L as CaCo3	250	236	94	90 - 110	7/16/02

ICV (1) QCBatch: QC21973

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	90 - 110	7/16/02
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	90 - 110	7/16/02
Bicarbonate Alkalinity		mg/L as CaCo3	0	6	0	90 - 110	7/16/02
Total Alkalinity		mg/L as CaCo3	250	238	95	90 - 110	7/16/02

CCV (1) QCBatch: QC22002

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50	51	102	80 - 120	7/17/02
1,1-Dichloroethene		µg/L	50	50	100	80 - 120	7/17/02
Chloroform		µg/L	50	50	100	80 - 120	7/17/02
1,2-Dichloropropane		µg/L	50	52	104	80 - 120	7/17/02
Toluene		µg/L	50	50	100	80 - 120	7/17/02
Chlorobenzene		µg/L	50	50	100	80 - 120	7/17/02
Ethylbenzene		µg/L	50	51	102	80 - 120	7/17/02
Dibromofluoromethane		µg/L	50	49.9	99	80 - 120	7/17/02
Toluene-d8		µg/L	50	52.0	104	80 - 120	7/17/02
4-Bromofluorobenzene		µg/L	50	50.9	101	80 - 120	7/17/02

CCV (1) QCBatch: QC22023

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00105	105	80 - 120	7/19/02

ICV (1) QCBatch: QC22023

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: August 29, 2002 Order Number: A02071026 Page Number: 20 of 20
N/A Injection Wells N/A

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00095	95	80 - 120	7/19/02

CCV (1) QCBatch: QC22072

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	58.5	97	80 - 120	7/16/02
1,4-Dichlorobenzene		mg/L	60	59.73	99	80 - 120	7/16/02
2-Nitrophenol		mg/L	60	62.14	103	80 - 120	7/16/02
2,4-Dichlorophenol		mg/L	60	61.05	101	80 - 120	7/16/02
Hexachlorobutadiene		mg/L	60	60.03	100	80 - 120	7/16/02
4-Chloro-3-methylphenol		mg/L	60	60.24	100	80 - 120	7/16/02
2,4,6-Trichlorophenol		mg/L	60	57.57	95	80 - 120	7/16/02
Acenaphthene		mg/L	60	59.24	98	80 - 120	7/16/02
Diphenylamine		mg/L	60	60.37	100	80 - 120	7/16/02
Pentachlorophenol		mg/L	60	51.44	85	80 - 120	7/16/02
Fluoranthene		mg/L	60	60.02	100	80 - 120	7/16/02
Di-n-octylphthalate		mg/L	60	60.12	100	80 - 120	7/16/02
Benzo(a)pyrene		mg/L	60	59.34	98	80 - 120	7/16/02
2-Fluorophenol		mg/L	60	58.33	97	80 - 120	7/16/02
Phenol-d5		mg/L	60	57.94	96	80 - 120	7/16/02
Nitrobenzene-d5		mg/L	60	60.01	100	80 - 120	7/16/02
2-Fluorobiphenyl		mg/L	60	59.77	99	80 - 120	7/16/02
2,4,6-Tribromophenol		mg/L	60	58.63	97	80 - 120	7/16/02
Terphenyl-d14		mg/L	60	58.81	98	80 - 120	7/16/02

CCV (1) QCBatch: QC22163

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	26.0	104	90 - 110	7/22/02
Dissolved Magnesium		mg/L	25	25.6	102	90 - 110	7/22/02
Dissolved Potassium		mg/L	25	24.0	96	90 - 110	7/22/02
Dissolved Sodium		mg/L	25	25.5	102	90 - 110	7/22/02

ICV (1) QCBatch: QC22163

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25	26.0	104	95 - 105	7/22/02
Dissolved Magnesium		mg/L	25	25.7	102	95 - 105	7/22/02
Dissolved Potassium		mg/L	25	25.0	100	95 - 105	7/22/02
Dissolved Sodium		mg/L	25	26.2	104	95 - 105	7/22/02

Navajo REFINING COMPANY

FAX
(505) 746-5283 DIV. ORDERS
(505) 746-5481 TRUCKING
(505) 746-5458 PERSONNEL

501 EAST MAIN STREET • P.O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (505) 748-3311

FAX
(505) 746-5419 ACCOUNTING
(505) 746-5451 EXECUTIVE
(505) 746-5421 ENGINEERING
(505) 746-5480 P / L

OIL CONSERVATION DIV.
01 JUL 27 PM 1:26

July 3, 2001

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results for the 1st quarter of 2001 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 2000 to March 30, 2001. Due to an oversight on our part, quarterly samples for the 4th quarter of 2000 were not collected. Samples for the 2nd quarter of 2001 have been collected and those results will be forwarded as soon as we receive them.

We have disposed a total of 6,619,428 bbls. of fluid down the two wells as of March 31, 2001. This is broken down as follows: 5,145,012 bbls. down WDW-1 and 1,474,416 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Received by OCD: 5/16/2022 2:12:41 PM

Sent By: TRACEANALYSIS; 7941298; 29 Jun'01 11:14; Job 696;Page 1/6
To: NAVAJO At: 15057465421

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 1 of 5
N/A Injection Wells N/A

Summary Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: June 29, 2001

Order ID Number: A01040410

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
168299	Injection Wells	Water	4/3/01	10:10	4/4/01

This report consists of a total of 5 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 168299 - Injection Wells

Param	Flag	Result	Units
Bromochloromethane		<5.00	µg/L
Dichlorodifluoromethane		<5.00	µg/L
Chloromethane (methyl chloride)		<5.00	µg/L
Vinyl Chloride		<5.00	µg/L
Bromomethane (methyl bromide)		<5.00	µg/L
Chloroethane		<5.00	µg/L
Trichlorofluoromethane		<5.00	µg/L
Acetone	1	74.3	µg/L
Iodomethane (methyl iodide)		<5.00	µg/L
Carbon Disulfide		<5.00	µg/L
Acrylonitrile		<5.00	µg/L
2-Butanone (MEK)		<25.0	µg/L
4-methyl-2-pentanone (MIBK)		<25.0	µg/L
2-hexanone		<25.0	µg/L
trans 1,4-Dichloro-2-butene		<50.0	µg/L
1,1-Dichloroethene		<5.00	µg/L
Methylene chloride		<25.0	µg/L
MTBE		<5.00	µg/L
trans-1,2-Dichloroethene		<5.00	µg/L
1,1-Dichloroethane		<5.00	µg/L
cis-1,2-Dichloroethene		<5.00	µg/L
2,2-Dichloropropane		<5.00	µg/L
1,2-Dichloroethane (EDC)		<5.00	µg/L
Chloroform		<5.00	µg/L
1,1,1-Trichloroethane		<5.00	µg/L
1,1-Dichloropropene		<5.00	µg/L
Benzene		<5.00	µg/L
Carbon Tetrachloride		<5.00	µg/L
1,2-Dichloropropane		<5.00	µg/L
Trichloroethene (TCE)		<5.00	µg/L

Continued on next page . . .

[1]estimated concentration, RSD value above 15% on initial calibration

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 2 of 5
N/A Injection Wells N/A

Sample 168299 continued . . .

Param	Flag	Result	Units
Dibromomethane (methylene bromide)		<5.00	µg/L
Bromodichloromethane		<5.00	µg/L
2-Chloroethyl vinyl ether		<25.0	µg/L
cis-1,3-Dichloropropene		<5.00	µg/L
trans-1,3-Dichloropropene		<5.00	µg/L
Toluene		<5.00	µg/L
1,1,2-Trichloroethane		<5.00	µg/L
1,3-Dichloropropane		<5.00	µg/L
Dibromochloromethane		<5.00	µg/L
1,2-Dibromoethane (EDB)		<5.00	µg/L
Tetrachloroethene (PCE)		<5.00	µg/L
Chlorobenzene		<5.00	µg/L
1,1,1,2-Tetrachloroethane		<5.00	µg/L
Ethylbenzene		<5.00	µg/L
m,p-Xylene		<5.00	µg/L
Bromoform		<5.00	µg/L
Styrene		<5.00	µg/L
o-Xylene		<5.00	µg/L
1,1,2,2-Tetrachloroethane		<5.00	µg/L
2-Chlorotoluene		<5.00	µg/L
1,2,3-Trichloropropane		<5.00	µg/L
Isopropylbenzene		<5.00	µg/L
Bromobenzene		<5.00	µg/L
n-Propylbenzene		<5.00	µg/L
1,3,5-Trimethylbenzene		<5.00	µg/L
tert-Butylbenzene		<5.00	µg/L
1,2,4-Trimethylbenzene		<5.00	µg/L
1,4-Dichlorobenzene (para)		<5.00	µg/L
sec-Butylbenzene		<5.00	µg/L
1,3-Dichlorobenzene		<5.00	µg/L
p-Isopropyltoluene		<5.00	µg/L
4-Chlorotoluene		<5.00	µg/L
1,2-Dichlorobenzene (ortho)		<5.00	µg/L
n-Butylbenzene		<5.00	µg/L
1,2-Dibromo-3-chloropropane		<25.0	µg/L
1,2,3-Trichlorobenzene		<25.0	µg/L
1,2,4-Trichlorobenzene		<25.0	µg/L
Naphthalene		<25.0	µg/L
Hexachlorobutadiene		<25.0	µg/L
Pyridine		<0.005	mg/L
n-Nitrosodimethylamine		<0.005	mg/L
2-Picoline		<0.005	mg/L
Methyl methanesulfonate		<0.005	mg/L
Ethyl methanesulfonate		<0.005	mg/L
Phenol		<0.005	mg/L
Aniline		<0.005	mg/L
bis (2-chloroethyl) ether		<0.005	mg/L
2-Chlorophenol		<0.005	mg/L
1,3-Dichlorobenzene		<0.005	mg/L
1,4-Dichlorobenzene		<0.005	mg/L
Benzyl alcohol		<0.005	mg/L
1,2-Dichlorobenzene		<0.005	mg/L
2-Methylphenol		<0.005	mg/L

Continued on next page . . .

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 3 of 5
N/A Injection Wells N/A

Sample 168299 continued ...

Param	Flag	Result	Units
bis (2-chloroisopropyl) ether		<0.005	mg/L
4 Methylphenol/3-Methylphenol		<0.005	mg/L
Acetophenone		<0.005	mg/L
n-Nitrosodi-n-propylamine		<0.005	mg/L
Hexachloroethane		<0.005	mg/L
Nitrobenzene		<0.005	mg/L
n-Nitrosopiperidine		<0.005	mg/L
Isophorone		<0.005	mg/L
2-Nitrophenol		<0.005	mg/L
2,4-Dimethylphenol		<0.005	mg/L
bis (2-chloroethoxy) methane		<0.005	mg/L
Benzoic acid		<0.005	mg/L
2,4-Dichlorophenol		<0.005	mg/L
1,2,4-Trichlorobenzene		<0.005	mg/L
a,a-Dimethylphenethylamine		<0.005	mg/L
Naphthalene		<0.005	mg/L
4-Chloroaniline		<0.005	mg/L
2,6-Dichlorophenol		<0.005	mg/L
Hexachlorobutadiene		<0.005	mg/L
n-Nitroso-di-n-butylamine		<0.005	mg/L
4-Chloro-3-methylphenol		<0.005	mg/L
1-Methylnaphthalene		<0.005	mg/L
2-Methylnaphthalene		<0.005	mg/L
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L
Hexachlorocyclopentadiene		<0.005	mg/L
2,4,6-Trichlorophenol		<0.005	mg/L
2,4,5-Trichlorophenol		<0.005	mg/L
2-Chloronaphthalene		<0.005	mg/L
1-Chloronaphthalene		<0.005	mg/L
2-Nitroaniline		<0.005	mg/L
Dimethylphthalate		<0.005	mg/L
Acenaphthylene		<0.005	mg/L
2,6-Dinitrotoluene		<0.005	mg/L
3-Nitroaniline		<0.005	mg/L
Acenaphthene		<0.005	mg/L
2,4-Dinitrophenol		<0.005	mg/L
Dibenzofuran		<0.005	mg/L
Pentachlorobenzene		<0.005	mg/L
4-Nitrophenol		<0.005	mg/L
1-Naphthylamine		<0.005	mg/L
2,4-Dinitrotoluene		<0.005	mg/L
2-Naphthylamine		<0.005	mg/L
2,3,4,6-Tetrachlorophenol		<0.005	mg/L
Fluorene		<0.005	mg/L
Diethylphthalate		<0.005	mg/L
4-Chlorophenyl-phenylether		<0.005	mg/L
4-Nitroaniline		<0.005	mg/L
4,6-Dinitro-2-methylphenol		<0.005	mg/L
Diphenylamine		<0.005	mg/L
Diphenylhydrazine		<0.005	mg/L
4-Bromophenyl-phenylether		<0.005	mg/L
Phenacetin		<0.005	mg/L
Hexachlorobenzene		<0.005	mg/L

Continued on next page

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TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: AG10010410 Page Number: 4 of 5
N/A Injection Wells N/A

Sample 168299 continued ...

Param	Flag	Result	Units
4-Aminobiphenyl		<0.005	mg/L
Pentachlorophenol		<0.005	mg/L
Pentachloronitrobenzene		<0.005	mg/L
Pronamide		<0.005	mg/L
Phenanthrene		<0.005	mg/L
Anthracene		<0.005	mg/L
Di-n-butylphthalate		<0.005	mg/L
Fluoranthene		<0.005	mg/L
Benzidine		<0.005	mg/L
Pyrene		<0.005	mg/L
p-Dimethylaminoazobenzene		<0.005	mg/L
Butylbenzylphthalate		<0.005	mg/L
Benzo(a)anthracene		<0.005	mg/L
3,3-Dichlorobenzidine		<0.005	mg/L
Chrysene		<0.005	mg/L
Bis (2-ethylhexyl) phthalate		<0.005	mg/L
Di-n-octylphthalate		<0.005	mg/L
Benzo(b)fluoranthene		<0.005	mg/L
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L
Benzo(k)fluoranthene		<0.005	mg/L
Benzo(a)pyrene		<0.005	mg/L
3-Methylcholanthrene		<0.005	mg/L
Dibenzo(a,j)acridine		<0.005	mg/L
Indeno(1,2,3-cd)pyrene		<0.005	mg/L
Dibenzo(a,h)anthracene		<0.005	mg/L
Benzo(g,h,i)perylene		<0.005	mg/L
Hydroxide Alkalinity		<1.0	mg/L as CaCo3
Carbonate Alkalinity		<1.0	mg/L as CaCo3
Bicarbonate Alkalinity		514	mg/L as CaCo3
Total Alkalinity		514	mg/L as CaCo3
Specific Conductance		7300	µMHOS/cm
Corrosivity		0.4327	mm/yr
pH		8.63	s.u.
Total Mercury		<0.0002	mg/L
Ignitability		non-ignitable	
CL		1700	mg/L
Fluoride		76	mg/L
Nitrate-N	2	<1.0	mg/L
Sulfate		460	mg/L
Reactivity		Non-reactive	
Hydrogen Sulfide		<10	
Hydrogen Cyanide		<2.5	
Dissolved Calcium		110	mg/L
Dissolved Magnesium		32	mg/L
Dissolved Potassium		28	mg/L
Dissolved Sodium		1100	mg/L
Total Dissolved Solids		3800	mg/L
Total Aluminum		0.23	mg/L
Total Arsenic		0.309	mg/L
Total Barium		<0.1	mg/L
Total Beryllium		<0.0025	mg/L
Total Boron		0.512	mg/L

Continued on next page ...

[2]Sample re-ran out of hold time for NO3.

TraceAnalysis, Inc. 6701 Aberdeen Ave., Suite 9 Lubbock, TX 79424-1515 (806) 794-1296

Report Date: June 29, 2001 Order Number: A01040410 Page Number: 5 of 5
N/A Injection Wells N/A

Sample 168299 continued . . .

Param	Flag	Result	Units
Total Cadmium		<0.025	mg/L
Total Chromium		0.0106	mg/L
Total Cobalt		<0.025	mg/L
Total Copper		0.0144	mg/L
Total Iron		3.14	mg/L
Total Lead		<0.01	mg/L
Total Manganese		0.108	mg/L
Total Molybdenum		<0.05	mg/L
Total Nickel		<0.25	mg/L
Total Selenium		0.552	mg/L
Total Silver		<0.125	mg/L
Total Uranium		0.0502	mg/L
Total Vanadium		<0.025	mg/L
Total Zinc		0.118	mg/L
pH	3	8.3	s.u.

[3]Sample run out of holding time

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6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: NAVAJO Refining — Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E. Main — Fax #: 505 746 5421
Contact Person: Darrell Moore
Invoice to: (if different from above)
Project #: — Project Name: Injection wells
Project Location: Artesia — Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
16249	Injection wells	2	40ml	X				X				X		4/5/01	1040
	" "	2	1L	X								X	X	4/5/01	1050
	" "	1	500ml	X					X			X		4/5/01	1010

TCLP Metals Ag As Ba Cd Cr Pb Se Hg — TCLP Volatiles — TCLP Semi Volatiles — TCLP Pesticides — RCI — GC/MS Vol. 8260/8021 — GC/MS Semi. Vol. 8270C/8250 — PCB's 8082/608 — Pesticides 8081A/608 — BOD, Alkalinity, pH — Turn Around Time if different from standard — Hold

PAH 8270C

Relinquished by: Date: 4/5/01 Time: 16:15 — Received by: Date: Time:
Relinquished by: Date: Time: — Received by: Date: Time:
Relinquished by: Date: Time: — Received by: Date: Time:

LAB USE ONLY — Received on Ice: Y / N — T1 — T2 — T3 — Temperature: 5.0 °C

REMARKS:

☐ Check if Special Reporting Limits Are Needed

Carrier # Fed Ex 917-7348-474

Submittal of sample constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Page 5716 of 5828

Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Jan 2001	197	305	86	230	317	84	7885.71	10868.57	2880.00	226	299	146	236,571
Feb 2001	227	297	142	261	293	208	8948.57	10045.71	7131.43	208	297	161	268,457
March 2001	210	292	104	243	290	192	8331.43	9942.86	6582.86	212	309	153	249,943

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
Jan 2001	251	251	0	92	144	0	3154.286	4937.143	0	131	164	121	94,629
Feb 2001	118	175	0	47	176	0	1611.429	6034.286	0	152	177	129	48,343
March 2001	116	160	0	23	171	0	788.5714	5862.857	0	163	220	141	23,657

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Page 5717 of 5828

Qrtly Injection Pressures, Rates, and Volumes

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
April 2001	258	318	63	237	272	145	8125.71	9325.71	4971.43	258	324	169	243,771
May 2001	245	304	114	199	251	100	6822.86	8605.71	3428.57	245	308	164	204,686
June 2001	243	308	104	162	223	119	5554.29	7645.71	4080.00	245	302	182	166,629

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	Monthly Max. Flow Volume (bpd)	Monthly Min. Flow Volume (bpd)	Monthly Avg. Annular Pressure (psig)	Monthly Max Annular Pressure (psig)	Monthly Min. Annular Pressure (psig)	Total Volume (bbls)
April 2001	83	127	0	17	138	0	582.8571	4731.429	0	145	167	126	17,486
May 2001	115	249	0	115	184	0	3942.857	6308.571	0	185	325	72	118,286
June 2001	142	258	37	142	168	35	4868.571	5760	1200	163	262	91	146,057

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TELEPHONE
(505) 748-3311

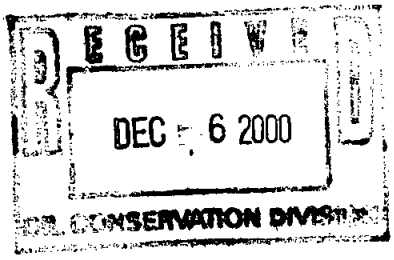
EASYLINK
62905278

NAVAJO REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

December 4, 2000



Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from July 1, 2000 to September 30, 2000. We have disposed a total of 4,464,244 bbls. of fluid down the two wells. This is broken down as follows: 3,620,341 bbls. down WDW-1 and 843,903 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Page 5719 of 5828

Qrtly Injection Press

Navajo R

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthl Min. Flo Rate (gp
July 2000	210	289	-12.1	201	480	10.1
August 2000	276	397	-12.4	210	261	12.1
September 2000	314	380	-12.3	221	265	11.6
WDW-2	**Monthly Avg. Pressure (psig)**	**Monthly Max. Pressure (psig)**	**Monthly Min. Pressure (psig)**	**Monthly Avg. Flow Rate (gpm)**	**Monthly Max Flow Rate (gpm)**	**Monthl Min. Flo Rate (gp**
July 2000	215	281	-14.6	156	203	0
August 2000	272	367	-15.4	188	209	100
September 2000	192	358	-15.4	159	202	110

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TRACEANALYSIS, INC.

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Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: October 24, 2000

Order ID Number: A00100302

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
154738	Injection Wells	Water	10/2/00	9:30	10/3/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 25 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

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Analytical and Quality Control Report

Sample: 154738 - Injection Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC05404	Date Analyzed:	10/6/00
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB04714	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<10.0	µg/L	5	1
Dichlorodifluoromethane		<10.0	µg/L	5	1
Chloromethane (methyl chloride)		<10.0	µg/L	5	1
Vinyl Chloride		<10.0	µg/L	5	1
Bromomethane (methyl bromide)		<25.0	µg/L	5	1
Chloroethane		<10.0	µg/L	5	1
Trichlorofluoromethane		<10.0	µg/L	5	1
Acetone		<50.0	µg/L	5	10
Iodomethane (methyl iodide)		<10.0	µg/L	5	1
Carbon Disulfide		<10.0	µg/L	5	1
Acrylonitrile		<25.0	µg/L	5	1
2-Butanone (MEK)		<25.0	µg/L	5	5
4-methyl-2-pentanone (MIBK)		<25.0	µg/L	5	5
2-hexanone		<10.0	µg/L	5	5
1,1-Dichloroethene		<10.0	µg/L	5	1
Methylene chloride		<25.0	µg/L	5	5
MTBE		<10.0	µg/L	5	1
trans-1,2-Dichloroethene		<10.0	µg/L	5	1
1,1-Dichloroethane		<10.0	µg/L	5	1
cis-1,2-dichloroethene		<10.0	µg/L	5	1
2,2-Dichloropropane		<10.0	µg/L	5	1
1,2-Dichloroethane (EDC)		<10.0	µg/L	5	1
Chloroform		<10.0	µg/L	5	1
1,1,1-Trichloroethane		<10.0	µg/L	5	1
1,1-Dichloropropene		<10.0	µg/L	5	1
Benzene		<10.0	µg/L	5	1
Carbon Tetrachloride		<10.0	µg/L	5	1
1,2-Dichloropropane		<10.0	µg/L	5	1
Trichloroethene (TCE)		<10.0	µg/L	5	1
Dibromomethane (methylene bromide)		<10.0	µg/L	5	1
Bromodichloromethane		<10.0	µg/L	5	1
2-Chloroethyl vinyl ether		<25.0	µg/L	5	5
cis-1,3-Dichloropropene		<10.0	µg/L	5	1
trans-1,3-Dichloropropene		<10.0	µg/L	5	1
Toluene		<10.0	µg/L	5	1
1,1,2-Trichloroethane		<10.0	µg/L	5	1
1,3-Dichloropropane		<10.0	µg/L	5	1
Dibromochloromethane		<10.0	µg/L	5	1
1,2-Dibromoethane (EDB)		<10.0	µg/L	5	1
Tetrachloroethene (PCE)		<10.0	µg/L	5	1
Chlorobenzene		<10.0	µg/L	5	1
1,1,1,2-Tetrachloroethane		<10.0	µg/L	5	1
Ethylbenzene		<10.0	µg/L	5	1
m,p-Xylene		<10.0	µg/L	5	1
Bromoform		<10.0	µg/L	5	1

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... *Continued* Sample: 154738 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
Styrene		<10.0	µg/L	5	1
o-Xylene		<10.0	µg/L	5	1
1,1,2,2-Tetrachloroethane		<10.0	µg/L	5	1
2-Chlorotoluene		<10.0	µg/L	5	1
1,2,3-Trichloropropane		<10.0	µg/L	5	1
Isopropylbenzene		<10.0	µg/L	5	1
Bromobenzene		<10.0	µg/L	5	1
n-Propylbenzene		<10.0	µg/L	5	1
1,3,5-Trimethylbenzene		<10.0	µg/L	5	1
tert-Butylbenzene		<10.0	µg/L	5	1
1,2,4-Trimethylbenzene		<10.0	µg/L	5	1
1,4-Dichlorobenzene (para)		<10.0	µg/L	5	1
sec-Butylbenzene		<10.0	µg/L	5	1
1,3-Dichlorobenzene		<10.0	µg/L	5	1
p-Isopropyltoluene		<10.0	µg/L	5	1
4-Chlorotoluene		<10.0	µg/L	5	1
1,2-Dichlorobenzene (ortho)		<10.0	µg/L	5	1
n-Butylbenzene		<10.0	µg/L	5	1
1,2-Dibromo-3-chloropropane		<25.0	µg/L	5	5
1,2,3-Trichlorobenzene		<25.0	µg/L	5	5
1,2,4-Trichlorobenzene		<25.0	µg/L	5	5
Naphthalene		15.8	µg/L	5	1
Hexachlorobutadiene		<25.0	µg/L	5	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.88	µg/L	1	50	101	85 - 117
Toluene-d8		51.11	µg/L	1	50	102	93 - 109
4-Bromofluorobenzene		46.96	µg/L	1	50	93	76 - 109

Sample: 154738 - Injection Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC05390	Date Analyzed:	10/5/00
Analyst:	MA	Preparation Method:	E 3510C	Prep Batch:	PB04703	Date Prepared:	10/3/00

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005

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... *Continued* Sample: 154738 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		<0.005	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		0.015	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		<0.005	mg/L	1	0.005
2-Methylnaphthalene		<0.005	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Naphthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Naphthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005
Diphenylhydrazine		<0.005	mg/L	1	0.005

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... *Continued* Sample: 154738 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		23.99	mg/L	1	80	29	8 - 73
Phenol-d5		17.95	mg/L	1	80	22	8 - 62
Nitrobenzene-d5		49.72	mg/L	1	80	62	44 - 109
2-Fluorobiphenyl		51.99	mg/L	1	80	64	45 - 109
2,4,6-Tribromophenol		53.92	mg/L	1	80	67	39 - 132
Terphenyl-d14		38.24	mg/L	1	80	47	46 - 121

Sample: 154738 - Injection Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC05424	Date Analyzed:	10/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04729	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		156	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		516	mg/L as CaCo3	1	1
Total Alkalinity		672	mg/L as CaCo3	1	1

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Sample: 154738 - Injection Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC05428	Date Analyzed:	10/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04725	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		6500	uMHOS/cm	1	

Sample: 154738 - Injection Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC05800	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:		Prep Batch:	PB05078	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		0.053	mm/yr	1	
pH		8.60	s.u.	1	

Sample: 154738 - Injection Wells

Analysis:	Dissolved Metals	Analytical Method:	E 200.7	QC Batch:	QC05813	Date Analyzed:	10/4/00
Analyst:	RR	Preparation Method:		Prep Batch:	PB05088	Date Prepared:	10/4/00

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		70	mg/L	1	0.50
Dissolved Magnesium		40	mg/L	1	0.50
Dissolved Potassium		6.7	mg/L	1	0.50
Dissolved Sodium		920	mg/L	1	0.50

Sample: 154738 - Injection Wells

Analysis:	Flashpoint	Analytical Method:	E 1010	QC Batch:	QC05801	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:	N/A	Prep Batch:	PB05081	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Flashpoint		>150	F	1	

Sample: 154738 - Injection Wells

Analysis:	Hg, Total	Analytical Method:	S 7470A	QC Batch:	QC05733	Date Analyzed:	10/13/00
Analyst:	MHS	Preparation Method:	N/A	Prep Batch:	PB05017	Date Prepared:	10/10/00

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		<0.0002	mg/L	1	0.0002

Sample: 154738 - Injection Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC05435	Date Analyzed:	10/5/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB04738	Date Prepared:	10/5/00

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Param	Flag	Result	Units	Dilution	RDL
CL		940	mg/L	1	0.50
Sulfate		890	mg/L	1	0.50

Sample: 154738 - Injection Wells

Analysis:	Reactivity	Analytical Method:	S 7.3	QC Batch:	QC05799	Date Analyzed:	10/11/00
Analyst:	TL	Preparation Method:		Prep Batch:	PB05087	Date Prepared:	10/11/00

Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10		1	
Hydrogen Cyanide		<2.5		1	

Sample: 154738 - Injection Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC05422	Date Analyzed:	10/5/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04731	Date Prepared:	10/4/00

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2700	mg/L	1	10

Sample: 154738 - Injection Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC05814	Date Analyzed:	10/7/00
Analyst:	RR	Preparation Method:	E 3010A	Prep Batch:	PB05089	Date Prepared:	10/6/00

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		0.44	mg/L	1	0.20
Total Arsenic		0.27	mg/L	1	0.01
Total Barium		<0.01	mg/L	1	0.01
Total Beryllium		<0.01	mg/L	1	0.01
Total Boron		0.56	mg/L	1	0.20
Total Cadmium		<0.01	mg/L	1	0.01
Total Chromium		<0.01	mg/L	1	0.01
Total Cobalt		<0.01	mg/L	1	0.01
Total Copper		0.08	mg/L	1	0.01
Total Iron		1.3	mg/L	1	0.01
Total Lead		<0.01	mg/L	1	0.01
Total Manganese		0.15	mg/L	1	0.01
Total Molybdenum		<0.01	mg/L	1	0.01
Total Nickel		<0.01	mg/L	1	0.01
Total Selenium		0.44	mg/L	1	0.01
Total Silver		<0.01	mg/L	1	0.01
Total Uranium		<0.50	mg/L	1	0.50
Total Vanadium		<0.01	mg/L	1	0.01
Total Zinc		0.02	mg/L	1	0.01

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Sample: 154738 - Injection Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC05449	Date Analyzed:	10/3/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB04752	Date Prepared:	10/3/00

Param	Flag	Result	Units	Dilution	RDL
pH	[1]	8.7	s.u.	1	1

Quality Control Report
Method Blank

Sample: Method Blank QCBatch: QC05390

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005

Continued ...

[1] Sample was run out of holding time, but was tested the day it was received.

Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Results	Units	Reporting Limit
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Naphthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005
2-Naphthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005

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Param	Flag	Results	Units	Reporting Limit
Bis (2-ethylhexyl) phthalate		0.029	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorophenol		31.70	mg/L	80	39	8 - 73
Phenol-d5		21.81	mg/L	80	27	8 - 62
Nitrobenzene-d5		64.33	mg/L	80	80	44 - 109
2-Fluorobiphenyl		60.92	mg/L	80	76	45 - 109
2,4,6-Tribromophenol		68.44	mg/L	80	85	39 - 132
Terphenyl-d14		82.55	mg/L	80	103	46 - 121

Sample: Method Blank

QCBatch: QC05404

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<2.00	µg/L	1
Dichlorodifluoromethane		<2.00	µg/L	1
Chloromethane (methyl chloride)		<2.00	µg/L	1
Vinyl Chloride		<2.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	1
Chloroethane		<2.00	µg/L	1
Trichlorofluoromethane		<2.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<2.00	µg/L	1
Carbon Disulfide		<2.00	µg/L	1
Acrylonitrile		<5.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-hexanone		<2.00	µg/L	5
1,1-Dichloroethene		<2.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<2.00	µg/L	1
trans-1,2-Dichloroethene		<2.00	µg/L	1
1,1-Dichloroethane		<2.00	µg/L	1
cis-1,2-dichloroethene		<2.00	µg/L	1
2,2-Dichloropropane		<2.00	µg/L	1
1,2-Dichloroethane (EDC)		<2.00	µg/L	1

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Param	Flag	Results	Units	Reporting Limit
Chloroform		<2.00	µg/L	1
1,1,1-Trichloroethane		<2.00	µg/L	1
1,1-Dichloropropene		<2.00	µg/L	1
Benzene		<2.00	µg/L	1
Carbon Tetrachloride		<2.00	µg/L	1
1,2-Dichloropropane		<2.00	µg/L	1
Trichloroethene (TCE)		<2.00	µg/L	1
Dibromomethane (methylene bromide)		<2.00	µg/L	1
Bromodichloromethane		<2.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<2.00	µg/L	1
trans-1,3-Dichloropropene		<2.00	µg/L	1
Toluene		<2.00	µg/L	1
1,1,2-Trichloroethane		<2.00	µg/L	1
1,3-Dichloropropane		<2.00	µg/L	1
Dibromochloromethane		<2.00	µg/L	1
1,2-Dibromoethane (EDB)		<2.00	µg/L	1
Tetrachloroethene (PCE)		<2.00	µg/L	1
Chlorobenzene		<2.00	µg/L	1
1,1,1,2-Tetrachloroethane		<2.00	µg/L	1
Ethylbenzene		<2.00	µg/L	1
m,p-Xylene		<2.00	µg/L	1
Bromoform		<2.00	µg/L	1
Styrene		<2.00	µg/L	1
o-Xylene		<2.00	µg/L	1
1,1,2,2-Tetrachloroethane		<2.00	µg/L	1
2-Chlorotoluene		<2.00	µg/L	1
1,2,3-Trichloropropane		<2.00	µg/L	1
Isopropylbenzene		<2.00	µg/L	1
Bromobenzene		<2.00	µg/L	1
n-Propylbenzene		<2.00	µg/L	1
1,3,5-Trimethylbenzene		<2.00	µg/L	1
tert-Butylbenzene		<2.00	µg/L	1
1,2,4-Trimethylbenzene		<2.00	µg/L	1
1,4-Dichlorobenzene (para)		<2.00	µg/L	1
sec-Butylbenzene		<2.00	µg/L	1
1,3-Dichlorobenzene		<2.00	µg/L	1
p-Isopropyltoluene		<2.00	µg/L	1
4-Chlorotoluene		<2.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<2.00	µg/L	1
n-Butylbenzene		<2.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<2.00	µg/L	1
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Dibromofluoromethane		50.44	µg/L	50	100	85 - 117

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Received by OCD: 5/16/2022 2:12:41 PM

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Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Toluene-d8		50.69	µg/L	50	101	93 - 109
4-Bromofluorobenzene		47.32	µg/L	50	94	76 - 109

Sample: Method Blank QCBatch: QC05422

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Sample: Method Blank QCBatch: QC05424

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Sample: Method Blank QCBatch: QC05428

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		6.2	uMHOS/cm	

Sample: Method Blank QCBatch: QC05435

Param	Flag	Results	Units	Reporting Limit
CL		<0.5	mg/L	0.50
Sulfate		<0.5	mg/L	0.50

Sample: Method Blank QCBatch: QC05733

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Sample: Method Blank QCBatch: QC05813

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.50	mg/L	0.50
Dissolved Magnesium		<0.50	mg/L	0.50
Dissolved Potassium		<0.50	mg/L	0.50
Dissolved Sodium		<0.50	mg/L	0.50

Sample: Method Blank QCBatch: QC05814

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.20	mg/L	0.20
Total Arsenic		<0.01	mg/L	0.01
Total Barium		<0.01	mg/L	0.01
Total Beryllium		<0.01	mg/L	0.01
Total Boron		<0.20	mg/L	0.20
Total Cadmium		<0.01	mg/L	0.01
Total Chromium		<0.01	mg/L	0.01
Total Cobalt		<0.01	mg/L	0.01
Total Copper		<0.01	mg/L	0.01
Total Iron		<0.01	mg/L	0.01
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.01	mg/L	0.01
Total Molybdenum		<0.01	mg/L	0.01
Total Nickel		<0.01	mg/L	0.01
Total Selenium		<0.01	mg/L	0.01
Total Silver		<0.01	mg/L	0.01
Total Uranium		<0.50	mg/L	0.50
Total Vanadium		<0.01	mg/L	0.01
Total Zinc		<0.01	mg/L	0.01

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Sample: LCS QC Batch: QC05390

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		20.905	mg/L	1	80	<0.005	26		5 - 57	20
2-Chlorophenol		48.293	mg/L	1	80	<0.005	60		29 - 110	20
1,4-Dichlorobenzene		55.729	mg/L	1	80	<0.005	69		25 - 94	20
n-Nitrosodi-n-propylamine		72.637	mg/L	1	80	<0.005	90		36 - 119	20
1,2,4-Trichlorobenzene		61.425	mg/L	1	80	<0.005	76		28 - 110	20
4-Chloro-3-methylphenol		55.224	mg/L	1	80	<0.005	69		40 - 126	20
Acenaphthene		64.238	mg/L	1	80	<0.005	80		47 - 118	20
4-Nitrophenol		20.895	mg/L	1	80	<0.005	26		0 - 69	20

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Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
2,4-Dinitrotoluene		84.211	mg/L	1	80	<0.005	105		46 - 133	20
Pentachlorophenol		52.617	mg/L	1	80	<0.005	65		21 - 131	20
Pyrene		73.392	mg/L	1	80	<0.005	91		44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		33.96	mg/L	1	80	42	8 - 73
Phenol-d5		22.60	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		68.20	mg/L	1	80	85	44 - 109
2-Fluorobiphenyl		69.55	mg/L	1	80	86	45 - 109
2,4,6-Tribromophenol		75.50	mg/L	1	80	94	39 - 132
Terphenyl-d14		78.63	mg/L	1	80	98	46 - 121

Sample: LCSD

QC Batch: QC05390

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		20.796	mg/L	1	80	<0.005	25	0	5 - 57	20
2-Chlorophenol		48.069	mg/L	1	80	<0.005	60	0	29 - 110	20
1,4-Dichlorobenzene		56.142	mg/L	1	80	<0.005	70	1	25 - 94	20
n-Nitrosodi-n-propylamine		74.847	mg/L	1	80	<0.005	93	3	36 - 119	20
1,2,4-Trichlorobenzene		61.727	mg/L	1	80	<0.005	77	0	28 - 110	20
4-Chloro-3-methylphenol		55.437	mg/L	1	80	<0.005	69	0	40 - 126	20
Acenaphthene		64.974	mg/L	1	80	<0.005	81	1	47 - 118	20
4-Nitrophenol		19.242	mg/L	1	80	<0.005	24	8	0 - 69	20
2,4-Dinitrotoluene		85.367	mg/L	1	80	<0.005	106	1	46 - 133	20
Pentachlorophenol		52.533	mg/L	1	80	<0.005	65	0	21 - 131	20
Pyrene		74.244	mg/L	1	80	<0.005	92	1	44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		33.33	mg/L	1	80	41	8 - 73
Phenol-d5		22.45	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		68.50	mg/L	1	80	85	44 - 109
2-Fluorobiphenyl		69.49	mg/L	1	80	86	45 - 109
2,4,6-Tribromophenol		77.03	mg/L	1	80	96	39 - 132
Terphenyl-d14		79.52	mg/L	1	80	99	46 - 121

Sample: LCS

QC Batch: QC05404

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		126	µg/L	1	100	<2.00	126		65 - 147	20
Benzene		114	µg/L	1	100	<2.00	114		79 - 124	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103		80 - 119	20
Toluene		111	µg/L	1	100	<2.00	111		78 - 118	20
Chlorobenzene		110	µg/L	1	100	<2.00	110		85 - 118	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		50.59	µg/L	1	50	101	85 - 117
Toluene-d8		49.17	µg/L	1	50	98	93 - 109
4-Bromofluorobenzene		47.76	µg/L	1	50	95	76 - 109

Sample: LCSD

QC Batch: QC05404

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		125	µg/L	1	100	<2.00	125	1	65 - 147	20
Benzene		114	µg/L	1	100	<2.00	114	0	79 - 124	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103	0	80 - 119	20
Toluene		111	µg/L	1	100	<2.00	111	0	78 - 118	20
Chlorobenzene		110	µg/L	1	100	<2.00	110	0	85 - 118	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		51.04	µg/L	1	50	102	85 - 117
Toluene-d8		50.26	µg/L	1	50	100	93 - 109
4-Bromofluorobenzene		46.44	µg/L	1	50	92	76 - 109

Sample: LCS

QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00101	mg/L	1	0.001	<0.0002	101		80 - 120	20

Sample: LCSD

QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00114	mg/L	1	0.001	<0.0002	114	12	80 - 120	20

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Sample: LCS QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		979	mg/L	1	1000	<0.50	97		75 - 125	20
Dissolved Magnesium		944	mg/L	1	1000	<0.50	94		75 - 125	20
Dissolved Potassium		1067	mg/L	1	1000	<0.50	106		75 - 125	20
Dissolved Sodium		1061	mg/L	1	1000	<0.50	106		75 - 125	20

Sample: LCSD QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1011	mg/L	1	1000	<0.50	101	3	75 - 125	20
Dissolved Magnesium		982	mg/L	1	1000	<0.50	98	4	75 - 125	20
Dissolved Potassium		1104	mg/L	1	1000	<0.50	110	3	75 - 125	20
Dissolved Sodium		1085	mg/L	1	1000	<0.50	108	2	75 - 125	20

Sample: LCS QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.16	mg/L	1	2	<0.20	108		75 - 125	20
Total Arsenic		1.00	mg/L	1	1	<0.01	100		75 - 125	20
Total Barium		2.12	mg/L	1	2	<0.01	106		75 - 125	20
Total Beryllium		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Boron		1.09	mg/L	1	1	<0.20	109		75 - 125	20
Total Cadmium		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Chromium		0.43	mg/L	1	0.40	<0.01	107		75 - 125	20
Total Cobalt		1.05	mg/L	1	1	<0.01	105		75 - 125	20
Total Copper		0.41	mg/L	1	0.40	<0.01	102		75 - 125	20
Total Iron		2.12	mg/L	1	2	<0.01	106		75 - 125	20
Total Lead		1.03	mg/L	1	1	<0.01	103		75 - 125	20
Total Manganese		0.21	mg/L	1	0.20	<0.01	105		75 - 125	20
Total Molybdenum		1.07	mg/L	1	1	<0.01	107		75 - 125	20
Total Nickel		1.01	mg/L	1	1	<0.01	101		75 - 125	20
Total Selenium		0.90	mg/L	1	1	<0.01	90		75 - 125	20
Total Silver		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Uranium		2.18	mg/L	1	2	<0.50	109		75 - 125	20
Total Vanadium		1.05	mg/L	1	1	<0.01	105		75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	<0.01	110		75 - 125	20

Sample: LCSD QC Batch: QC05814

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.14	mg/L	1	2	<0.20	107	1	75 - 125	20
Total Arsenic		0.98	mg/L	1	1	<0.01	98	2	75 - 125	20
Total Barium		2.10	mg/L	1	2	<0.01	105	1	75 - 125	20
Total Beryllium		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Boron		1.09	mg/L	1	1	<0.20	109	0	75 - 125	20
Total Cadmium		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Chromium		0.42	mg/L	1	0.40	<0.01	105	2	75 - 125	20
Total Cobalt		1.04	mg/L	1	1	<0.01	104	1	75 - 125	20
Total Copper		0.40	mg/L	1	0.40	<0.01	100	2	75 - 125	20
Total Iron		2.11	mg/L	1	2	<0.01	105	0	75 - 125	20
Total Lead		1.02	mg/L	1	1	<0.01	102	1	75 - 125	20
Total Manganese		0.21	mg/L	1	0.20	<0.01	105	0	75 - 125	20
Total Molybdenum		1.06	mg/L	1	1	<0.01	106	1	75 - 125	20
Total Nickel		1.00	mg/L	1	1	<0.01	100	1	75 - 125	20
Total Selenium		0.90	mg/L	1	1	<0.01	90	0	75 - 125	20
Total Silver		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Uranium		2.15	mg/L	1	2	<0.50	107	1	75 - 125	20
Total Vanadium		1.04	mg/L	1	1	<0.01	104	1	75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	<0.01	110	0	75 - 125	20

Quality Control Report
Matrix Spikes and Duplicate Spikes

Sample: MS QC Batch: QC05435

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		1289.87	mg/L	1	625	660	100		80 - 120	20
Sulfate		814.53	mg/L	1	625	150	106		80 - 120	20

Sample: MSD QC Batch: QC05435

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		1285.88	mg/L	1	625	660	100	1	80 - 120	20
Sulfate		799.39	mg/L	1	625	150	103	2	80 - 120	20

Sample: MS QC Batch: QC05733

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00098	mg/L	1	0.001	<0.0002	98		80 - 120	20

Sample: MSD QC Batch: QC05733

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00104	mg/L	1	0.001	<0.0002	104	6	80 - 120	20

Sample: MS QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1038	mg/L	1	1000	70	96		75 - 125	20
Dissolved Magnesium		986	mg/L	1	1000	40	94		75 - 125	20
Dissolved Potassium		1090	mg/L	1	1000	6.7	108		75 - 125	20
Dissolved Sodium		1965	mg/L	1	1000	920	104		75 - 125	20

Sample: MSD QC Batch: QC05813

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1014	mg/L	1	1000	70	94	2	75 - 125	20
Dissolved Magnesium		963	mg/L	1	1000	40	92	2	75 - 125	20
Dissolved Potassium		1063	mg/L	1	1000	6.7	105	2	75 - 125	20
Dissolved Sodium		1898	mg/L	1	1000	920	97	7	75 - 125	20

Sample: MS QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.52	mg/L	1	2	0.44	104		75 - 125	20
Total Arsenic		1.21	mg/L	1	1	0.27	94		75 - 125	20
Total Barium		1.89	mg/L	1	2	<0.01	94		75 - 125	20
Total Beryllium		0.18	mg/L	1	0.20	<0.01	90		75 - 125	20
Total Boron		1.54	mg/L	1	1	0.56	98		75 - 125	20
Total Cadmium		0.18	mg/L	1	0.20	<0.01	90		75 - 125	20
Total Chromium		0.37	mg/L	1	0.40	<0.01	92		75 - 125	20
Total Cobalt		0.92	mg/L	1	1	<0.01	92		75 - 125	20

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Copper		0.47	mg/L	1	0.40	0.08	97		75 - 125	20
Total Iron		3.2	mg/L	1	2	1.3	95		75 - 125	20
Total Lead		0.88	mg/L	1	1	<0.01	88		75 - 125	20
Total Manganese		0.34	mg/L	1	0.20	0.15	95		75 - 125	20
Total Molybdenum		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Nickel		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Selenium		1.29	mg/L	1	1	0.44	85		75 - 125	20
Total Silver		0.19	mg/L	1	0.20	<0.01	95		75 - 125	20
Total Uranium		1.76	mg/L	1	2	<0.50	88		75 - 125	20
Total Vanadium		0.95	mg/L	1	1	<0.01	95		75 - 125	20
Total Zinc		0.26	mg/L	1	0.20	0.02	120		75 - 125	20

Sample: MSD QC Batch: QC05814

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.46	mg/L	1	2	0.44	101	3	75 - 125	20
Total Arsenic		1.21	mg/L	1	1	0.27	94	0	75 - 125	20
Total Barium		1.87	mg/L	1	2	<0.01	93	1	75 - 125	20
Total Beryllium		0.18	mg/L	1	0.20	<0.01	90	0	75 - 125	20
Total Boron		1.43	mg/L	1	1	0.56	87	12	75 - 125	20
Total Cadmium		0.18	mg/L	1	0.20	<0.01	90	0	75 - 125	20
Total Chromium		0.37	mg/L	1	0.40	<0.01	92	0	75 - 125	20
Total Cobalt		0.92	mg/L	1	1	<0.01	92	0	75 - 125	20
Total Copper		0.46	mg/L	1	0.40	0.08	95	2	75 - 125	20
Total Iron		3.2	mg/L	1	2	1.3	95	0	75 - 125	20
Total Lead		0.87	mg/L	1	1	<0.01	87	1	75 - 125	20
Total Manganese		0.34	mg/L	1	0.20	0.15	95	0	75 - 125	20
Total Molybdenum		0.95	mg/L	1	1	<0.01	95	1	75 - 125	20
Total Nickel		0.94	mg/L	1	1	<0.01	94	0	75 - 125	20
Total Selenium		1.28	mg/L	1	1	0.44	84	1	75 - 125	20
Total Silver		0.18	mg/L	1	0.20	<0.01	90	5	75 - 125	20
Total Uranium		1.75	mg/L	1	2	<0.50	87	0	75 - 125	20
Total Vanadium		0.94	mg/L	1	1	<0.01	94	1	75 - 125	20
Total Zinc		0.22	mg/L	1	0.20	0.02	100	18	75 - 125	20

Quality Control Report
Duplicate Samples

Sample: Duplicate QC Batch: QC05422

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Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1326	1400	mg/L	1	5	20

Sample: Duplicate QC Batch: QC05424

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity		212	214	mg/L as CaCo3	1	1	20
Total Alkalinity		212	214	mg/L as CaCo3	1	1	20

Sample: Duplicate QC Batch: QC05428

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		2623	2600	uMHOS/cm	1	1	20

Sample: Duplicate QC Batch: QC05449

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	20

Sample: Duplicate QC Batch: QC05799

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		Non-reactive	Non-reactive		1	0	20

Sample: Duplicate QC Batch: QC05800

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		0.053	0.053	mm/yr	1	0	20
pH		8.62	8.60	s.u.	1	0	20

Sample: Duplicate QC Batch: QC05801

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Flashpoint		>150	>150	F	1	0	20

Quality Control Report
Continuing Calibration Verification Standards

Sample: CCV (1) QC Batch: QC05390

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	61.43	102	5 - 57	10/5/00
1,4-Dichlorobenzene		mg/L	60	62.16	103	25 - 94	10/5/00
2-Nitrophenol		mg/L	60	64.78	107	80 - 120	10/5/00
2,4-Dichlorophenol		mg/L	60	62.37	103	80 - 120	10/5/00
Hexachlorobutadiene		mg/L	60	61.30	102	80 - 120	10/5/00
4-Chloro-3-methylphenol		mg/L	60	62.56	104	40 - 126	10/5/00
2,4,6-Trichlorophenol		mg/L	60	63.41	105	80 - 120	10/5/00
Acenaphthene		mg/L	60	60.76	101	47 - 118	10/5/00
Diphenylamine		mg/L	60	60.83	101	80 - 120	10/5/00
Pentachlorophenol		mg/L	60	67.19	111	21 - 131	10/5/00
Fluoranthene		mg/L	60	60.33	100	80 - 120	10/5/00
Di-n-octylphthalate		mg/L	60	59.88	99	80 - 120	10/5/00
Benzo(a)pyrene		mg/L	60	64.30	107	80 - 120	10/5/00
2-Fluorophenol		mg/L	60	63.36	105	8 - 73	10/5/00
Phenol-d5		mg/L	60	62.44	104	8 - 62	10/5/00
Nitrobenzene-d5		mg/L	60	63.47	105	44 - 109	10/5/00
2-Fluorobiphenyl		mg/L	60	61.53	102	45 - 109	10/5/00
2,4,6-Tribromophenol		mg/L	60	63.19	105	39 - 132	10/5/00
Terphenyl-d14		mg/L	60	63.08	105	46 - 121	10/5/00

Sample: CCV (1) QC Batch: QC05404

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	95	95	80 - 120	10/6/00
1,1-Dichloroethene		µg/L	100	103	103	73 - 154	10/6/00
Chloroform		µg/L	100	106	106	80 - 120	10/6/00
1,2-Dichloropropane		µg/L	100	102	102	80 - 120	10/6/00
Toluene		µg/L	100	100	100	81 - 122	10/6/00
Chlorobenzene		µg/L	100	96	96	86 - 121	10/6/00
Ethylbenzene		µg/L	100	99	99	80 - 120	10/6/00
Dibromofluoromethane		µg/L	50	55.86	111	80 - 120	10/6/00
Toluene-d8		µg/L	50	49.08	98	80 - 120	10/6/00
4-Bromofluorobenzene		µg/L	50	51.43	102	80 - 120	10/6/00

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Sample: CCV (1) QC Batch: QC05422

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	972	97	80 - 120	10/5/00

Sample: ICV (1) QC Batch: QC05422

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	953	95	80 - 120	10/5/00

Sample: CCV (1) QC Batch: QC05424

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	8.0	0	80 - 120	10/6/00
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	80 - 120	10/6/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Total Alkalinity		mg/L as CaCo3	250	228	91	80 - 120	10/6/00

Sample: ICV (1) QC Batch: QC05424

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Carbonate Alkalinity		mg/L as CaCo3	0	240	0	80 - 120	10/6/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Total Alkalinity		mg/L as CaCo3	250	240	96	80 - 120	10/6/00

Sample: CCV (1) QC Batch: QC05428

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1408	99	80 - 120	10/6/00

Sample: ICV (1) QC Batch: QC05428

Released to Imaging: 7/12/2024 10:49:45 AM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1408	99	80 - 120	10/6/00

Sample: CCV (1) QC Batch: QC05435

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	12.43	99	80 - 120	10/5/00
Sulfate		mg/L	12.50	12.77	102	80 - 120	10/5/00

Sample: ICV (1) QC Batch: QC05435

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	12.28	98	80 - 120	10/5/00
Sulfate		mg/L	12.50	12.79	102	80 - 120	10/5/00

Sample: CCV (1) QC Batch: QC05449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	10/3/00

Sample: ICV (1) QC Batch: QC05449

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	10/3/00

Sample: CCV (1) QC Batch: QC05733

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00100	100	80 - 120	10/13/00

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Sample: ICV (1)

QC Batch: QC05733

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00092	92	80 - 120	10/13/00

Sample: CCV (1)

QC Batch: QC05813

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	100	119	119	75 - 125	10/4/00
Dissolved Magnesium		mg/L	100	117	117	75 - 125	10/4/00
Dissolved Potassium		mg/L	100	129	129	75 - 125	10/4/00
Dissolved Sodium		mg/L	100	128	128	75 - 125	10/4/00

Sample: ICV (1)

QC Batch: QC05813

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	100	120	120	75 - 125	10/4/00
Dissolved Magnesium		mg/L	100	121	121	75 - 125	10/4/00
Dissolved Potassium		mg/L	100	128	128	75 - 125	10/4/00
Dissolved Sodium		mg/L	100	128	128	75 - 125	10/4/00

Sample: CCV (1)

QC Batch: QC05814

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.85	97	75 - 125	10/7/00
Total Arsenic		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Barium		mg/L	5	4.98	99	75 - 125	10/7/00
Total Beryllium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Boron		mg/L	2.50	2.44	97	75 - 125	10/7/00
Total Cadmium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Chromium		mg/L	1	0.99	99	75 - 125	10/7/00
Total Cobalt		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Copper		mg/L	1	0.99	99	75 - 125	10/7/00
Total Iron		mg/L	5	4.98	99	75 - 125	10/7/00
Total Lead		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Manganese		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Molybdenum		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Nickel		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Selenium		mg/L	2.50	2.47	98	75 - 125	10/7/00

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Uranium		mg/L	5	4.93	98	75 - 125	10/7/00
Total Vanadium		mg/L	2.50	2.46	98	75 - 125	10/7/00
Total Zinc		mg/L	0.50	0.49	98	75 - 125	10/7/00

Sample: ICV (1)

QC Batch: QC05814

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.90	98	75 - 125	10/7/00
Total Arsenic		mg/L	2.50	2.49	99	75 - 125	10/7/00
Total Barium		mg/L	5	5.02	100	75 - 125	10/7/00
Total Beryllium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Boron		mg/L	2.50	2.45	98	75 - 125	10/7/00
Total Cadmium		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Chromium		mg/L	1	0.99	99	75 - 125	10/7/00
Total Cobalt		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Copper		mg/L	1	1.00	100	75 - 125	10/7/00
Total Iron		mg/L	5	5.00	100	75 - 125	10/7/00
Total Lead		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Manganese		mg/L	0.50	0.49	98	75 - 125	10/7/00
Total Molybdenum		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Nickel		mg/L	2.50	2.49	99	75 - 125	10/7/00
Total Selenium		mg/L	2.50	2.47	98	75 - 125	10/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	10/7/00
Total Uranium		mg/L	5	5.00	100	75 - 125	10/7/00
Total Vanadium		mg/L	2.50	2.48	99	75 - 125	10/7/00
Total Zinc		mg/L	0.50	0.49	98	75 - 125	10/7/00

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Page ____ of ____

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TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A000160302

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E Main
Fax #: 505 746 5421
Contact Person:
Invoice to: (if different from above)
Project #:
Project Name: Injection Wells
Project Location:
Sampler Signature: Charles Lloyd

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	NaHSO4	H2SO4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
154738	Injection Wells	2	1L	X									X	X	10/2/00	930
	" "	2	40ml	X						X			X		10/2/00	930
	" "	1	500ml	X					X				X		10/2/00	930

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See List

Relinquished by: Charles Lloyd Date: 10/2/00 Time: 1615 Received by: Date: Time:
Relinquished by: Date: Time: Received by: Date: Time:
Relinquished by: Date: Time: Received at Laboratory by: Nicki Crosby Date: 10-2-00 Time: 9:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 4 °
Log-in Review MS

REMARKS: 10/25

Carrier # FED EX 304 4184 017

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TELEPHONE
(505) 748-3311

EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

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(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

August 3, 2000

AUG – 4 2000

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from April 1, 2000 to June 30, 2000. We have disposed a total of 3,296,815 bbls. of fluid down the two wells. This is broken down as follows: 2,970,284 bbls. down WDW-1 and 326,531 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

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Page 5747 of 5828

WDW-1

Month	Wellhead Pressure			Injection Flow Rate			Flow Rate		Annulus Pressure			Annulus Level		
	Avg	Min	Max	Avg	Min	Max	Average	Total	Avg	Min	Max	Avg	Min	Max
	psig	psig	psig	gpm	gpm	gpm	BPD	Bbl	psig	psig	psig	%	%	%
Oct-99	87	-12.7	328	330	11	499	11,314	350,743						
Nov-99	161	-12.4	410	249	0	344	8,534	256,011						
Dec-99	156	-12.3	322	272	14	377	9,309	288,566						
Jan-00	297	-12	400	369	0	350	12,651	392,195	NA	NA	NA	NA	NA	NA
Feb-00	319	-12	400	319	0	350	10,937	317,173	243	145	318	91	90	92
Mar-00	309	-12	400	309	0	350	10,584	328,114	252	155	325	91	90	92
Apr-00	76	-12	455	297	0	455	10,183	305,486	393	372	500	88	86	89
May-00	230	-12	361	342	0	418	11,726	363,497	476	314	500	86	84	89
Jun-00	241	-12	350	310	0	353	10,629	318,857	496	370	500	85	83	86

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Page 5748 of 5828

WDW-2

Month	Wellhead Pressure			Injection Flow Rate			Avg Flow	Total Flow	Annulus Pressure			Annulus Level		
	Avg	Min	Max	Avg	Min	Max	BPD	Bbl	Avg	Min	Max	Avg	Min	Max
	psig	psig	psig	gpm	gpm	gpm			psig	psig	psig	%	%	%
Oct-99	NA	NA	NA	NA	NA	NA	NA	NA						
Nov-99	140	-13	337	159	0	437	5,434	163,029						
Dec-99	140	-13	338	70	0	341	2,390	74,081						
Jan-00	-13	-13	-13	0	0	0	0	0	NA	NA	NA	NA	NA	NA
Feb-00	-13	-13	-13	0	0	0	0	0	252	232	295	88	86	89
Mar-00	-13	-13	-13	0	0	0	0	0	201	181	243	89	87	90
Apr-00	10	-13	245	33	221	0	1,131	33,943	128	81	196	83	83	86
May-00	59	-13	234	36	122	0	1,234	38,263	161	71	311	83	79	88
Jun-00	105	-13	294	65	158	0	2,229	66,857	302	127	500	78	76	80

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TRACEANALYSIS, INC.
6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Charlie Plymale or Darrell Moore
501 E. Main
Artesia, NM 88210

July 13,2000
Receiving Date: 07/06/2000
Sample Type: Water
Project No: NA
Project Location: Artesia

Sampling Date: 07/05/2000
Sample Condition: Intact & Cool
Sample Received by: VH
Project Name: Injection Wells

TA#	FIELD CODE	TOTAL Hg (mg/L)	TOTAL U (mg/L)
T149250	Inj. Wells	<0.0002	<0.10
ICV		0.00098	1.00
CCV		0.00110	0.98
REPORTING LIMIT		0.0002	0.10
PREP DATE		07/07/2000	07/06/2000
ANALYSIS DATE		07/10/2000	07/10/2000
RPD		3*	1
% Extraction Accuracy		70*	85
% Instrument Accuracy		98	98

*NOTE: Low spike recovery due to nature of sample: extremely high dissolved solids with precipitate. Used LCS/LCSD for RPD and % Extraction Accuracy.

METHODS: EPA SW 846-3010B, 6010B, 7471A.
CHEMIST: TOTAL Hg: JM TOTAL U: RR
TOTAL Hg SPIKE: 0.001 mg/L TOTAL Hg.
TOTAL Hg CV: 0.001 mg/L TOTAL Hg.
TOTAL U SPIKE: 2.0 mg/L TOTAL U.
TOTAL U CV: 1.0 mg/L TOTAL U.

Director, Dr. Blair Leftwich

7-13-00
DATE

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: July 14, 2000

Order ID Number: A00070613

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
149250	Inj Wells	Water	7/5/00	10:30	7/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 25 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

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Analytical and Quality Control Report

Sample: 149250 - Inj Wells

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC03650	Date Analyzed:	7/7/00
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB03149	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<10.00	µg/L	5	2
Dichlorodifluoromethane		<10.00	µg/L	5	2
Chloromethane (methyl chloride)		<10.00	µg/L	5	2
Vinyl Chloride		<10.00	µg/L	5	2
Bromomethane (methyl bromide)		<25.00	µg/L	5	5
Chloroethane		<10.00	µg/L	5	2
Trichlorofluoromethane		<10.00	µg/L	5	2
Acetone		<50.00	µg/L	5	10
Iodomethane (methyl iodide)		<10.00	µg/L	5	2
Carbon Disulfide		<10.00	µg/L	5	2
Acrylonitrile		<10.00	µg/L	5	2
2-Butanone (MEK)		<10.00	µg/L	5	2
4-methyl-2-pentanone (MIBK)		<50.00	µg/L	5	10
2-hexanone		<10.00	µg/L	5	2
trans 1,4-Dichloro-2-butene		<50.00	µg/L	5	10
1,1-Dichloroethene		<10.00	µg/L	5	2
Methylene chloride		<25.00	µg/L	5	5
MTBE		<10.00	µg/L	5	2
trans-1,2-Dichloroethene		<10.00	µg/L	5	2
1,1-Dichloroethane		<10.00	µg/L	5	2
cis-1,2-dichloroethene		<10.00	µg/L	5	2
2,2-Dichloropropane		<10.00	µg/L	5	2
1,2-Dichloroethane (EDC)		<10.00	µg/L	5	2
Chloroform		<10.00	µg/L	5	2
1,1,1-Trichloroethane		<10.00	µg/L	5	2
1,1-Dichloropropene		<10.00	µg/L	5	2
Benzene		<10.00	µg/L	5	2
Carbon Tetrachloride		<10.00	µg/L	5	2
1,2-Dichloropropane		<10.00	µg/L	5	2
Trichloroethene (TCE)		<10.00	µg/L	5	2
Dibromomethane (methylene bromide)		<10.00	µg/L	5	2
Bromodichloromethane		<10.00	µg/L	5	2
2-Chloroethyl vinyl ether		<50.00	µg/L	5	10
cis-1,3-Dichloropropene		<10.00	µg/L	5	2
trans-1,3-Dichloropropene		<10.00	µg/L	5	2
Toluene		<10.00	µg/L	5	2
1,1,2-Trichloroethane		<10.00	µg/L	5	2
1,3-Dichloropropane		<10.00	µg/L	5	2
Dibromochloromethane		<10.00	µg/L	5	2
1,2-Dibromoethane (EDB)		<10.00	µg/L	5	2
Tetrachloroethene (PCE)		<10.00	µg/L	5	2
Chlorobenzene		<10.00	µg/L	5	2
1,1,1,2-Tetrachloroethane		<10.00	µg/L	5	2
Ethylbenzene		<10.00	µg/L	5	2
m,p-Xylene		12.80	µg/L	5	2

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... *Continued* Sample: 149250 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
Bromoform		<10.00	µg/L	5	2
Styrene		<10.00	µg/L	5	2
o-Xylene		<10.00	µg/L	5	2
1,1,2,2-Tetrachloroethane		<10.00	µg/L	5	2
2-Chlorotoluene		<10.00	µg/L	5	2
1,2,3-Trichloropropane		<10.00	µg/L	5	2
Isopropylbenzene		<10.00	µg/L	5	2
Bromobenzene		<10.00	µg/L	5	2
n-Propylbenzene		<10.00	µg/L	5	2
1,3,5-Trimethylbenzene		19.63	µg/L	5	2
tert-Butylbenzene		<10.00	µg/L	5	2
1,2,4-Trimethylbenzene		47.55	µg/L	5	2
1,4-Dichlorobenzene (para)		<10.00	µg/L	5	2
sec-Butylbenzene		<10.00	µg/L	5	2
1,3-Dichlorobenzene		<10.00	µg/L	5	2
p-Isopropyltoluene		<10.00	µg/L	5	2
4-Chlorotoluene		<10.00	µg/L	5	2
1,2-Dichlorobenzene (ortho)		<10.00	µg/L	5	2
n-Butylbenzene		<10.00	µg/L	5	2
1,2-Dibromo-3-chloropropane		<25.00	µg/L	5	5
1,2,3-Trichlorobenzene		<25.00	µg/L	5	5
1,2,4-Trichlorobenzene		<25.00	µg/L	5	5
Naphthalene		109.02	µg/L	5	2
Hexachlorobutadiene		<25.00	µg/L	5	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.88	µg/L	1	50	105	84 - 116
Toluene-d8		49.86	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		49.84	µg/L	1	50	99	80 - 110

Sample: 149250 - Inj Wells

Analysis:	8270	Analytical Method:	S 8270C	QC Batch:	QC03678	Date Analyzed:	7/11/00
Analyst:	MA	Preparation Method:	E 3510C	Prep Batch:	PB03137	Date Prepared:	7/10/00

Param	Flag	Result	Units	Dilution	RDL
Pyridine		<0.005	mg/L	1	0.005
n-Nitrosodimethylamine		<0.005	mg/L	1	0.005
2-Picoline		<0.005	mg/L	1	0.005
Methyl methanesulfonate		<0.005	mg/L	1	0.005
Ethyl methanesulfonate		<0.005	mg/L	1	0.005
Phenol		<0.005	mg/L	1	0.005
Aniline		<0.005	mg/L	1	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	1	0.005
2-Chlorophenol		<0.005	mg/L	1	0.005
1,3-Dichlorobenzene		<0.005	mg/L	1	0.005
1,4-Dichlorobenzene		<0.005	mg/L	1	0.005
Benzyl alcohol		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 149250 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
1,2-Dichlorobenzene		<0.005	mg/L	1	0.005
2-Methylphenol		<0.005	mg/L	1	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	1	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	1	0.005
Acetophenone		0.050	mg/L	1	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	1	0.005
Hexachloroethane		<0.005	mg/L	1	0.005
Nitrobenzene		<0.005	mg/L	1	0.005
n-Nitrosopiperidine		<0.005	mg/L	1	0.005
Isophorone		<0.005	mg/L	1	0.005
2-Nitrophenol		<0.005	mg/L	1	0.005
2,4-Dimethylphenol		<0.005	mg/L	1	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	1	0.005
Benzoic acid		<0.005	mg/L	1	0.005
2,4-Dichlorophenol		<0.005	mg/L	1	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	1	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	1	0.005
Naphthalene		0.020	mg/L	1	0.005
4-Chloroaniline		<0.005	mg/L	1	0.005
2,6-Dichlorophenol		<0.005	mg/L	1	0.005
Hexachlorobutadiene		<0.005	mg/L	1	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	1	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	1	0.005
1-Methylnaphthalene		0.052	mg/L	1	0.005
2-Methylnaphthalene		0.017	mg/L	1	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	1	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	1	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	1	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	1	0.005
2-Chloronaphthalene		<0.005	mg/L	1	0.005
1-Chloronaphthalene		<0.005	mg/L	1	0.005
2-Nitroaniline		<0.005	mg/L	1	0.005
Dimethylphthalate		<0.005	mg/L	1	0.005
Acenaphthylene		<0.005	mg/L	1	0.005
2,6-Dinitrotoluene		<0.005	mg/L	1	0.005
3-Nitroaniline		<0.005	mg/L	1	0.005
Acenaphthene		<0.005	mg/L	1	0.005
2,4-Dinitrophenol		<0.005	mg/L	1	0.005
Dibenzofuran		<0.005	mg/L	1	0.005
Pentachlorobenzene		<0.005	mg/L	1	0.005
4-Nitrophenol		<0.005	mg/L	1	0.005
1-Napthylamine		<0.005	mg/L	1	0.005
2,4-Dinitrotoluene		<0.005	mg/L	1	0.005
2-Napthylamine		<0.005	mg/L	1	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	1	0.005
Fluorene		<0.005	mg/L	1	0.005
Diethylphthalate		<0.005	mg/L	1	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	1	0.005
4-Nitroaniline		<0.005	mg/L	1	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	1	0.005
Diphenylamine		<0.005	mg/L	1	0.005

Continued ...

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... *Continued* Sample: 149250 Analysis: 8270

Param	Flag	Result	Units	Dilution	RDL
Diphenylhydrazine		<0.005	mg/L	1	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	1	0.005
Phenacetin		<0.005	mg/L	1	0.005
Hexachlorobenzene		<0.005	mg/L	1	0.005
4-Aminobiphenyl		<0.005	mg/L	1	0.005
Pentachlorophenol		<0.005	mg/L	1	0.005
Pentachloronitrobenzene		<0.005	mg/L	1	0.005
Pronamide		<0.005	mg/L	1	0.005
Phenanthrene		<0.005	mg/L	1	0.005
Anthracene		<0.005	mg/L	1	0.005
Di-n-butylphthalate		<0.005	mg/L	1	0.005
Fluoranthene		<0.005	mg/L	1	0.005
Benzidine		<0.005	mg/L	1	0.005
Pyrene		<0.005	mg/L	1	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	1	0.005
Butylbenzylphthalate		<0.005	mg/L	1	0.005
Benzo(a)anthracene		<0.005	mg/L	1	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	1	0.005
Chrysene		<0.005	mg/L	1	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	1	0.005
Di-n-octylphthalate		<0.005	mg/L	1	0.005
Benzo(b)fluoranthene		<0.005	mg/L	1	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	1	0.005
Benzo(k)fluoranthene		<0.005	mg/L	1	0.005
Benzo(a)pyrene		<0.005	mg/L	1	0.005
3-Methylcholanthrene		<0.005	mg/L	1	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	1	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	1	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	1	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	1	0.005

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		27.61	mg/L	1	80	34	8 - 73
Phenol-d5		22.85	mg/L	1	80	28	8 - 62
Nitrobenzene-d5		43.84	mg/L	1	80	54	44 - 109
2-Fluorobiphenyl		45.99	mg/L	1	80	57	45 - 109
2,4,6-Tribromophenol		40.31	mg/L	1	80	50	39 - 132
Terphenyl-d14		30.72	mg/L	1	80	38	46 - 121

Sample: 149250 - Inj Wells

Analysis:	Alkalinity	Analytical Method:	E 310.1	QC Batch:	QC03622	Date Analyzed:	7/7/00
Analyst:	LD	Preparation Method:	N/A	Prep Batch:	PB03116	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		360	mg/L as CaCo3	1	1
Total Alkalinity		360	mg/L as CaCo3	1	1

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Sample: 149250 - Inj Wells

Analysis:	Conductivity	Analytical Method:	SM 2510B	QC Batch:	QC03621	Date Analyzed:	7/6/00
Analyst:	LD	Preparation Method:	N/A	Prep Batch:	PB03115	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		4700	uMHOS/cm	1	

Sample: 149250 - Inj Wells

Analysis:	Corrosivity	Analytical Method:	S 1110	QC Batch:	QC03709	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03199	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Corrosivity		Non 0.91	mm/yr	1	
pH		8.24	s.u.	1	

Sample: 149250 - Inj Wells

Analysis:	Dissolved Metals	Analytical Method:	E 200.7	QC Batch:	QC03653	Date Analyzed:	7/10/00
Analyst:	RR	Preparation Method:	E 3005A	Prep Batch:	PB03097	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		123	mg/L	1	0.50
Dissolved Magnesium		48	mg/L	1	0.50
Dissolved Potassium		35	mg/L	1	0.50
Dissolved Sodium		475	mg/L	1	0.50

Sample: 149250 - Inj Wells

Analysis:	Ignitability	Analytical Method:	SW-846 Ch. 7.1	QC Batch:	QC03710	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03200	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Ignitability		non-ignitable		1	

Sample: 149250 - Inj Wells

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC03642	Date Analyzed:	7/7/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB03142	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
CL		650	mg/L	1	0.50
Sulfate		820	mg/L	1	0.50

Sample: 149250 - Inj Wells

Analysis:	Reactivity	Analytical Method:	S 7.3	QC Batch:	QC03708	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	N/A	Prep Batch:	PB03198	Date Prepared:	7/7/00

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Param	Flag	Result	Units	Dilution	RDL
Reactivity		Non-reactive		1	
Hydrogen Sulfide		<10		1	
Hydrogen Cyanide		<2.5		1	

Sample: 149250 - Inj Wells

Analysis:	TDS	Analytical Method:	E 160.1	QC Batch:	QC03649	Date Analyzed:	7/10/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB03148	Date Prepared:	7/7/00

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		2100	mg/L	1	10

Sample: 149250 - Inj Wells

Analysis:	Total Metals	Analytical Method:	S 6010B	QC Batch:	QC03651	Date Analyzed:	7/7/00
Analyst:	MS	Preparation Method:	E 3010A	Prep Batch:	PB03078	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		2.7	mg/L	1	0.05
Total Arsenic		0.21	mg/L	1	0.01
Total Barium		<0.01	mg/L	1	0.01
Total Beryllium		<0.01	mg/L	1	0.01
Total Boron		0.54	mg/L	1	0.10
Total Cadmium		<0.002	mg/L	1	0.002
Total Chromium		<0.005	mg/L	1	0.005
Total Cobalt		<0.02	mg/L	1	0.02
Total Copper		<0.02	mg/L	1	0.02
Total Iron		1.5	mg/L	1	0.05
Total Lead		<0.01	mg/L	1	0.01
Total Manganese		0.11	mg/L	1	0.01
Total Molybdenum		<0.05	mg/L	1	0.05
Total Nickel		<0.02	mg/L	1	0.02
Total Selenium		0.39	mg/L	1	0.01
Total Silver		<0.005	mg/L	1	0.005
Total Vanadium		<0.01	mg/L	1	0.01
Total Zinc		0.05	mg/L	1	0.05

Sample: 149250 - Inj Wells

Analysis:	pH	Analytical Method:	E 150.1	QC Batch:	QC03616	Date Analyzed:	7/6/00
Analyst:	RS	Preparation Method:	N/A	Prep Batch:	PB03110	Date Prepared:	7/6/00

Param	Flag	Result	Units	Dilution	RDL
pH		7.8	s.u.	1	1

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Method Blank

Sample: Method Blank QCBatch: QC03621

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		4.8	uMHOS/cm	

Sample: Method Blank QCBatch: QC03642

Param	Flag	Results	Units	Reporting Limit
CL		<0.5	mg/L	0.50
Sulfate		<0.5	mg/L	0.50

Sample: Method Blank QCBatch: QC03649

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Sample: Method Blank QCBatch: QC03650

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<2.00	µg/L	2
Dichlorodifluoromethane		<2.00	µg/L	2
Chloromethane (methyl chloride)		<2.00	µg/L	2
Vinyl Chloride		<2.00	µg/L	2
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<2.00	µg/L	2
Trichlorofluoromethane		<2.00	µg/L	2
Acetone		<10.00	µg/L	10
Iodomethane (methyl iodide)		<2.00	µg/L	2
Carbon Disulfide		<2.00	µg/L	2
Acrylonitrile		<2.00	µg/L	2
2-Butanone (MEK)		<2.00	µg/L	2
4-methyl-2-pentanone (MIBK)		<10.00	µg/L	10
2-hexanone		<2.00	µg/L	2
trans 1,4-Dichloro-2-butene		<10.00	µg/L	10
1,1-Dichloroethene		<2.00	µg/L	2
Methylene chloride		<5.00	µg/L	5
MTBE		<2.00	µg/L	2
trans-1,2-Dichloroethene		<2.00	µg/L	2

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Results	Units	Reporting Limit
1,1-Dichloroethane		<2.00	µg/L	2
cis-1,2-dichloroethene		<2.00	µg/L	2
2,2-Dichloropropane		<2.00	µg/L	2
1,2-Dichloroethane (EDC)		<2.00	µg/L	2
Chloroform		<2.00	µg/L	2
1,1,1-Trichloroethane		<2.00	µg/L	2
1,1-Dichloropropene		<2.00	µg/L	2
Benzene		<2.00	µg/L	2
Carbon Tetrachloride		<2.00	µg/L	2
1,2-Dichloropropane		<2.00	µg/L	2
Trichloroethene (TCE)		<2.00	µg/L	2
Dibromomethane (methylene bromide)		<2.00	µg/L	2
Bromodichloromethane		<2.00	µg/L	2
2-Chloroethyl vinyl ether		<10.00	µg/L	10
cis-1,3-Dichloropropene		<2.00	µg/L	2
trans-1,3-Dichloropropene		<2.00	µg/L	2
Toluene		<2.00	µg/L	2
1,1,2-Trichloroethane		<2.00	µg/L	2
1,3-Dichloropropane		<2.00	µg/L	2
Dibromochloromethane		<2.00	µg/L	2
1,2-Dibromoethane (EDB)		<2.00	µg/L	2
Tetrachloroethene (PCE)		<2.00	µg/L	2
Chlorobenzene		<2.00	µg/L	2
1,1,1,2-Tetrachloroethane		<2.00	µg/L	2
Ethylbenzene		<2.00	µg/L	2
m,p-Xylene		<2.00	µg/L	2
Bromoform		<2.00	µg/L	2
Styrene		<2.00	µg/L	2
o-Xylene		<2.00	µg/L	2
1,1,2,2-Tetrachloroethane		<2.00	µg/L	2
2-Chlorotoluene		<2.00	µg/L	2
1,2,3-Trichloropropane		<2.00	µg/L	2
Isopropylbenzene		<2.00	µg/L	2
Bromobenzene		<2.00	µg/L	2
n-Propylbenzene		<2.00	µg/L	2
1,3,5-Trimethylbenzene		<2.00	µg/L	2
tert-Butylbenzene		<2.00	µg/L	2
1,2,4-Trimethylbenzene		<2.00	µg/L	2
1,4-Dichlorobenzene (para)		<2.00	µg/L	2
sec-Butylbenzene		<2.00	µg/L	2
1,3-Dichlorobenzene		<2.00	µg/L	2
p-Isopropyltoluene		<2.00	µg/L	2
4-Chlorotoluene		<2.00	µg/L	2
1,2-Dichlorobenzene (ortho)		<2.00	µg/L	2
n-Butylbenzene		<2.00	µg/L	2
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<2.00	µg/L	2
Hexachlorobutadiene		<5.00	µg/L	5

Released to Imaging: 7/12/2024 10:49:45 AM

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
Dibromofluoromethane		53.42	µg/L	50	106	84 - 116
Toluene-d8		51.43	µg/L	50	102	92 - 108
4-Bromofluorobenzene		45.60	µg/L	50	91	80 - 110

Sample: Method Blank QCBatch: QC03651

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.05	mg/L	0.05
Total Arsenic		<0.01	mg/L	0.01
Total Barium		<0.01	mg/L	0.01
Total Beryllium		<0.01	mg/L	0.01
Total Boron		<0.10	mg/L	0.10
Total Cadmium		<0.002	mg/L	0.002
Total Chromium		<0.005	mg/L	0.005
Total Cobalt		<0.02	mg/L	0.02
Total Copper		<0.02	mg/L	0.02
Total Iron		<0.05	mg/L	0.05
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.01	mg/L	0.01
Total Molybdenum		<0.05	mg/L	0.05
Total Nickel		<0.02	mg/L	0.02
Total Selenium		<0.01	mg/L	0.01
Total Silver		<0.005	mg/L	0.005
Total Vanadium		<0.01	mg/L	0.01
Total Zinc		<0.05	mg/L	0.05

Sample: Method Blank QCBatch: QC03653

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<0.50	mg/L	0.50
Dissolved Magnesium		<0.50	mg/L	0.50
Dissolved Potassium		<0.50	mg/L	0.50
Dissolved Sodium		<0.50	mg/L	0.50

Sample: Method Blank QCBatch: QC03678

Param	Flag	Results	Units	Reporting Limit
Pyridine		<0.005	mg/L	0.005
n-Nitrosodimethylamine		<0.005	mg/L	0.005
2-Picoline		<0.005	mg/L	0.005
Methyl methanesulfonate		<0.005	mg/L	0.005
Ethyl methanesulfonate		<0.005	mg/L	0.005

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Param	Flag	Results	Units	Reporting Limit
Phenol		<0.005	mg/L	0.005
Aniline		<0.005	mg/L	0.005
bis (2-chloroethyl) ether		<0.005	mg/L	0.005
2-Chlorophenol		<0.005	mg/L	0.005
1,3-Dichlorobenzene		<0.005	mg/L	0.005
1,4-Dichlorobenzene		<0.005	mg/L	0.005
Benzyl alcohol		<0.005	mg/L	0.005
1,2-Dichlorobenzene		<0.005	mg/L	0.005
2-Methylphenol		<0.005	mg/L	0.005
bis (2-chloroisopropyl) ether		<0.005	mg/L	0.005
4-Methylphenol/3-Methylphenol		<0.005	mg/L	0.005
Acetophenone		<0.005	mg/L	0.005
n-Nitrosodi-n-propylamine		<0.005	mg/L	0.005
Hexachloroethane		<0.005	mg/L	0.005
Nitrobenzene		<0.005	mg/L	0.005
n-Nitrosopiperidine		<0.005	mg/L	0.005
Isophorone		<0.005	mg/L	0.005
2-Nitrophenol		<0.005	mg/L	0.005
2,4-Dimethylphenol		<0.005	mg/L	0.005
bis (2-chloroethoxy) methane		<0.005	mg/L	0.005
Benzoic acid		<0.005	mg/L	0.005
2,4-Dichlorophenol		<0.005	mg/L	0.005
1,2,4-Trichlorobenzene		<0.005	mg/L	0.005
a,a-Dimethylphenethylamine		<0.005	mg/L	0.005
Naphthalene		<0.005	mg/L	0.005
4-Chloroaniline		<0.005	mg/L	0.005
2,6-Dichlorophenol		<0.005	mg/L	0.005
Hexachlorobutadiene		<0.005	mg/L	0.005
n-Nitroso-di-n-butylamine		<0.005	mg/L	0.005
4-Chloro-3-methylphenol		<0.005	mg/L	0.005
1-Methylnaphthalene		<0.005	mg/L	0.005
2-Methylnaphthalene		<0.005	mg/L	0.005
1,2,4,5-Tetrachlorobenzene		<0.005	mg/L	0.005
Hexachlorocyclopentadiene		<0.005	mg/L	0.005
2,4,6-Trichlorophenol		<0.005	mg/L	0.005
2,4,5-Trichlorophenol		<0.005	mg/L	0.005
2-Chloronaphthalene		<0.005	mg/L	0.005
1-Chloronaphthalene		<0.005	mg/L	0.005
2-Nitroaniline		<0.005	mg/L	0.005
Dimethylphthalate		<0.005	mg/L	0.005
Acenaphthylene		<0.005	mg/L	0.005
2,6-Dinitrotoluene		<0.005	mg/L	0.005
3-Nitroaniline		<0.005	mg/L	0.005
Acenaphthene		<0.005	mg/L	0.005
2,4-Dinitrophenol		<0.005	mg/L	0.005
Dibenzofuran		<0.005	mg/L	0.005
Pentachlorobenzene		<0.005	mg/L	0.005
4-Nitrophenol		<0.005	mg/L	0.005
1-Napthylamine		<0.005	mg/L	0.005
2,4-Dinitrotoluene		<0.005	mg/L	0.005

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Param	Flag	Results	Units	Reporting Limit
2-Napthylamine		<0.005	mg/L	0.005
2,3,4,6-Tetrachlorophenol		<0.005	mg/L	0.005
Fluorene		<0.005	mg/L	0.005
Diethylphthalate		<0.005	mg/L	0.005
4-Chlorophenyl-phenylether		<0.005	mg/L	0.005
4-Nitroaniline		<0.005	mg/L	0.005
4,6-Dinitro-2-methylphenol		<0.005	mg/L	0.005
Diphenylamine		<0.005	mg/L	0.005
Diphenylhydrazine		<0.005	mg/L	0.005
4-Bromophenyl-phenylether		<0.005	mg/L	0.005
Phenacetin		<0.005	mg/L	0.005
Hexachlorobenzene		<0.005	mg/L	0.005
4-Aminobiphenyl		<0.005	mg/L	0.005
Pentachlorophenol		<0.005	mg/L	0.005
Pentachloronitrobenzene		<0.005	mg/L	0.005
Pronamide		<0.005	mg/L	0.005
Phenanthrene		<0.005	mg/L	0.005
Anthracene		<0.005	mg/L	0.005
Di-n-butylphthalate		<0.005	mg/L	0.005
Fluoranthene		<0.005	mg/L	0.005
Benzidine		<0.005	mg/L	0.005
Pyrene		<0.005	mg/L	0.005
p-Dimethylaminoazobenzene		<0.005	mg/L	0.005
Butylbenzylphthalate		<0.005	mg/L	0.005
Benzo(a)anthracene		<0.005	mg/L	0.005
3,3-Dichlorobenzidine		<0.005	mg/L	0.005
Chrysene		<0.005	mg/L	0.005
Bis (2-ethylhexyl) phthalate		<0.005	mg/L	0.005
Di-n-octylphthalate		<0.005	mg/L	0.005
Benzo(b)fluoranthene		<0.005	mg/L	0.005
7,12-Dimethylbenz(a)anthracene		<0.005	mg/L	0.005
Benzo(k)fluoranthene		<0.005	mg/L	0.005
Benzo(a)pyrene		<0.005	mg/L	0.005
3-Methylcholanthrene		<0.005	mg/L	0.005
Dibenzo(a,j)acridine		<0.005	mg/L	0.005
Indeno(1,2,3-cd)pyrene		<0.005	mg/L	0.005
Dibenzo(a,h)anthracene		<0.005	mg/L	0.005
Benzo(g,h,i)perylene		<0.005	mg/L	0.005

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorophenol		31.91	mg/L	80	39	8 - 73
Phenol-d5		23.93	mg/L	80	29	8 - 62
Nitrobenzene-d5		38.82	mg/L	80	48	44 - 109
2-Fluorobiphenyl		40.47	mg/L	80	50	45 - 109
2,4,6-Tribromophenol		37.81	mg/L	80	47	39 - 132
Terphenyl-d14		42.21	mg/L	80	52	46 - 121

Released to Imaging: 7/12/2024 10:49:45 AM

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Quality Control Report
Lab Control Spikes and Duplicate Spikes

Sample: LCS

QC Batch: QC03650

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		111	µg/L	1	100	<2.00	111		73 - 154	20
Benzene		107	µg/L	1	100	<2.00	107		84 - 126	20
Trichloroethene (TCE)		104	µg/L	1	100	<2.00	104		82 - 123	20
Toluene		105	µg/L	1	100	<2.00	105		81 - 122	20
Chlorobenzene		102	µg/L	1	100	<2.00	102		86 - 121	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		52.19	µg/L	1	50	104	84 - 116
Toluene-d8		49.92	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		46.05	µg/L	1	50	92	80 - 110

Sample: LCSD

QC Batch: QC03650

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
1,1-Dichloroethene		112	µg/L	1	100	<2.00	112	1	73 - 154	20
Benzene		107	µg/L	1	100	<2.00	107	0	84 - 126	20
Trichloroethene (TCE)		103	µg/L	1	100	<2.00	103	1	82 - 123	20
Toluene		105	µg/L	1	100	<2.00	105	0	81 - 122	20
Chlorobenzene		101	µg/L	1	100	<2.00	101	1	86 - 121	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
Dibromofluoromethane		52.87	µg/L	1	50	105	84 - 116
Toluene-d8		49.59	µg/L	1	50	99	92 - 108
4-Bromofluorobenzene		46.22	µg/L	1	50	92	80 - 110

Sample: LCS

QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.0	mg/L	2	2	<0.05	100		75 - 125	20
Total Arsenic		0.94	mg/L	1	1	<0.01	94		75 - 125	20
Total Barium		2.0	mg/L	2	2	<0.01	100		75 - 125	20

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Beryllium		0.18	mg/L	0.20	0.20	<0.01	90		75 - 125	20
Total Boron		0.99	mg/L	1	1	<0.10	99		75 - 125	20
Total Cadmium		0.19	mg/L	0.20	0.20	<0.002	95		75 - 125	20
Total Chromium		0.40	mg/L	0.40	0.40	<0.005	100		75 - 125	20
Total Cobalt		1.0	mg/L	1	1	<0.02	100		75 - 125	20
Total Copper		0.39	mg/L	0.40	0.40	<0.02	97		75 - 125	20
Total Iron		2.1	mg/L	2	2	<0.05	105		75 - 125	20
Total Lead		0.98	mg/L	1	1	<0.01	98		75 - 125	20
Total Manganese		0.21	mg/L	0.20	0.20	<0.01	105		75 - 125	20
Total Molybdenum		1.0	mg/L	1	1	<0.05	100		75 - 125	20
Total Nickel		0.96	mg/L	1	1	<0.02	96		75 - 125	20
Total Selenium		0.82	mg/L	1	1	<0.01	82		75 - 125	20
Total Silver		0.20	mg/L	0.20	0.20	<0.005	100		75 - 125	20
Total Vanadium		1.0	mg/L	1	1	<0.01	100		75 - 125	20
Total Zinc		0.23	mg/L	0.20	0.20	<0.05	115		75 - 125	20

Sample: LCSD

QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		1.9	mg/L	1	2	<0.05	95	5	75 - 125	20
Total Arsenic		0.94	mg/L	1	1	<0.01	94	0	75 - 125	20
Total Barium		2.0	mg/L	2	2	<0.01	100	0	75 - 125	20
Total Beryllium		0.18	mg/L	0.20	2	<0.01	90	0	75 - 125	20
Total Boron		0.98	mg/L	1	2	<0.10	98	1	75 - 125	20
Total Cadmium		0.19	mg/L	0.20	2	<0.002	95	0	75 - 125	20
Total Chromium		0.40	mg/L	0.40	2	<0.005	100	0	75 - 125	20
Total Cobalt		1.0	mg/L	1	2	<0.02	100	0	75 - 125	20
Total Copper		0.39	mg/L	0.40	2	<0.02	97	0	75 - 125	20
Total Iron		2.0	mg/L	2	2	<0.05	100	5	75 - 125	20
Total Lead		0.98	mg/L	1	2	<0.01	98	0	75 - 125	20
Total Manganese		0.20	mg/L	0.20	2	<0.01	100	5	75 - 125	20
Total Molybdenum		1.0	mg/L	1	2	<0.05	100	0	75 - 125	20
Total Nickel		0.95	mg/L	1	100	<0.02	95	1	75 - 125	20
Total Selenium		0.81	mg/L	1	2	<0.01	81	1	75 - 125	20

Sample: LCS

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1050	mg/L	1	1000	<0.50	105		75 - 125	20
Dissolved Magnesium		1020	mg/L	1	1000	<0.50	102		75 - 125	20
Dissolved Potassium		1020	mg/L	1	1000	<0.50	102		75 - 125	20
Dissolved Sodium		1020	mg/L	1	1000	<0.50	102		75 - 125	20

Released to Imaging: 7/12/2024 10:49:45 AM

Sample: LCSD QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1030	mg/L	1	1000	<0.50	103	2	75 - 125	20
Dissolved Magnesium		1010	mg/L	1	1000	<0.50	101	1	75 - 125	20
Dissolved Potassium		999	mg/L	1	1000	<0.50	99	2	75 - 125	20
Dissolved Sodium		1010	mg/L	1	1000	<0.50	101	1	75 - 125	20

Sample: LCS QC Batch: QC03678

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		16.013	mg/L	1	80	<0.005	20		5 - 57	20
2-Chlorophenol		28.475	mg/L	1	80	<0.005	35		29 - 110	20
1,4-Dichlorobenzene		22.986	mg/L	1	80	<0.005	28		25 - 94	20
n-Nitrosodi-n-propylamine		20.749	mg/L	1	80	<0.005	25		36 - 119	20
1,2,4-Trichlorobenzene		24.908	mg/L	1	80	<0.005	31		28 - 110	20
4-Chloro-3-methylphenol		29.224	mg/L	1	80	<0.005	36		40 - 126	20
Acenaphthene		37.435	mg/L	1	80	<0.005	46		47 - 118	20
4-Nitrophenol		10.298	mg/L	1	80	<0.005	12		0 - 69	20
2,4-Dinitrotoluene		27.080	mg/L	1	80	<0.005	33		46 - 133	20
Pentachlorophenol		27.106	mg/L	1	80	<0.005	33		21 - 131	20
Pyrene		37.798	mg/L	1	80	<0.005	47		44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		84.40	mg/L	1	80	105	8 - 73
Phenol-d5		75.05	mg/L	1	80	93	8 - 62
Nitrobenzene-d5		80.85	mg/L	1	80	101	44 - 109
2-Fluorobiphenyl		80.05	mg/L	1	80	100	45 - 109
2,4,6-Tribromophenol		72.25	mg/L	1	80	90	39 - 132
Terphenyl-d14		72.08	mg/L	1	80	90	46 - 121

Sample: LCSD QC Batch: QC03678

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Phenol		14.027	mg/L	1	80	<0.005	17	13	5 - 57	20
2-Chlorophenol		25.110	mg/L	1	80	<0.005	31	12	29 - 110	20
1,4-Dichlorobenzene		19.835	mg/L	1	80	<0.005	24	15	25 - 94	20
n-Nitrosodi-n-propylamine		21.234	mg/L	1	80	<0.005	26	2	36 - 119	20
1,2,4-Trichlorobenzene		21.578	mg/L	1	80	<0.005	26	14	28 - 110	20
4-Chloro-3-methylphenol		26.048	mg/L	1	80	<0.005	32	11	40 - 126	20
Acenaphthene		37.566	mg/L	1	80	<0.005	46	0	47 - 118	20

Continued ...

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
4-Nitrophenol		8.783	mg/L	1	80	<0.005	10	16	0 - 69	20
2,4-Dinitrotoluene		22.423	mg/L	1	80	<0.005	28	19	46 - 133	20
Pentachlorophenol		24.661	mg/L	1	80	<0.005	30	9	21 - 131	20
Pyrene		41.124	mg/L	1	80	<0.005	51	8	44 - 125	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
2-Fluorophenol		59.15	mg/L	1	80	73	8 - 73
Phenol-d5		50.50	mg/L	1	80	63	8 - 62
Nitrobenzene-d5		72.39	mg/L	1	80	90	44 - 109
2-Fluorobiphenyl		72.77	mg/L	1	80	90	45 - 109
2,4,6-Tribromophenol		68.99	mg/L	1	80	86	39 - 132
Terphenyl-d14		78.25	mg/L	1	80	97	46 - 121

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Matrix Spikes and Duplicate Spikes

Sample: MS QC Batch: QC03642

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		94.54	mg/L	1	62.50	38	90		80 - 120	20
Sulfate		86.33	mg/L	1	62.50	25	98		80 - 120	20

Sample: MSD QC Batch: QC03642

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		94.60	mg/L	1	62.50	38	90	0	80 - 120	20
Sulfate		85.71	mg/L	1	62.50	25	97	1	80 - 120	20

Sample: MS QC Batch: QC03651

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		4.5	mg/L	4	2	2.7	90		75 - 125	20
Total Arsenic		1.1	mg/L	1	1	0.21	89		75 - 125	20
Total Barium		1.8	mg/L	1	2	<0.01	90		75 - 125	20
Total Beryllium		0.17	mg/L	0.20	0.20	<0.01	85		75 - 125	20
Total Boron		1.4	mg/L	1	1	0.54	86		75 - 125	20
Total Cadmium		0.17	mg/L	0.20	0.20	<0.002	85		75 - 125	20
Total Chromium		0.37	mg/L	0.40	0.40	<0.005	92		75 - 125	20
Total Cobalt		0.89	mg/L	1	1	<0.02	89		75 - 125	20
Total Copper		0.38	mg/L	0.40	0.40	<0.02	95		75 - 125	20
Total Iron		3.4	mg/L	2	2	1.5	95		75 - 125	20
Total Lead		0.88	mg/L	1	1	<0.01	88		75 - 125	20
Total Manganese		0.29	mg/L	0.20	0.20	0.11	90		75 - 125	20
Total Molybdenum		0.92	mg/L	1	1	<0.05	92		75 - 125	20
Total Nickel		0.90	mg/L	1	1	<0.02	90		75 - 125	20
Total Selenium		1.2	mg/L	1	1	0.39	81		75 - 125	20
Total Silver		0.18	mg/L	0.20	0.20	<0.005	90		75 - 125	20
Total Vanadium		0.92	mg/L	1	1	<0.01	92		75 - 125	20
Total Zinc		0.19	mg/L	0.20	0.20	0.05	70		75 - 125	20

Sample: MSD QC Batch: QC03651

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		4.6	mg/L	4	2	2.7	95	5	75 - 125	20
Total Arsenic		1.1	mg/L	1	0.20	0.21	89	0	75 - 125	20
Total Barium		1.8	mg/L	1	2	<0.01	90	0	75 - 125	20
Total Beryllium		0.17	mg/L	0.20	0.20	<0.01	85	0	75 - 125	20
Total Boron		1.4	mg/L	1	1	0.54	86	0	75 - 125	20
Total Cadmium		0.17	mg/L	0.20	20.20	<0.002	85	0	75 - 125	20
Total Chromium		0.36	mg/L	0.40	0.40	<0.005	90	3	75 - 125	20
Total Cobalt		0.88	mg/L	1	1	<0.02	88	1	75 - 125	20
Total Copper		0.38	mg/L	0.40	0.40	<0.02	95	0	75 - 125	20
Total Iron		3.3	mg/L	2	2	1.5	90	5	75 - 125	20
Total Lead		0.87	mg/L	1	1	<0.01	87	1	75 - 125	20
Total Manganese		0.29	mg/L	0.20	0.20	0.11	90	0	75 - 125	20
Total Molybdenum		0.91	mg/L	1	1	<0.05	91	1	75 - 125	20
Total Nickel		0.88	mg/L	1	1	<0.02	88	2	75 - 125	20
Total Selenium		1.1	mg/L	1	1	0.39	71	13	75 - 125	20
Total Silver		0.18	mg/L	0.20	0.20	<0.005	90	0	75 - 125	20
Total Vanadium		0.92	mg/L	1	1	<0.01	92	0	75 - 125	20
Total Zinc		0.21	mg/L	0.20	1	0.05	80	13	75 - 125	20

Sample: MS

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1170	mg/L	1	1000	160	101		75 - 125	20
Dissolved Magnesium		1180	mg/L	1	1000	195	98		75 - 125	20
Dissolved Potassium		1040	mg/L	1	1000	26	101		75 - 125	20
Dissolved Sodium		1200	mg/L	1	1000	170	103		75 - 125	20

Sample: MSD

QC Batch: QC03653

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1200	mg/L	1	1000	160	104	3	75 - 125	20
Dissolved Magnesium		1230	mg/L	1	1000	195	103	5	75 - 125	20
Dissolved Potassium		1080	mg/L	1	1000	26	105	4	75 - 125	20
Dissolved Sodium		1250	mg/L	1	1000	170	108	5	75 - 125	20

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Quality Control Report
Duplicate Samples

Sample: Duplicate

QC Batch: QC03616

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		8.9	8.9	s.u.	1	0	20

Sample: Duplicate

QC Batch: QC03621

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		2746	2700	uMHOS/cm	1	2	20

Sample: Duplicate

QC Batch: QC03622

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity		220	213	mg/L as CaCo3	1	3	20
Total Alkalinity		220	213	mg/L as CaCo3	1	3	20

Sample: Duplicate

QC Batch: QC03649

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1852	1800	mg/L	1	3	20

Sample: Duplicate

QC Batch: QC03708

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydrogen Cyanide		<2.5	<2.5		1	0	20
Hydrogen Sulfide		<10	<10		1	0	20
Reactivity		Non-reactive	Non-reactive		1	0	20

Sample: Duplicate

QC Batch: QC03709

Released to Imaging: 7/12/2024 10:49:45 AM

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Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Corrosivity		Non 0.91	Non 0.91	mm/yr	1	0	20
pH		8.24	8.24	s.u.	1	0	20

Sample: Duplicate

QC Batch: QC03710

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Ignitability		non-ignitable	non-ignitable		1	0	20

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Quality Control Report
Continuing Calibration Verification Standards

Sample: CCV (1)

QC Batch: QC03616

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	7/6/00

Sample: ICV (1)

QC Batch: QC03616

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	7/6/00

Sample: CCV (1)

QC Batch: QC03621

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1417	100	80 - 120	7/6/00

Sample: ICV (1)

QC Batch: QC03621

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1417	100	80 - 120	7/6/00

Sample: CCV (1)

QC Batch: QC03622

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	7/7/00
Carbonate Alkalinity		mg/L as CaCo3	0	232	0	80 - 120	7/7/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	7	0	80 - 120	7/7/00
Total Alkalinity		mg/L as CaCo3	250	239	95	80 - 120	7/7/00

Sample: ICV (1)

QC Batch: QC03622

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	7/7/00
Carbonate Alkalinity		mg/L as CaCo3	0	242	0	80 - 120	7/7/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	0	0	80 - 120	7/7/00
Total Alkalinity		mg/L as CaCo3	250	243	97	80 - 120	7/7/00

Sample: CCV (1) QC Batch: QC03642

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	11.36	90	80 - 120	7/7/00
Sulfate		mg/L	12.50	12.36	98	80 - 120	7/7/00

Sample: ICV (1) QC Batch: QC03642

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	11.35	90	80 - 120	7/7/00
Sulfate		mg/L	12.50	11.79	94	80 - 120	7/7/00

Sample: CCV (1) QC Batch: QC03649

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	977	97	80 - 120	7/10/00

Sample: ICV (1) QC Batch: QC03649

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	966	96	80 - 120	7/10/00

Sample: CCV (1) QC Batch: QC03650

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	100	113	113	80 - 120	7/7/00
1,1-Dichloroethene		µg/L	100	109	109	73 - 154	7/7/00
Chloroform		µg/L	100	111	111	80 - 120	7/7/00
1,2-Dichloropropane		µg/L	100	102	102	80 - 120	7/7/00
Toluene		µg/L	100	99	99	81 - 122	7/7/00
Chlorobenzene		µg/L	100	94	94	86 - 121	7/7/00
Ethylbenzene		µg/L	100	98	98	80 - 120	7/7/00
Dibromofluoromethane		µg/L	50	57.48	114	80 - 120	7/7/00
Toluene-d8		µg/L	50	48.77	97	80 - 120	7/7/00
4-Bromofluorobenzene		µg/L	50	51.72	103	80 - 120	7/7/00

Sample: CCV (1)

QC Batch: QC03651

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	5.1	102	75 - 125	7/7/00
Total Arsenic		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Barium		mg/L	5	5.1	102	75 - 125	7/7/00
Total Beryllium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Boron		mg/L	2.50	2.6	104	75 - 125	7/7/00
Total Cadmium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Chromium		mg/L	1	1.0	100	75 - 125	7/7/00
Total Cobalt		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Copper		mg/L	1	1.0	100	75 - 125	7/7/00
Total Iron		mg/L	5	5.1	102	75 - 125	7/7/00
Total Lead		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Manganese		mg/L	0.50	0.51	102	75 - 125	7/7/00
Total Molybdenum		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Nickel		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Selenium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Vanadium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Zinc		mg/L	0.50	0.53	106	75 - 125	7/7/00

Sample: ICV (1)

QC Batch: QC03651

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.9	98	75 - 125	7/7/00

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Arsenic		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Barium		mg/L	5	5.1	102	75 - 125	7/7/00
Total Beryllium		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Boron		mg/L	2.50	2.6	104	75 - 125	7/7/00
Total Cadmium		mg/L	0.50	0.51	102	75 - 125	7/7/00
Total Chromium		mg/L	1	1.0	100	75 - 125	7/7/00
Total Cobalt		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Copper		mg/L	1	1.0	100	75 - 125	7/7/00
Total Iron		mg/L	5	5.0	100	75 - 125	7/7/00
Total Lead		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Manganese		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Molybdenum		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Nickel		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Selenium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	7/7/00
Total Vanadium		mg/L	2.50	2.5	100	75 - 125	7/7/00
Total Zinc		mg/L	0.50	0.54	108	75 - 125	7/7/00

Sample: CCV (1) QC Batch: QC03653

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	20	20.6	103	75 - 125	7/10/00
Dissolved Magnesium		mg/L	20	20.0	100	75 - 125	7/10/00
Dissolved Potassium		mg/L	20	18.7	93	75 - 125	7/10/00
Dissolved Sodium		mg/L	20	20.2	101	75 - 125	7/10/00

Sample: ICV (1) QC Batch: QC03653

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	20	20.6	103	75 - 125	7/10/00
Dissolved Magnesium		mg/L	20	20.2	101	75 - 125	7/10/00
Dissolved Potassium		mg/L	20	18.6	93	75 - 125	7/10/00
Dissolved Sodium		mg/L	20	20.0	100	75 - 125	7/10/00

Sample: CCV (1) QC Batch: QC03678

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Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60	55.36	92	5 - 57	7/11/00
1,4-Dichlorobenzene		mg/L	60	58.97	98	25 - 94	7/11/00
2-Nitrophenol		mg/L	60	59.23	98	80 - 120	7/11/00
2,4-Dichlorophenol		mg/L	60	60.33	100	80 - 120	7/11/00
Hexachlorobutadiene		mg/L	60	58.79	97	80 - 120	7/11/00
4-Chloro-3-methylphenol		mg/L	60	57.70	96	40 - 126	7/11/00
2,4,6-Trichlorophenol		mg/L	60	58.60	97	80 - 120	7/11/00
Acenaphthene		mg/L	60	58.33	97	47 - 118	7/11/00
Diphenylamine		mg/L	60	58.11	96	80 - 120	7/11/00
Pentachlorophenol		mg/L	60	57.33	95	21 - 131	7/11/00
Fluoranthene		mg/L	60	56.95	94	80 - 120	7/11/00
Di-n-octylphthalate		mg/L	60	56.99	94	80 - 120	7/11/00
Benzo(a)pyrene		mg/L	60	59.82	99	80 - 120	7/11/00
2-Fluorophenol		mg/L	60	57.35	95	8 - 73	7/11/00
Phenol-d5		mg/L	60	55.81	93	8 - 62	7/11/00
Nitrobenzene-d5		mg/L	60	58.76	97	44 - 109	7/11/00
2-Fluorobiphenyl		mg/L	60	57.63	96	45 - 109	7/11/00
2,4,6-Tribromophenol		mg/L	60	55.41	92	39 - 132	7/11/00
Terphenyl-d14		mg/L	60	54.30	90	46 - 121	7/11/00

Released to Imaging: 7/12/2024 10:49:45 AM

149250

Page_____of_____

Released to Imaging: 1/12/2024 8:46:45 AM

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A0007061 3

Company Name: NAVAJO — Phone #:

Address: (Street, City, Zip) — Fax #:

Contact Person: Charlie Plymale or Darrell Moore

Invoice to: (if different from above)

Project #: — Project Name: Injection Wells

Project Location: Artesia — Sampler Signature: Charlie Plymale

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	NaHSO4	H2SO4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
149250	Inj. wells	2	1L	X									X	X	7/5/00	10:30
	" "	2	40ml	X						X			X		7/5/00	10:30
	" "	1	500ml	X					X					X	7/5/00	10:30

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

Select

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Plymale	7/5/00	16:15			
			Received at Laboratory by: Vicki Ansley	7-6-00	10:00am

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact (Y) / N

Headspace Y / (N)

Temp 13° C

Log-in Review SB

REMARKS: 7/14/00

Carrier # Fed Ex 799 [illegible]

Page 5775 of 5828

TELEPHONE
(505) 748-3311

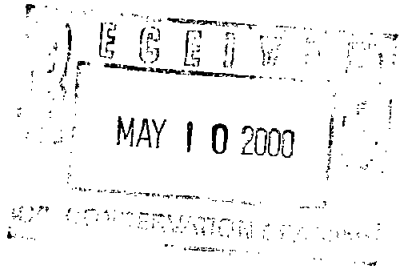
EASYLINK
62905278

NAVAJO REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

May 8, 2000



Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: First Quarter 2000 Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from January 1, 2000 to March 31, 2000. We have disposed a total of 2,169,912 bbls. of fluid down the two wells. This is broken down as follows: 1,932,802 bbls. down WDW-1 and 237,110 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Released to Imaging: 7/12/2024 10:49:45 AM

Page 5777 of 5828

WDW-1

Month	Wellhead Pressure			Injection Flow Rate			Flow Rate		Annulus Pressure			Annulus Level		
	Avg	**Min**	**Max**	**Avg**	**Min**	**Max**	**Average**	**Total**	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**
	psig	psig	psig	gpm	gpm	gpm	**BPD**	**Bbl**	psig	psig	psig	%	%	%
Oct-99	87	-12.7	328	330	499	10.8	11,314	350,743						
Nov-99	161	-12.4	410	249	344	0	8,534	256,011						
Dec-99	156	-12.3	322	272	377	13.5	9,309	288,566						
Jan-00	297	-12	400	369	350	0	12,651	392,195	NA	NA	NA	NA	NA	NA
Feb-00	319	-12	400	319	350	0	10,937	317,173	243	145	318	91	90	92
Mar-00	309	-12	400	309	350	0	10,584	328,114	252	155	325	91	90	92

WDW-2

Month	Wellhead Pressure			Injection Flow Rate			Avg Flow	Total Flow	Annulus Pressure			Annulus Level		
	Avg	**Min**	**Max**	**Avg**	**Min**	**Max**	BPD	Bbl	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**
	psig	psig	psig	gpm	gpm	gpm			psig	psig	psig	%	%	%
Oct-99	NA	NA	NA	NA	NA	NA	NA	NA						
Nov-99	140.3	-15.4	337	159	437	0	5,434	163,029						
Dec-99	140.3	-15.4	338	70	341	0	2,390	74,081						
Jan-00	-13	-13	-13	0	0	0	0	0	NA	NA	NA	NA	NA	NA
Feb-00	-13	-13	-13	0	0	0	0	0	252	232	295	88	86	89
Mar-00	-13	-13	-13	0	0	0	0	0	201	181	243	89	87	90

Received by OCD: 5/16/2022 2:12:41 PM

Released to Imaging: 7/12/2024 10:49:45 AM

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Darrell Moore
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 4/14/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00033024

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
143547	Injection Wells	Water	3/29/00	8:30	3/30/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 20 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Results Report

Sample Number: 143547
Description: Injection Wells

Param	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
624 (µg/L)									
Bromochloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dichlorodifluoromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chloromethane (methyl chloride)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Vinyl Chloride	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromomethane (methyl bromide)	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
Chloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Trichlorofluoromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Acetone	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
Iodomethane (methyl iodide)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Carbon Disulfide	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Acrylonitrile	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Butanone (MEK)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
4-methyl-2-pentanone (MIBK)	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
2-hexanone	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans 1,4-Dichloro-2-butene	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
1,1-Dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Methylene chloride	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
MTBE	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans-1,2-Dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1-Dichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
cis-1,2-dichloroethene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2,2-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichloroethane (EDC)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chloroform	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,1-Trichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Benzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Carbon Tetrachloride	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Trichloroethene (TCE)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dibromomethane (methylene bromide)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromodichloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Chloroethyl vinyl ether	<50.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	10
cis-1,3-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
trans-1,3-Dichloropropene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Toluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,2-Trichloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3-Dichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Dibromochloromethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dibromoethane (EDB)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Tetrachloroethene (PCE)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Chlorobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,1,1,2-Tetrachloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Ethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
m,p-Xylene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromoform	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Styrene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
o-Xylene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2

1,1,2,2-Tetrachloroethane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
2-Chlorotoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2,3-Trichloropropane	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Isopropylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Bromobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
n-Propylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3,5-Trimethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
tert-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2,4-Trimethylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,4-Dichlorobenzene (para)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
sec-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,3-Dichlorobenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
p-Isopropyltoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
4-Chlorotoluene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dichlorobenzene (ortho)	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
n-Butylbenzene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
1,2-Dibromo-3-chloropropane	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
1,2,3-Trichlorobenzene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
1,2,4-Trichlorobenzene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5
Naphthalene	<10.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	2
Hexachlorobutadiene	<25.00	5	E 624	4/3/00	4/3/00	JG	PB01722	QC02061	5

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #
Dibromofluoromethane	51.31	1	50	103	72 - 128	JG	PB01722	QC02061
Toluene-d8	49.28	1	50	99	91 - 107	JG	PB01722	QC02061
4-Bromofluorobenzene	48.81	1	50	98	74 - 106	JG	PB01722	QC02061

625 (mg/L)									
Pyridine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosodimethylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Picoline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Methyl methanesulfonate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Ethyl methanesulfonate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Aniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroethyl) ether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Chlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,3-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,4-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzyl alcohol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2-Dichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroisopropyl) ether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Methylphenol/3-Methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acetophenone	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosodi-n-propylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachloroethane	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Nitrobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitrosopiperidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Isophorone	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Nitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dimethylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
bis (2-chloroethoxy) methane	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzoic acid	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2,4-Trichlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 4 of 20

N/A Injection Wells N/A

a,a-Dimethylphenethylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Naphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chloroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,6-Dichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorobutadiene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
n-Nitroso-di-n-butylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chloro-3-methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Methylnaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Methylnaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1,2,4,5-Tetrachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorocyclopentadiene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4,6-Trichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4,5-Trichlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Chloronaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Chloronaphthalene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dimethylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acenaphthylene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,6-Dinitrotoluene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Acenaphthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dinitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzofuran	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Nitrophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
1-Napthylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,4-Dinitrotoluene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2-Napthylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
2,3,4,6-Tetrachlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Fluorene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diethylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Chlorophenyl-phenylether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Nitroaniline	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4,6-Dinitro-2-methylphenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diphenylamine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Diphenylhydrazine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Bromophenyl-phenylether	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenacetin	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Hexachlorobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
4-Aminobiphenyl	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachlorophenol	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pentachloronitrobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pronamide	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Phenanthrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Di-n-butylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
p-Dimethylaminoazobenzene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Butylbenzylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(a)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3,3-Dichlorobenzidine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Chrysene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Bis (2-ethylhexyl) phthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Di-n-octylphthalate	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Benzo(b)fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
7,12-Dimethylbenz(a)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(k)fluoranthene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(a)pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
3-Methylcholanthrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzo(a,j)acridine	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Indeno(1,2,3-cd)pyrene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Dibenzo(a,h)anthracene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005
Benzo(g,h,i)perylene	<0.005	1	E 625	4/1/00	4/3/00	MA	PB01723	QC02062	0.005

Surrogate (mg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
2-Fluorophenol	13.42	1	80	17	8 - 73	MA	PB01723	QC02062	
Phenol-d5	10.12	1	80	13	8 - 62	MA	PB01723	QC02062	
Nitrobenzene-d5	39.11	1	80	49	44 - 109	MA	PB01723	QC02062	
2-Fluorobiphenyl	46.86	1	80	59	45 - 109	MA	PB01723	QC02062	
2,4,6-Tribromophenol	27.61	1	80	35	39 - 132	MA	PB01723	QC02062	
Terphenyl-d14	32.93	1	80	41	46 - 121	MA	PB01723	QC02062	
Alkalinity (mg/L as CaCo3)									
Hydroxide Alkalinity	<1.0	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Carbonate Alkalinity	<1.0	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Bicarbonate Alkalinity	325	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Total Alkalinity	325	1	E 310.1	4/5/00	4/5/00	JS	PB01579	QC01887	1
Conductivity (uMHOS/cm)									
Specific Conductance	7000	1	SM 2510B	4/5/00	4/5/00	JS	PB01580	QC01888	
Corrosivity (mm/yr)									
Corrosivity	Non 0.18	1	S 1110	4/3/00	4/3/00	JM	PB01743	QC02088	
pH	8.67	1	S 1110	4/3/00	4/3/00	JM	PB01743	QC02088	
Dissolved Metals (mg/L)									
Dissolved Calcium	131	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Magnesium	24	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Potassium	26	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Dissolved Sodium	832	1	E 200.7	4/5/00	4/6/00	RR	PB01575	QC01950	0.5
Hg, Total (mg/L)									
Total Mercury	<0.0002	1	S 7470A	4/4/00	4/6/00	JM	PB01644	QC01968	0.0002
Ignitability									
Ignitability	>150	1	W-846 Ch. 7	4/3/00	4/3/00	JM	PB01744	QC02089	
Ion Chromatography (IC) (mg/L)									
CL	1600	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.5
Fluoride	29	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.2
Nitrate-N	2.6	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.2
Sulfate	870	1	E 300.0	3/30/00	3/30/00	JS	PB01514	QC01806	0.5
pH (s.u.)									
pH	* 8.4	1	E 150.1	3/30/00	3/30/00	RS	PB01527	QC01825	1
* pH - Out of holding time.									
Reactivity									
Reactivity	Non-reactive	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	
Hydrogen Sulfide	<10	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	
Hydrogen Cyanide	<2.5	1	S 7.3	4/3/00	4/3/00	JM	PB01745	QC02090	

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 6 of 20

N/A Injection Wells N/A

TDS (mg/L)									
Total Dissolved Solids	* 3200	1	E 160.1	4/7/00	4/8/00	JS	PB01628	QC01956	10
* Total Dissolved Solids - Sample re-ran out of holding time									
Total Metals (mg/L)									
Total Aluminum	0.24	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Arsenic	0.21	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Barium	0.03	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Beryllium	<0.004	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.004
Total Boron	0.24	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Cadmium	<0.002	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.002
Total Chromium	<0.005	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.005
Total Cobalt	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Copper	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Iron	0.27	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Lead	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Manganese	0.05	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Molybdenum	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Nickel	0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Selenium	0.44	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Silver	<0.005	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.005
Total Uranium	<0.50	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.5
Total Vanadium	<0.01	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01
Total Zinc	0.02	1	S 6010B	4/5/00	4/6/00	RR	PB01721	QC02060	0.01

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Bromochloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dichlorodifluoromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chloromethane (methyl chloride) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Vinyl Chloride (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Bromomethane (methyl bromide) (µg/L)		<5.00	5	4/3/00	PB01722	QC02061
Chloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Trichlorofluoromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Acetone (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
Iodomethane (methyl iodide) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Carbon Disulfide (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Acrylonitrile (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2-Butanone (MEK) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
4-methyl-2-pentanone (MIBK) (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
2-hexanone (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans 1,4-Dichloro-2-butene (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
1,1-Dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Methylene chloride (µg/L)		<5.00	5	4/3/00	PB01722	QC02061
MTBE (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans-1,2-Dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1-Dichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
cis-1,2-dichloroethene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2,2-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chloroform (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,1-Trichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Benzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Carbon Tetrachloride (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Trichloroethene (TCE) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dibromomethane (methylene bromide) (µg		<2.00	2	4/3/00	PB01722	QC02061
Bromodichloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
2-Chloroethyl vinyl ether (µg/L)		<10.00	10	4/3/00	PB01722	QC02061
cis-1,3-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
trans-1,3-Dichloropropene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Toluene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,2-Trichloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,3-Dichloropropane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Dibromochloromethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Tetrachloroethene (PCE) (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Chlorobenzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
Ethylbenzene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061
m,p-Xylene (µg/L)		<2.00	2	4/3/00	PB01722	QC02061

Bromoform (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Styrene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
o-Xylene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,1,2,2-Tetrachloroethane (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
2-Chlorotoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2,3-Trichloropropane (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Isopropylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Bromobenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
n-Propylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,3,5-Trimethylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
tert-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2,4-Trimethylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,4-Dichlorobenzene (para) (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
sec-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,3-Dichlorobenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
p-Isopropyltoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
4-Chlorotoluene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2-Dichlorobenzene (ortho) (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
n-Butylbenzene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
1,2,3-Trichlorobenzene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
1,2,4-Trichlorobenzene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061
Naphthalene (µg/L)	<2.00	2	4/3/00	PB01722	QC02061
Hexachlorobutadiene (µg/L)	<5.00	5	4/3/00	PB01722	QC02061

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	51.31	50	103	72 - 128	QC02061
Toluene-d8 (µg/L)	49.28	50	99	91 - 107	QC02061
4-Bromofluorobenzene (µg/L)	48.81	50	98	74 - 106	QC02061

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Pyridine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosodimethylamine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Picoline (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Methyl methanesulfonate (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Ethyl methanesulfonate (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Phenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Aniline (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroethyl) ether (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Chlorophenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,3-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,4-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Benzyl alcohol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
1,2-Dichlorobenzene (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
2-Methylphenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroisopropyl) ether (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
4-Methylphenol/3-Methylphenol (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Acetophenone (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosodi-n-propylamine (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062
Hexachloroethane (mg/L)		<0.005	0.005	4/3/00	PB01723	QC02062

Report Date: 4/14/00	Order ID Number: A00033024				Page Number: 9 of 20
N/A	Injection Wells				N/A
Nitrobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitrosopiperidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Isophorone (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Nitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dimethylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
bis (2-chloroethoxy) methane (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzoic acid (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1,2,4-Trichlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
a,a-Dimethylphenethylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Naphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chloroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,6-Dichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorobutadiene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
n-Nitroso-di-n-butylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chloro-3-methylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Methylnaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Methylnaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1,2,4,5-Tetrachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorocyclopentadiene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4,6-Trichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4,5-Trichlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Chloronaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Chloronaphthalene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dimethylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Acenaphthylene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,6-Dinitrotoluene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Acenaphthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dinitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzofuran (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Nitrophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
1-Napthylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,4-Dinitrotoluene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2-Napthylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
2,3,4,6-Tetrachlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Fluorene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diethylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Chlorophenyl-phenylether (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Nitroaniline (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4,6-Dinitro-2-methylphenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diphenylamine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Diphenylhydrazine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Bromophenyl-phenylether (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Phenacetin (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Hexachlorobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
4-Aminobiphenyl (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachlorophenol (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pentachloronitrobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 10 of 20

N/A Injection Wells N/A

Pronamide (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Phenanthrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Di-n-butylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
p-Dimethylaminoazobenzene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Butylbenzylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(a)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3,3-Dichlorobenzidine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Chrysene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Bis (2-ethylhexyl) phthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Di-n-octylphthalate (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(b)fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
7,12-Dimethylbenz(a)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(k)fluoranthene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(a)pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
3-Methylcholanthrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzo(a,j)acridine (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Indeno(1,2,3-cd)pyrene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Dibenzo(a,h)anthracene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062
Benzo(g,h,i)perylene (mg/L)	<0.005	0.005	4/3/00	PB01723	QC02062

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
2-Fluorophenol (mg/L)	21.51	80	27	8 - 73	QC02062
Phenol-d5 (mg/L)	14.16	80	18	8 - 62	QC02062
Nitrobenzene-d5 (mg/L)	52.84	80	66	44 - 109	QC02062
2-Fluorobiphenyl (mg/L)	55.45	80	69	45 - 109	QC02062
2,4,6-Tribromophenol (mg/L)	47.37	80	59	39 - 132	QC02062
Terphenyl-d14 (mg/L)	53.65	80	67	46 - 121	QC02062

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Hydroxide Alkalinity (mg/L as CaCo3)		<1.0	1	4/5/00	PB01579	QC01887
Carbonate Alkalinity (mg/L as CaCo3)		<1.0	1	4/5/00	PB01579	QC01887
Bicarbonate Alkalinity (mg/L as CaCo3)		<4.0	1	4/5/00	PB01579	QC01887
Total Alkalinity (mg/L as CaCo3)		<4.0	1	4/5/00	PB01579	QC01887

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Specific Conductance (uMHOS/cm)		3.1		4/5/00	PB01580	QC01888

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dissolved Calcium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Magnesium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Potassium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950
Dissolved Sodium (mg/L)		<0.50	0.5	4/6/00	PB01575	QC01950

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 11 of 20

N/A Injection Wells N/A

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Mercury (mg/L)		<0.0002	0.0002	4/6/00	PB01644	QC01968

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL (mg/L)		<0.5	0.5	3/30/00	PB01514	QC01806
Fluoride (mg/L)		<0.2	0.2	3/30/00	PB01514	QC01806
Nitrate-N (mg/L)		<0.2	0.2	3/30/00	PB01514	QC01806
Sulfate (mg/L)		<0.5	0.5	3/30/00	PB01514	QC01806

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Dissolved Solids (mg/L)		<10	10	4/8/00	PB01628	QC01956

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Aluminum (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Arsenic (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Barium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Beryllium (mg/L)		<0.004	0.004	4/6/00	PB01721	QC02060
Total Boron (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Cadmium (mg/L)		<0.002	0.002	4/6/00	PB01721	QC02060
Total Chromium (mg/L)		<0.005	0.005	4/6/00	PB01721	QC02060
Total Cobalt (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Copper (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Iron (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Lead (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Manganese (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Molybdenum (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Nickel (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Selenium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Silver (mg/L)		<0.005	0.005	4/6/00	PB01721	QC02060
Total Uranium (mg/L)		<0.50	0.5	4/6/00	PB01721	QC02060
Total Vanadium (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060
Total Zinc (mg/L)		<0.01	0.01	4/6/00	PB01721	QC02060

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 12 of 20
N/A Injection Wells N/A

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	86	1	125	200.21	91		80 - 120	-	QC01806
MS	Fluoride (mg/L)	4.5	1	25	28.98	98		80 - 120	-	QC01806
MS	Nitrate-N (mg/L)	5.7	1	50	50.58	90		80 - 120	-	QC01806
MS	Sulfate (mg/L)	160	1	125	280.50	96		80 - 120	-	QC01806
MSD	CL (mg/L)	86	1	125	199.06	90	1	-	0 - 20	QC01806
MSD	Fluoride (mg/L)	4.5	1	25	27.82	93	5	-	0 - 20	QC01806
MSD	Nitrate-N (mg/L)	5.7	1	50	49.86	88	2	-	0 - 20	QC01806
MSD	Sulfate (mg/L)	160	1	125	279.52	96	1	-	0 - 20	QC01806

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Dissolved Calcium (mg/L)	108	1	1000	1094	99		75 - 125	-	QC01950
MS	Dissolved Magnesium (mg/L)	24	1	1000	1014	99		75 - 125	-	QC01950
MS	Dissolved Potassium (mg/L)	14	1	1000	970	96		75 - 125	-	QC01950
MS	Dissolved Sodium (mg/L)	62	1	1000	947	89		75 - 125	-	QC01950
MSD	Dissolved Calcium (mg/L)	108	1	1000	1094	99	0	-	0 - 20	QC01950
MSD	Dissolved Magnesium (mg/L)	24	1	1000	1014	99	0	-	0 - 20	QC01950
MSD	Dissolved Potassium (mg/L)	14	1	1000	1023	101	5	-	0 - 20	QC01950
MSD	Dissolved Sodium (mg/L)	62	1	1000	1075	101	13	-	0 - 20	QC01950

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Total Mercury (mg/L)	<0.0002	1	0.001	0.00103	103		80 - 120	-	QC01968
MSD	Total Mercury (mg/L)	<0.0002	1	0.001	0.00112	112	8	-	0 - 20	QC01968

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	Total Aluminum (mg/L)	0.24	1	2	2.11	94		75 - 125	-	QC02060
MS	Total Arsenic (mg/L)	0.21	1	2	1.95	87		75 - 125	-	QC02060
MS	Total Barium (mg/L)	0.03	1	2	1.85	91		75 - 125	-	QC02060
MS	Total Beryllium (mg/L)	<0.004	1	2	1.68	84		75 - 125	-	QC02060
MS	Total Boron (mg/L)	0.24	1	2	1.97	87		75 - 125	-	QC02060
MS	Total Cadmium (mg/L)	<0.002	1	2	1.61	81		75 - 125	-	QC02060
MS	Total Chromium (mg/L)	<0.005	1	2	1.69	85		75 - 125	-	QC02060
MS	Total Cobalt (mg/L)	<0.01	1	2	1.72	86		75 - 125	-	QC02060
MS	Total Copper (mg/L)	<0.01	1	2	1.96	98		75 - 125	-	QC02060

MS	Total Iron (mg/L)	0.27	1	2	1.97	85	75 - 125	-	QC02060
MS	Total Lead (mg/L)	<0.01	1	2	1.67	84	75 - 125	-	QC02060
MS	Total Manganese (mg/L)	0.05	1	2	1.75	85	75 - 125	-	QC02060
MS	Total Molybdenum (mg/L)	<0.01	1	2	1.67	84	75 - 125	-	QC02060
MS	Total Nickel (mg/L)	0.01	1	2	1.81	90	75 - 125	-	QC02060
MS	Total Selenium (mg/L)	0.44	1	2	2.16	86	75 - 125	-	QC02060
MS	Total Silver (mg/L)	<0.005	1	0.25	0.26	104	75 - 125	-	QC02060
MS	Total Uranium (mg/L)	<0.50	1	2	2.12	106	75 - 125	-	QC02060
MS	Total Vanadium (mg/L)	<0.01	1	2	1.69	85	75 - 125	-	QC02060
MS	Total Zinc (mg/L)	0.02	1	2	1.73	86	75 - 125	-	QC02060
MSD	Total Aluminum (mg/L)	0.24	1	2	2.11	94	0	- 0 - 20	QC02060
MSD	Total Arsenic (mg/L)	0.21	1	2	1.95	87	0	- 0 - 20	QC02060
MSD	Total Barium (mg/L)	0.03	1	2	1.85	91	0	- 0 - 20	QC02060
MSD	Total Beryllium (mg/L)	<0.004	1	2	1.68	84	0	- 0 - 20	QC02060
MSD	Total Boron (mg/L)	0.24	1	2	1.98	87	1	- 0 - 20	QC02060
MSD	Total Cadmium (mg/L)	<0.002	1	2	1.61	81	0	- 0 - 20	QC02060
MSD	Total Chromium (mg/L)	<0.005	1	2	1.70	85	1	- 0 - 20	QC02060
MSD	Total Cobalt (mg/L)	<0.01	1	2	1.72	86	0	- 0 - 20	QC02060
MSD	Total Copper (mg/L)	<0.01	1	2	1.97	99	1	- 0 - 20	QC02060
MSD	Total Iron (mg/L)	0.27	1	2	1.98	86	1	- 0 - 20	QC02060
MSD	Total Lead (mg/L)	<0.01	1	2	1.67	84	0	- 0 - 20	QC02060
MSD	Total Manganese (mg/L)	0.05	1	2	1.76	86	1	- 0 - 20	QC02060
MSD	Total Molybdenum (mg/L)	<0.01	1	2	1.67	84	0	- 0 - 20	QC02060
MSD	Total Nickel (mg/L)	0.01	1	2	1.81	90	0	- 0 - 20	QC02060
MSD	Total Selenium (mg/L)	0.44	1	2	2.17	87	1	- 0 - 20	QC02060
MSD	Total Silver (mg/L)	<0.005	1	0.25	0.22	88	17	- 0 - 20	QC02060
MSD	Total Uranium (mg/L)	<0.50	1	2	2.14	107	1	- 0 - 20	QC02060
MSD	Total Vanadium (mg/L)	<0.01	1	2	1.69	85	0	- 0 - 20	QC02060
MSD	Total Zinc (mg/L)	0.02	1	2	1.75	87	1	- 0 - 20	QC02060

Quality Control Report
Duplicates

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydroxide Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC01887
Duplicate	Carbonate Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC01887
Duplicate	Bicarbonate Alkalinity (mg/L as CaC		247	248	1	0	0 - 20	QC01887
Duplicate	Total Alkalinity (mg/L as CaCo3)		247	248	1	0	0 - 20	QC01887

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Specific Conductance (uMHOS/cm)		6973	7000	1	0	0 - 20	QC01888

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 14 of 20
N/A Injection Wells N/A

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Corrosivity (mm/yr)		Non 0.11	Non 0.18	1	0	0 - 20	QC02088
Duplicate	pH (s.u.)		8.52	8.67	1	2	0 - 20	QC02088

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Ignitability		>150	>150	1	0	0 - 20	QC02089

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	pH (s.u.)		8.6	8.6	1	0	0 - 20	QC01825

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydrogen Cyanide		<2.5	<2.5	1	0	0 - 20	QC02090
Duplicate	Hydrogen Sulfide		<10	<10	1	0	0 - 20	QC02090
Duplicate	Reactivity		Non	Non-reactive	1	0	0 - 20	QC02090

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Total Dissolved Solids (mg/L)		3275	3200	1	2	0 - 20	QC01956

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Phenol (mg/L)	<0.005	1	80	19.456	24		5 - 57	-	QC02062
LCS	2-Chlorophenol (mg/L)	<0.005	1	80	45.702	57		29 - 110	-	QC02062
LCS	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	44.401	56		25 - 94	-	QC02062
LCS	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	59.842	74		36 - 119	-	QC02062
LCS	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	54.118	68		28 - 110	-	QC02062
LCS	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	47.100	59		40 - 126	-	QC02062
LCS	Acenaphthene (mg/L)	<0.005	1	80	60.703	76		47 - 118	-	QC02062
LCS	4-Nitrophenol (mg/L)	<0.005	1	80	12.383	15		0 - 69	-	QC02062
LCS	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	47.651	60		46 - 133	-	QC02062
LCS	Pentachlorophenol (mg/L)	<0.005	1	80	44.187	55		21 - 131	-	QC02062
LCS	Pyrene (mg/L)	<0.005	1	80	55.480	69		44 - 125	-	QC02062

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	2-Fluorophenol (mg/L)	1	80	20.66	26	8 - 73	QC02062
LCS	Phenol-d5 (mg/L)	1	80	13.92	17	8 - 62	QC02062
LCS	Nitrobenzene-d5 (mg/L)	1	80	53.11	66	44 - 109	QC02062
LCS	2-Fluorobiphenyl (mg/L)	1	80	57.58	72	45 - 109	QC02062
LCS	2,4,6-Tribromophenol (mg/L)	1	80	45.44	57	39 - 132	QC02062
LCS	Terphenyl-d14 (mg/L)	1	80	52.87	66	46 - 121	QC02062

LCSD	Phenol (mg/L)	<0.005	1	80	18.927	24	3	-	0 - 20	QC02062
LCSD	2-Chlorophenol (mg/L)	<0.005	1	80	50.853	64	11	-	0 - 20	QC02062
LCSD	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	49.094	61	10	-	0 - 20	QC02062
LCSD	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	64.251	80	9	-	0 - 20	QC02062
LCSD	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	61.803	77	13	-	0 - 20	QC02062
LCSD	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	50.593	63	7	-	0 - 20	QC02062
LCSD	Acenaphthene (mg/L)	<0.005	1	80	65.886	82	8	-	0 - 20	QC02062
LCSD	4-Nitrophenol (mg/L)	<0.005	1	80	13.429	17	8	-	0 - 20	QC02062
LCSD	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	49.290	62	3	-	0 - 20	QC02062
LCSD	Pentachlorophenol (mg/L)	<0.005	1	80	50.568	63	13	-	0 - 20	QC02062
LCSD	Pyrene (mg/L)	<0.005	1	80	58.976	74	6	-	0 - 20	QC02062

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	2-Fluorophenol (mg/L)	1	80	27.06	34	8 - 73	QC02062
LCSD	Phenol-d5 (mg/L)	1	80	18.60	23	8 - 62	QC02062
LCSD	Nitrobenzene-d5 (mg/L)	1	80	59.76	75	44 - 109	QC02062
LCSD	2-Fluorobiphenyl (mg/L)	1	80	64.04	80	45 - 109	QC02062
LCSD	2,4,6-Tribromophenol (mg/L)	1	80	48.41	61	39 - 132	QC02062
LCSD	Terphenyl-d14 (mg/L)	1	80	55.12	69	46 - 121	QC02062

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Dissolved Calcium (mg/L)	<0.50	1	1000	968	97		75 - 125	-	QC01950

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 16 of 20

N/A Injection Wells N/A

LCS	Dissolved Magnesium (mg/L)	<0.50	1	1000	966	97	75 - 125	-	QC01950
LCS	Dissolved Potassium (mg/L)	<0.50	1	1000	1022	102	75 - 125	-	QC01950
LCS	Dissolved Sodium (mg/L)	<0.50	1	1000	983	98	75 - 125	-	QC01950
LCSD	Dissolved Calcium (mg/L)	<0.50	1	1000	978	98	1	-	0 - 20	QC01950
LCSD	Dissolved Magnesium (mg/L)	<0.50	1	1000	972	97	1	-	0 - 20	QC01950
LCSD	Dissolved Potassium (mg/L)	<0.50	1	1000	999	100	2	-	0 - 20	QC01950
LCSD	Dissolved Sodium (mg/L)	<0.50	1	1000	987	99	0	-	0 - 20	QC01950

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Total Mercury (mg/L)	<0.0002	1	0.001	0.00090	90		80 - 120	-	QC01968
LCSD	Total Mercury (mg/L)	<0.0002	1	0.001	0.00106	106	16	-	0 - 20	QC01968

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Total Aluminum (mg/L)	<0.01	1	2	1.98	99		75 - 125	-	QC02060
LCS	Total Arsenic (mg/L)	<0.01	1	2	1.87	94		75 - 125	-	QC02060
LCS	Total Barium (mg/L)	<0.01	1	2	2.18	109		75 - 125	-	QC02060
LCS	Total Beryllium (mg/L)	<0.004	1	2	1.95	98		75 - 125	-	QC02060
LCS	Total Boron (mg/L)	<0.01	1	2	1.92	96		75 - 125	-	QC02060
LCS	Total Cadmium (mg/L)	<0.002	1	2	1.97	99		75 - 125	-	QC02060
LCS	Total Chromium (mg/L)	<0.005	1	2	2.01	100		75 - 125	-	QC02060
LCS	Total Cobalt (mg/L)	<0.01	1	2	2.05	102		75 - 125	-	QC02060
LCS	Total Copper (mg/L)	<0.01	1	2	2.08	104		75 - 125	-	QC02060
LCS	Total Iron (mg/L)	<0.01	1	2	2.06	103		75 - 125	-	QC02060
LCS	Total Lead (mg/L)	<0.01	1	2	2.04	102		75 - 125	-	QC02060
LCS	Total Manganese (mg/L)	<0.01	1	2	2.02	101		75 - 125	-	QC02060
LCS	Total Molybdenum (mg/L)	<0.01	1	2	2.03	101		75 - 125	-	QC02060
LCS	Total Nickel (mg/L)	<0.01	1	2	1.99	100		75 - 125	-	QC02060
LCS	Total Selenium (mg/L)	<0.01	1	2	1.87	94		75 - 125	-	QC02060
LCS	Total Silver (mg/L)	<0.005	1	0.4	0.415	104		75 - 125	-	QC02060
LCS	Total Uranium (mg/L)	<0.50	1	2	1.99	100		75 - 125	-	QC02060
LCS	Total Vanadium (mg/L)	<0.01	1	2	1.98	99		75 - 125	-	QC02060
LCS	Total Zinc (mg/L)	<0.01	1	2	2.02	101		75 - 125	-	QC02060
LCSD	Total Aluminum (mg/L)	<0.01	1	2	2.00	100	1	-	0 - 20	QC02060
LCSD	Total Arsenic (mg/L)	<0.01	1	2	1.89	95	1	-	0 - 20	QC02060
LCSD	Total Barium (mg/L)	<0.01	1	2	2.19	110	0	-	0 - 20	QC02060
LCSD	Total Beryllium (mg/L)	<0.004	1	2	1.96	98	1	-	0 - 20	QC02060
LCSD	Total Boron (mg/L)	<0.01	1	2	1.94	97	1	-	0 - 20	QC02060
LCSD	Total Cadmium (mg/L)	<0.002	1	2	1.98	99	1	-	0 - 20	QC02060
LCSD	Total Chromium (mg/L)	<0.005	1	2	2.02	101	0	-	0 - 20	QC02060
LCSD	Total Cobalt (mg/L)	<0.01	1	2	2.06	103	0	-	0 - 20	QC02060
LCSD	Total Copper (mg/L)	<0.01	1	2	2.09	105	0	-	0 - 20	QC02060

Report Date: 4/14/00 Order ID Number: A00033024 Page Number: 17 of 20

N/A Injection Wells N/A

LCSD	Total Iron (mg/L)	<0.01	1	2	2.07	103	0	-	0 - 20	QC02060
LCSD	Total Lead (mg/L)	<0.01	1	2	2.05	102	0	-	0 - 20	QC02060
LCSD	Total Manganese (mg/L)	<0.01	1	2	2.03	101	0	-	0 - 20	QC02060
LCSD	Total Molybdenum (mg/L)	<0.01	1	2	2.05	102	1	-	0 - 20	QC02060
LCSD	Total Nickel (mg/L)	<0.01	1	2	2.00	100	1	-	0 - 20	QC02060
LCSD	Total Selenium (mg/L)	<0.01	1	2	1.89	95	1	-	0 - 20	QC02060
LCSD	Total Silver (mg/L)	<0.005	1	0.4	0.418	105	1	-	0 - 20	QC02060
LCSD	Total Uranium (mg/L)	<0.50	1	2	1.97	99	1	-	0 - 20	QC02060
LCSD	Total Vanadium (mg/L)	<0.01	1	2	1.99	100	1	-	0 - 20	QC02060
LCSD	Total Zinc (mg/L)	<0.01	1	2	2.04	102	1	-	0 - 20	QC02060

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	Phenol (mg/L)		60	58.22	97	5 - 57	4/3/00	QC02062
CCV 1	1,4-Dichlorobenzene (mg/L)		60	58.66	98	25 - 94	4/3/00	QC02062
CCV 1	2-Nitrophenol (mg/L)		60	58.06	97	80 - 120	4/3/00	QC02062
CCV 1	Hexachlorobutadiene (mg/L)		60	61.40	102	80 - 120	4/3/00	QC02062
CCV 1	4-Chloro-3-methylphenol (mg/L)		60	55.07	92	40 - 126	4/3/00	QC02062
CCV 1	2,4,6-Trichlorophenol (mg/L)		60	58.83	98	80 - 120	4/3/00	QC02062
CCV 1	Acenaphthylene (mg/L)		60	58.23	97	80 - 120	4/3/00	QC02062
CCV 1	Diphenylamine (mg/L)		60	51.43	86	80 - 120	4/3/00	QC02062
CCV 1	Pentachlorophenol (mg/L)		60	52.25	87	21 - 131	4/3/00	QC02062
CCV 1	Fluoranthene (mg/L)		60	52.07	87	80 - 120	4/3/00	QC02062
CCV 1	Di-n-octylphthalate (mg/L)		60	56.37	94	80 - 120	4/3/00	QC02062
CCV 1	Benzo(a)pyrene (mg/L)		60	61.74	103	80 - 120	4/3/00	QC02062

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Hydroxide Alkalinity (mg/L as CaCo3)		0	5.0	0	80 - 120	4/5/00	QC01887
ICV	Carbonate Alkalinity (mg/L as CaCo3)		0	212	0	80 - 120	4/5/00	QC01887
ICV	Bicarbonate Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	4/5/00	QC01887
ICV	Total Alkalinity (mg/L as CaCo3)		236	217	92	80 - 120	4/5/00	QC01887
CCV 1	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	4/5/00	QC01887
CCV 1	Carbonate Alkalinity (mg/L as CaCo3)		0	212	0	80 - 120	4/5/00	QC01887
CCV 1	Bicarbonate Alkalinity (mg/L as CaCo3)		0	11	0	80 - 120	4/5/00	QC01887
CCV 1	Total Alkalinity (mg/L as CaCo3)		236	223	94	80 - 120	4/5/00	QC01887

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Specific Conductance (uMHOS/cm)		1413	1279	91	80 - 120	4/5/00	QC01888
CCV 1	Specific Conductance (uMHOS/cm)		1413	1288	91	80 - 120	4/5/00	QC01888

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Dissolved Calcium (mg/L)		20	20.9	105	75 - 125	4/6/00	QC01950
ICV	Dissolved Magnesium (mg/L)		20	21.9	110	75 - 125	4/6/00	QC01950
ICV	Dissolved Potassium (mg/L)		20	20.7	103	75 - 125	4/6/00	QC01950
ICV	Dissolved Sodium (mg/L)		20	21.5	108	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Calcium (mg/L)		20	20.9	105	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Magnesium (mg/L)		20	21.9	110	75 - 125	4/6/00	QC01950
CCV 1	Dissolved Potassium (mg/L)		20	20.7	103	75 - 125	4/6/00	QC01950

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	Dissolved Sodium (mg/L)		20	21.5	108	75 - 125	4/6/00	QC01950

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Mercury (mg/L)		0.005	0.00091	18	80 - 120	4/6/00	QC01968
CCV 1	Total Mercury (mg/L)		0.005	0.00101	20	80 - 120	4/6/00	QC01968

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.39	91	80 - 120	3/30/00	QC01806
ICV	Fluoride (mg/L)		2.5	2.48	99	80 - 120	3/30/00	QC01806
ICV	Nitrate-N (mg/L)		5	4.65	93	80 - 120	3/30/00	QC01806
ICV	Sulfate (mg/L)		12.5	11.52	92	80 - 120	3/30/00	QC01806
CCV 1	CL (mg/L)		12.5	11.32	91	80 - 120	3/30/00	QC01806
CCV 1	Fluoride (mg/L)		2.5	2.47	99	80 - 120	3/30/00	QC01806
CCV 1	Nitrate-N (mg/L)		5	4.64	93	80 - 120	3/30/00	QC01806
CCV 1	Sulfate (mg/L)		12.5	11.46	92	80 - 120	3/30/00	QC01806

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	pH (s.u.)		7	7.0	100	80 - 120	3/30/00	QC01825
CCV 1	pH (s.u.)		7	7.0	100	80 - 120	3/30/00	QC01825

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Dissolved Solids (mg/L)		1000	1006	101	80 - 120	4/8/00	QC01956
CCV 1	Total Dissolved Solids (mg/L)		1000	984	98	80 - 120	4/8/00	QC01956

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Aluminum (mg/L)		20	19.6	98	75 - 125	4/6/00	QC02060
ICV	Total Arsenic (mg/L)		1	1.00	100	75 - 125	4/6/00	QC02060
ICV	Total Barium (mg/L)		20	21.0	105	75 - 125	4/6/00	QC02060
ICV	Total Beryllium (mg/L)		0.5	0.502	100	75 - 125	4/6/00	QC02060
ICV	Total Boron (mg/L)		2.5	2.53	101	75 - 125	4/6/00	QC02060
ICV	Total Cadmium (mg/L)		0.5	0.509	102	75 - 125	4/6/00	QC02060
ICV	Total Chromium (mg/L)		1	1.01	101	75 - 125	4/6/00	QC02060

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Cobalt (mg/L)		5	5.09	102	75 - 125	4/6/00	QC02060
ICV	Total Copper (mg/L)		2.5	2.49	100	75 - 125	4/6/00	QC02060
ICV	Total Iron (mg/L)		10	10.1	101	75 - 125	4/6/00	QC02060
ICV	Total Lead (mg/L)		0.5	0.510	102	75 - 125	4/6/00	QC02060
ICV	Total Manganese (mg/L)		1.5	1.52	101	75 - 125	4/6/00	QC02060
ICV	Total Molybdenum (mg/L)		2.5	2.53	101	75 - 125	4/6/00	QC02060
ICV	Total Nickel (mg/L)		4	4.01	100	75 - 125	4/6/00	QC02060
ICV	Total Selenium (mg/L)		0.5	0.503	101	75 - 125	4/6/00	QC02060
ICV	Total Silver (mg/L)		1	0.99	99	75 - 125	4/6/00	QC02060
ICV	Total Uranium (mg/L)		1	1.05	105	75 - 125	4/6/00	QC02060
ICV	Total Vanadium (mg/L)		5	5.03	101	75 - 125	4/6/00	QC02060
ICV	Total Zinc (mg/L)		2	2.04	102	75 - 125	4/6/00	QC02060
CCV 1	Total Aluminum (mg/L)		20	19.4	97	75 - 125	4/6/00	QC02060
CCV 1	Total Arsenic (mg/L)		1	0.98	98	75 - 125	4/6/00	QC02060
CCV 1	Total Barium (mg/L)		20	20.5	102	75 - 125	4/6/00	QC02060
CCV 1	Total Beryllium (mg/L)		0.5	0.493	99	75 - 125	4/6/00	QC02060
CCV 1	Total Boron (mg/L)		2.5	2.47	99	75 - 125	4/6/00	QC02060
CCV 1	Total Cadmium (mg/L)		0.5	0.494	99	75 - 125	4/6/00	QC02060
CCV 1	Total Chromium (mg/L)		1	0.99	99	75 - 125	4/6/00	QC02060
CCV 1	Total Cobalt (mg/L)		5	4.99	100	75 - 125	4/6/00	QC02060
CCV 1	Total Copper (mg/L)		2.5	2.48	99	75 - 125	4/6/00	QC02060
CCV 1	Total Iron (mg/L)		10	9.9	99	75 - 125	4/6/00	QC02060
CCV 1	Total Lead (mg/L)		0.5	0.502	100	75 - 125	4/6/00	QC02060
CCV 1	Total Manganese (mg/L)		1.5	1.49	99	75 - 125	4/6/00	QC02060
CCV 1	Total Molybdenum (mg/L)		2.5	2.48	99	75 - 125	4/6/00	QC02060
CCV 1	Total Nickel (mg/L)		4	3.98	100	75 - 125	4/6/00	QC02060
CCV 1	Total Selenium (mg/L)		0.5	0.499	100	75 - 125	4/6/00	QC02060
CCV 1	Total Silver (mg/L)		1	0.98	98	75 - 125	4/6/00	QC02060
CCV 1	Total Uranium (mg/L)		1	1.06	106	75 - 125	4/6/00	QC02060
CCV 1	Total Vanadium (mg/L)		5	4.95	99	75 - 125	4/6/00	QC02060
CCV 1	Total Zinc (mg/L)		2	1.97	99	75 - 125	4/6/00	QC02060

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143547

Page ____ of ____

6701 Aberdeen Avenue, Ste. 9
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1 (800) 378-1296

TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # H0033024

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) 501 E. Main
Fax #: 505 748 9077
Contact Person: Darrell Moore or Charlie Phymale
Invoice to: (if different from above)
Project #:
Project Name: Injection Wells
Project Location: Artesia
Sampler Signature: Charlie Phymale

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	NaHSO4	SAMPLING: DATE	TIME
143547	Injection Wells	2	1L	X						X	X		3/29/00	8:30
	" "	2	40ml	X							X	X	3/29/00	8:30
	" "	1	500ml	X					X	X			3/29/00	8:30

MTBE 8021B/602
BTEX 8021B/602
TPH 418.1/TX1005
PAH 8270C
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7
TCLP Metals Ag As Ba Cd Cr Pb Se Hg
TCLP Volatiles
TCLP Semi Volatiles
TCLP Pesticides
RCI
GC-MS Vol. 8260B/624
GC/MS Semi. Vol. 8270C/625
PCB's 8082/608
Pesticides 8081A/608
BOD, TSS, pH
Turn Around Time if different from standard
Hold

See list

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Phymale	3/29/00	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Henely	3:30 00	10:00

LAB USE ONLY

Intact (Y) / N
Headspace Y / (N)
Temp 12° C
Log-in Review MS

REMARKS:

4117

Carrier # Fed Ex 279-3832-431

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

Page 5798 of 5828

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TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID #_____

Company Name: NAVA 50 Phone #: 5057483311

Address: (Street, City, Zip) 501 E. Main Fax #: 505 7489077

Contact Person: Darrell Moore or Charlie Plymale

Invoice to: (If different from above)

Project #: Project Name: Inj. wells

Project Location: Artesia Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME
	Inj wells	1	1L	X						X	X	3/30/00	13:50

MTBE 8021B/602 | BTEX 8021B/602 | TPH 418.1/TX1005 | PAH 8270C | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC-MS Vol. 8260B/624 | GC/MS Semi. Vol. 8270C/625 | PCB's 8082/608 | Pesticides 8081A/608 | BOD, TSS, pH | Turn Around Time if different from standard | Hold

See 1-5A

Relinquished by: Charlie Plymale	Date: 3/30/00	Time: 16:15	Received by:
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Hensley 3-31-00 9:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY

Intact Y / N

Headspace Y / N

Temp -2° °

Log-in Review

REMARKS:

RL Sample

Carrier # FedEx 279-4050 942

Page 5799 of 5828

TELEPHONE
(505) 748-3311

EASYLINK
62905278

NAVAJO REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

February 1, 2000

RECEIVED
FEB 0 3 2000
Environmental Bureau
Oil Conservation Division

Mr. Roger Anderson
NM Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: Quarterly Injection Report for Navajo Refining WDW-1 and WDW-2

Dear Roger,

Enclosed, please find sampling results from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the two wells swings wildly. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space. We track this fluid level and it has not varied more than 5% since the wells went on-line.

This report covers the period from October 1, 1999 to December 31, 1999. We have disposed a total of 1,136,090 bbls. of fluid down the two wells. This is broken down as follows: 893,539 bbls. down WDW-1 and 242,551 bbls. down WDW-2.

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 505-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.

cc: OCD Artesia Office

Page 5801 of 5828

Qrtly Injection Pressures, Rates

Navajo Refining Company

WDW-1	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	M Ma V
October 1999	87	328	-12.7	330	499	10.8	11314.29	17
November 1999	161	410.4	-12.4	248.9	343.8	0	8533.71	11
December 1999	155.5	322.4	-12.3	271.5	376.7	13.5	9308.57	12

WDW-2	Monthly Avg. Pressure (psig)	Monthly Max. Pressure (psig)	Monthly Min. Pressure (psig)	Monthly Avg. Flow Rate (gpm)	Monthly Max Flow Rate (gpm)	Monthly Min. Flow Rate (gpm)	Monthly Avg. Flow Volume (bpd)	M Ma V
October 1999	NA	NA	NA	NA	NA	NA	NA	
November 1999	140.3	337	-15.4	158.5	436.6	0	5434.286	14
December 1999	140.3	337.8	-15.4	69.7	341	0	2389.714	1'

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Oil Conservation Division

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TRACE ANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING CO.
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

January 17, 2000
Receiving Date: 01/06/00
Sample Type: Water
Project #: N/A
Project Location: N/A

Prep Date: 01/10/00
Analysis Date: 01/10/00
Sampling Date: 01/05/00
Sample Condition: I & C
Sample Received by: VW
Project Name: Injection Wells

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T138278	Injection Wells	20	34	164	628
ICV		20.2	20.3	20.5	20.2
CCV		19.9	20.2	20.2	20.2
Reporting Limit		5.0	5.0	5.0	5.0
RPD		1	1	2	0
% Extraction Accuracy		109	101	99	108
% Instrument Accuracy		100	101	102	101

METHODS: EPA SW 846-6010B, 3005A
CHEMIST: RR
TOTAL SPIKE: 1,000 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.
TOTAL CV: 20 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich

01/17/00
Date

Released to Imaging: 7/12/2024 10:49:45 AM
Received by OCD: 5/16/2022 2:12:41 PM

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E-Mail: lab@traceanalysis.com

January 17, 2000
Receiving Date: 01/06/00
Sample Type: Water
Project #: N/A
Project Location: N/A

ANALYTICAL RESULTS FOR
NAVAJO REFINING CO.
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

Analysis Date: 01/14/00
Sampling Date: 01/05/00
Sample Condition: I & C
Sample Received by: VW
Project Name: Injection Wells

TA#	Field Code	REACTIVITY	SULFIDES (ppm)	CYANIDES (ppm)	CORROSIVITY (mm/yr)	pH (s.u.)	FLASHPOINT (F)
	EPA LIMIT =	---	500	250	>6.5 mm/yr	<2 >12.5	>140 F
T138278	Injection Wells	Non-reactive	<10	<2.5	Non 0.40 mm/yr	8.16	>150 Non-Ignitable
RPD		0	0	0	0	0	0
% Extraction Accuracy		100	100	100	100	100	100
% Instrument Accuracy		---	---	---	---	---	---

METHODS: EPA SW 846-Chapter 7 7.3, Chapter 7 7.2, Chapter 7 7.1.
CHEMIST: JM

Director, Dr. Blair Leftwich

01/17/00
Date

Released to Imaging: 7/12/2024 10:49:45 AM
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E-Mail: lab@traceanalysis.com

January 14, 2000
Receiving Date: 01/06/2000
Sample Type: Water
Project No: NA
Project Location: NA

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Charlie Plymale
501 E. Main
Artesia, NM 88210

Sampling Date: 01/05/2000
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Injection Wells

TOTAL METALS (mg/L)

TA#	Field Code	Ag	As	Ba	Cd	Cr	Pb	Se	Hg
T138278	Injection Wells	<0.05	0.19	<0.10	<0.02	<0.05	<0.10	0.27	<0.0002
ICV		0.21	0.98	0.94	0.94	0.94	0.94	0.98	0.00104
CCV		0.19	0.94	0.94	0.94	0.92	0.94	0.94	0.00107
Reporting Limit		0.05	0.10	0.10	0.02	0.05	0.10	0.10	0.0002
RPD		4	3	3	1	1	2	3	7
% Extraction Accuracy		73	89	86	83	86	83	88	85
% Instrument Accuracy		100	96	94	94	93	94	96	106
PREP DATE		01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/06/2000	01/13/2000
ANALYSIS DATE		01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/07/2000	01/13/2000

CHEMIST: As, Se, Cd, Cr, Pb, Ag, Ba: RR Hg: BP
METHODS: EPA SW 846-3010A, 6010B, 7470A.
TOTAL METALS SPIKE: 0.40 mg/L Ag; 2.0 mg/L As, Ba, Cd, Cr, Pb, Se; 0.0010 mg/L Hg.
TOTAL METALS CV: 0.20 mg/L Ag; 1.0 mg/L As, Ba, Cd, Cr, Pb, Se; 0.0010 mg/L Hg.

Director, Dr. Blair Leftwich

01/17/00
Date

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Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 1/19/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00010608

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
138278	Injection Wells	Water	1/5/00	9:45	1/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 2 of 15
N/A Injection Wells N/A

Analytical Results Report

Sample Number: 138278
Description: Injection Wells

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
8260 (µg/L)										
Dichlorodifluoromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromomethane		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Chloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Trichlorofluoromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Methylene chloride		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
MTBE		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,2-Dichloroethene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,2-dichloroethene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2,2-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloroethane (EDC)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1-Trichloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Carbon Tetrachloride		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromomethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromodichloromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,3-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,3-Dichloropropene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,2-Trichloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromochloromethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dibromoethane (EDB)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Tetrachloroethene (PCE)		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1,2-Tetrachloroethane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
m,p-Xylene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromoform		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Styrene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
o-Xylene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichloropropane		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Isopropylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2-Chlorotoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Propylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
4-Chlorotoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3,5-Trimethylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
tert-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trimethylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,4-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
sec-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
p-Isopropyltoluene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichlorobenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Butylbenzene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichlorobenzene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Naphthalene		<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trichlorobenzene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
1,2-Dibromo-3-chloropropane		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Hexachlorobutadiene		<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 3 of 15

N/A Injection Wells N/A

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
Dibromofluoromethane	50.71	1	50	101	83 - 121	JG	PB00190	QC00251	
Toluene-d8	51.32	1	50	103	91 - 108	JG	PB00190	QC00251	
4-Bromofluorobenzene	47.70	1	50	95	80 - 120	JG	PB00190	QC00251	
8270 (mg/L)									
Pyridine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosodimethylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Picoline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Methyl methanesulfonate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Ethyl methanesulfonate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Aniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroethyl) ether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Chlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,3-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,4-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzyl alcohol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2-Dichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroisopropyl) ether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Methylphenol/3-Methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acetophenone	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosodi-n-propylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachloroethane	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Nitrobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitrosopiperidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Isophorone	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Nitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dimethylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
bis (2-chloroethoxy) methane	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzoic acid	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2,4-Trichlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
a,a-Dimethylphenethylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Naphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chloroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,6-Dichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorobutadiene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
n-Nitroso-di-n-butylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chloro-3-methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Methylnaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Methylnaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1,2,4,5-Tetrachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorocyclopentadiene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4,6-Trichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4,5-Trichlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Chloronaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Chloronaphthalene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dimethylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acenaphthylene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,6-Dinitrotoluene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Acenaphthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 4 of 15

N/A Injection Wells N/A

2,4-Dinitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzofuran	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Nitrophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
1-Napthylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,4-Dinitrotoluene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2-Napthylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
2,3,4,6-Tetrachlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Fluorene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diethylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Chlorophenyl-phenylether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Nitroaniline	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4,6-Dinitro-2-methylphenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diphenylamine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Diphenylhydrazine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Bromophenyl-phenylether	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenacetin	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Hexachlorobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
4-Aminobiphenyl	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachlorophenol	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pentachloronitrobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pronamide	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Phenanthrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Di-n-butylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
p-Dimethylaminoazobenzene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Butylbenzylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(a)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3,3-Dichlorobenzidine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Chrysene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Bis (2-ethylhexyl) phthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Di-n-octylphthalate	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(b)fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
7,12-Dimethylbenz(a)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(k)fluoranthene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(a)pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
3-Methylcholanthrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzo(a,j)acridine	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Indeno(1,2,3-cd)pyrene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Dibenzo(a,h)anthracene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005
Benzo(g,h,i)perylene	<0.010	2	S 8270C	1/6/00	1/11/00	MA	PB00185	QC00333	0.005

Surrogate (mg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #	
2-Fluorophenol	34.11	1	80	43	9 - 71	MA	PB00185	QC00333	
Phenol-d5	30.32	1	80	38	4 - 64	MA	PB00185	QC00333	
Nitrobenzene-d5	54.02	1	80	68	44 - 109	MA	PB00185	QC00333	
2-Fluorobiphenyl	51.81	1	80	65	47 - 108	MA	PB00185	QC00333	
2,4,6-Tribromophenol	44.98	1	80	56	51 - 128	MA	PB00185	QC00333	
Terphenyl-d14	66.88	1	80	84	58 - 115	MA	PB00185	QC00333	
Alkalinity (mg/L as CaCo3)									
Hydroxide Alkalinity	<1.0	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Carbonate Alkalinity	<1.0	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1

Bicarbonate Alkalinity		320	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Total Alkalinity		320	1	E 310.1	1/10/00	1/10/00	JS	PB00210	QC00275	1
Conductivity (uMHOS/cm)										
Specific Conductance		4982	1	SM 2510B	1/11/00	1/11/00	MF	PB00232	QC00304	
Ion Chromatography (IC) (mg/L)										
CL		920	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.5
Fluoride		27	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.1
Nitrate-N		2.6	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.2
Sulfate		700	1	E 300.0	1/6/00	1/6/00	JS	PB00196	QC00257	0.5
pH (s.u.)										
pH	*	8.2	1	E 150.1	1/6/00	1/6/00	RS	PB00253	QC00327	1
TDS (mg/L)										
Total Dissolved Solids		2300	1	E 160.1	1/11/00	1/12/00	JS	PB00238	QC00311	10

* pH - Out of holding time.

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dichlorodifluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromomethane (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Chloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Trichlorofluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Methylene chloride (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
MTBE (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,2-Dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,2-dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Carbon Tetrachloride (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromomethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromodichloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,2-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromochloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Tetrachloroethene (PCE) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
m,p-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromoform (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Styrene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
o-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Isopropylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Propylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
4-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3,5-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
tert-Butylbenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2,4-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,4-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
sec-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,3-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
p-Isopropyltoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichlorobenzene (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Naphthalene (µg/L)		<2	2	1/6/00	PB00190	QC00251

1,2,4-Trichlorobenzene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
Hexachlorobutadiene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	50.11	50	100	83 - 121	QC00251
Toluene-d8 (µg/L)	52.65	50	105	91 - 108	QC00251
4-Bromofluorobenzene (µg/L)	46.07	50	92	80 - 120	QC00251

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Pyridine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosodimethylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Picoline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Methyl methanesulfonate (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Ethyl methanesulfonate (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Phenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Aniline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroethyl) ether (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Chlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,3-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,4-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Benzyl alcohol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2-Dichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroisopropyl) ether (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Methylphenol/3-Methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Acetophenone (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosodi-n-propylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachloroethane (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Nitrobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitrosopiperidine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Isophorone (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Nitrophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dimethylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
bis (2-chloroethoxy) methane (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Benzoic acid (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2,4-Trichlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
a,a-Dimethylphenethylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Naphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Chloroaniline (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,6-Dichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorobutadiene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
n-Nitroso-di-n-butylamine (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
4-Chloro-3-methylphenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1-Methylnaphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2-Methylnaphthalene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
1,2,4,5-Tetrachlorobenzene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorocyclopentadiene (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333
2,4,6-Trichlorophenol (mg/L)		<0.005	0.005	1/11/00	PB00185	QC00333

Report Date: 1/19/00	Order ID Number: A00010608				Page Number: 8 of 15
N/A	Injection Wells				N/A
2,4,5-Trichlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Chloronaphthalene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
1-Chloronaphthalene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dimethylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Acenaphthylene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,6-Dinitrotoluene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Acenaphthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dinitrophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dibenzofuran (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachlorobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Nitrophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
1-Napthylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,4-Dinitrotoluene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2-Napthylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
2,3,4,6-Tetrachlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Fluorene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diethylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Chlorophenyl-phenylether (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Nitroaniline (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4,6-Dinitro-2-methylphenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diphenylamine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Diphenylhydrazine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Bromophenyl-phenylether (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Phenacetin (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Hexachlorobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
4-Aminobiphenyl (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachlorophenol (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pentachloronitrobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pronamide (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Phenanthrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Di-n-butylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzidine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
p-Dimethylaminoazobenzene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Butylbenzylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(a)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3,3-Dichlorobenzidine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Chrysene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Bis (2-ethylhexyl) phthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Di-n-octylphthalate (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(b)fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
7,12-Dimethylbenz(a)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(k)fluoranthene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(a)pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
3-Methylcholanthrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Dibenzo(a,j)acridine (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Indeno(1,2,3-cd)pyrene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333

Dibenzo(a,h)anthracene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333
Benzo(g,h,i)perylene (mg/L)	<0.005	0.005	1/11/00	PB00185	QC00333

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
2-Fluorophenol (mg/L)	35.26	80	44	9 - 71	QC00333
Phenol-d5 (mg/L)	22.41	80	28	4 - 64	QC00333
Nitrobenzene-d5 (mg/L)	59.32	80	74	44 - 109	QC00333
2-Fluorobiphenyl (mg/L)	63.26	80	79	47 - 108	QC00333
2,4,6-Tribromophenol (mg/L)	58.13	80	73	51 - 128	QC00333
Terphenyl-d14 (mg/L)	67.36	80	84	58 - 115	QC00333

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Hydroxide Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Carbonate Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Bicarbonate Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275
Total Alkalinity (mg/L as CaCo3)		<6.0	1	1/10/00	PB00210	QC00275

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Specific Conductance (uMHOS/cm)		6.7		1/11/00	PB00232	QC00304

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL (mg/L)		<0.5	0.5	1/6/00	PB00196	QC00257
Fluoride (mg/L)		<0.1	0.1	1/6/00	PB00196	QC00257
Nitrate-N (mg/L)		<0.2	0.2	1/6/00	PB00196	QC00257
Sulfate (mg/L)		<0.5	0.5	1/6/00	PB00196	QC00257

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Total Dissolved Solids (mg/L)		<10	10	1/12/00	PB00238	QC00311

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param		Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	*	920	1	1250	2060.31	91		80 - 120	0 - 20	QC00257
MS	Fluoride (mg/L)	*	27	1	250	253.06	90		80 - 120	0 - 20	QC00257
MS	Nitrate-N (mg/L)	*	2.6	1	500	477.41	95		80 - 120	0 - 20	QC00257
MS	Sulfate (mg/L)	*	700	1	1250	1935.14	99		80 - 120	0 - 20	QC00257

* CL - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 92.
* Fluoride - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 89.
* Nitrate-N - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 95.
* Sulfate - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 98.

Standard	Param		Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MSD	CL (mg/L)	*	920	1	1250	2061.14	91	0	80 - 120	0 - 20	QC00257
MSD	Fluoride (mg/L)	*	27	1	250	255.32	91	1	80 - 120	0 - 20	QC00257
MSD	Nitrate-N (mg/L)	*	2.6	1	500	482.88	96	1	80 - 120	0 - 20	QC00257
MSD	Sulfate (mg/L)	*	700	1	1250	1969.34	102	3	80 - 120	0 - 20	QC00257

* CL - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 92.
* Fluoride - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 89.
* Nitrate-N - I spiked the *100 dilution, but reported the *5 dilution. The correct %EA = 95.
* Sulfate - I spiked the *100 dilution, but reported the *50 dilution. The correct %EA = 98.

Quality Control Report
Duplicates

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Hydroxide Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC00275
Duplicate	Carbonate Alkalinity (mg/L as CaCo		<1.0	<1.0	1	0	0 - 20	QC00275
Duplicate	Bicarbonate Alkalinity (mg/L as CaC		330	320	1	3	0 - 20	QC00275
Duplicate	Total Alkalinity (mg/L as CaCo3)		330	320	1	3	0 - 20	QC00275

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Specific Conductance (uMHOS/cm)		966	978	1	1	0 - 20	QC00304

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	pH (s.u.)		7.4	7.4	1	0	0 - 20	QC00327

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 11 of 15

N/A Injection Wells N/A

Standard	Param	Flag	Duplicate Result	Sample Result	Dilution	RPD	RPD Limit	QC Batch #
Duplicate	Total Dissolved Solids (mg/L)		1870	1800	1	4	0 - 20	QC00311

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	1,1-Dichloroethene (ug/L)		1	100	88	88		77 - 136	0 - 20	QC00251
LCS	Benzene (ug/L)		1	100	95	95		71 - 120	0 - 20	QC00251
LCS	Trichloroethene (TCE) (ug/L)		1	100	90	90		84 - 109	0 - 20	QC00251
LCS	Toluene (ug/L)		1	100	94	94		74 - 113	0 - 20	QC00251
LCS	Chlorobenzene (ug/L)		1	100	95	95		79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	Dibromofluoromethane (µg/L)	1	50	50.97	102	83 - 121	QC00251
LCS	Toluene-d8 (µg/L)	1	50	51.40	103	91 - 108	QC00251
LCS	4-Bromofluorobenzene (µg/L)	1	50	45.29	91	80 - 120	QC00251

LCSD	1,1-Dichloroethene (ug/L)		1	100	86	86	2	77 - 136	0 - 20	QC00251
LCSD	Benzene (ug/L)		1	100	95	95	0	71 - 120	0 - 20	QC00251
LCSD	Trichloroethene (TCE) (ug/L)		1	100	89	89	1	84 - 109	0 - 20	QC00251
LCSD	Toluene (ug/L)		1	100	94	94	0	74 - 113	0 - 20	QC00251
LCSD	Chlorobenzene (ug/L)		1	100	94	94	1	79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	Dibromofluoromethane (µg/L)	1	50	49.67	99	83 - 121	QC00251
LCSD	Toluene-d8 (µg/L)	1	50	51.67	103	91 - 108	QC00251
LCSD	4-Bromofluorobenzene (µg/L)	1	50	44.87	90	80 - 120	QC00251

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	Phenol (mg/L)	<0.005	1	80	22.818	29		5 - 112	0 - 20	QC00333
LCS	2-Chlorophenol (mg/L)	<0.005	1	80	55.548	69		28 - 110	0 - 20	QC00333
LCS	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	50.523	63		27 - 94	0 - 20	QC00333
LCS	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	66.130	83		Det - 230	0 - 20	QC00333
LCS	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	53.798	67		31 - 109	0 - 20	QC00333
LCS	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	52.521	66		41 - 126	0 - 20	QC00333
LCS	Acenaphthene (mg/L)	<0.005	1	80	63.740	80		46 - 118	0 - 20	QC00333
LCS	4-Nitrophenol (mg/L)	<0.005	1	80	17.704	22		0 - 70	0 - 20	QC00333
LCS	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	62.222	78		50 - 132	0 - 20	QC00333
LCS	Pentachlorophenol (mg/L)	<0.005	1	80	42.948	54		1 - 150	0 - 20	QC00333
LCS	Pyrene (mg/L)	<0.005	1	80	66.491	83		49 - 122	0 - 20	QC00333

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	2-Fluorophenol (mg/L)	1	80	36.50	46	9 - 71	QC00333
LCS	Phenol-d5 (mg/L)	1	80	24.31	30	4 - 64	QC00333
LCS	Nitrobenzene-d5 (mg/L)	1	80	63.52	79	44 - 109	QC00333
LCS	2-Fluorobiphenyl (mg/L)	1	80	63.34	79	47 - 108	QC00333
LCS	2,4,6-Tribromophenol (mg/L)	1	80	63.27	79	51 - 128	QC00333
LCS	Terphenyl-d14 (mg/L)	1	80	63.55	79	58 - 115	QC00333

Report Date: 1/19/00 Order ID Number: A00010608 Page Number: 13 of 15

N/A Injection Wells N/A

LCSD	Phenol (mg/L)	<0.005	I	80	22.026	28	4	2 - 55	0 - 20	QC00333
LCSD	2-Chlorophenol (mg/L)	<0.005	1	80	52.863	66	5	28 - 110	0 - 20	QC00333
LCSD	1,4-Dichlorobenzene (mg/L)	<0.005	1	80	48.069	60	5	27 - 94	0 - 20	QC00333
LCSD	n-Nitrosodi-n-propylamine (mg/L)	<0.005	1	80	64.392	80	3	Det - 230	0 - 20	QC00333
LCSD	1,2,4-Trichlorobenzene (mg/L)	<0.005	1	80	52.282	65	3	31 - 109	0 - 20	QC00333
LCSD	4-Chloro-3-methylphenol (mg/L)	<0.005	1	80	54.382	68	3	41 - 126	0 - 20	QC00333
LCSD	Acenaphthene (mg/L)	<0.005	1	80	62.427	78	2	46 - 118	0 - 20	QC00333
LCSD	4-Nitrophenol (mg/L)	<0.005	1	80	18.749	23	6	0 - 70	0 - 20	QC00333
LCSD	2,4-Dinitrotoluene (mg/L)	<0.005	1	80	64.415	81	3	50 - 132	0 - 20	QC00333
LCSD	Pentachlorophenol (mg/L)	<0.005	1	80	43.506	54	1	I - 150	0 - 20	QC00333
LCSD	Pyrene (mg/L)	<0.005	1	80	69.022	86	4	49 - 122	0 - 20	QC00333

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	2-Fluorophenol (mg/L)	1	80	34.57	43	9 - 71	QC00333
LCSD	Phenol-d5 (mg/L)	1	80	23.20	29	4 - 64	QC00333
LCSD	Nitrobenzene-d5 (mg/L)	1	80	60.47	76	44 - 109	QC00333
LCSD	2-Fluorobiphenyl (mg/L)	1	80	62.00	78	47 - 108	QC00333
LCSD	2,4,6-Tribromophenol (mg/L)	1	80	66.43	83	51 - 128	QC00333
LCSD	Terphenyl-d14 (mg/L)	1	80	66.95	84	58 - 115	QC00333

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV (1	1,2-Dichloropropane (µg/L)		100	106	106	80 - 120	1/6/00	QC00251
CCV (1	Dibromofluoromethane (µg/L)		50	50.35	101	83 - 121	1/6/00	QC00251
CCV (1	Toluene-d8 (µg/L)		50	49.3	99	91 - 108	1/6/00	QC00251
CCV (1	4-Bromofluorobenzene (µg/L)		50	51.76	104	80 - 120	1/6/00	QC00251

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV (1	Phenol (mg/L)		60	60.31	101	80 - 120	1/11/00	QC00333
CCV (1	1,4-Dichlorobenzene (mg/L)		60	61.32	102	27 - 94	1/11/00	QC00333
CCV (1	2-Nitrophenol (mg/L)		60	58.50	98	80 - 120	1/11/00	QC00333
CCV (1	2,4-Dichlorophenol (mg/L)		60	57.94	97	80 - 120	1/11/00	QC00333
CCV (1	Hexachlorobutadiene (mg/L)		60	61.10	102	80 - 120	1/11/00	QC00333
CCV (1	4-Chloro-3-methylphenol (mg/L)		60	55.24	92	41 - 126	1/11/00	QC00333
CCV (1	2,4,6-Trichlorophenol (mg/L)		60	57.30	96	80 - 120	1/11/00	QC00333
CCV (1	Acenaphthene (mg/L)		60	59.46	99	46 - 118	1/11/00	QC00333
CCV (1	Diphenylamine (mg/L)		60	56.48	94	80 - 120	1/11/00	QC00333
CCV (1	Pentachlorophenol (mg/L)		60	54.86	91	1 - 150	1/11/00	QC00333
CCV (1	Fluoranthene (mg/L)		60	59.83	100	80 - 120	1/11/00	QC00333
CCV (1	Di-n-octylphthalate (mg/L)		60	56.06	93	80 - 120	1/11/00	QC00333
CCV (1	Benzo(a)pyrene (mg/L)		60	58.81	98	80 - 120	1/11/00	QC00333

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	1/10/00	QC00275
ICV	Carbonate Alkalinity (mg/L as CaCo3)		0	2280	0	80 - 120	1/10/00	QC00275
ICV	Bicarbonate Alkalinity (mg/L as CaCo3)		0	40	0	80 - 120	1/10/00	QC00275
ICV	Total Alkalinity (mg/L as CaCo3)		2400	2320	97	80 - 120	1/10/00	QC00275
CCV (1	Hydroxide Alkalinity (mg/L as CaCo3)		0	<1.0	0	80 - 120	1/10/00	QC00275
CCV (1	Carbonate Alkalinity (mg/L as CaCo3)		0	2120	0	80 - 120	1/10/00	QC00275
CCV (1	Bicarbonate Alkalinity (mg/L as CaCo3)		0	80	0	80 - 120	1/10/00	QC00275
CCV (1	Total Alkalinity (mg/L as CaCo3)		2400	2200	92	80 - 120	1/10/00	QC00275

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Specific Conductance (uMHOS/cm)		1413	1351	96	80 - 120	1/11/00	QC00304
CCV (1	Specific Conductance (uMHOS/cm)		1413	1347	95	80 - 120	1/11/00	QC00304

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.37	91	80 - 120	1/6/00	QC00257
ICV	Fluoride (mg/L)		2.5	2.28	91	80 - 120	1/6/00	QC00257
ICV	Nitrate-N (mg/L)		5	4.59	92	80 - 120	1/6/00	QC00257
ICV	Sulfate (mg/L)		12.5	12.51	100	80 - 120	1/6/00	QC00257
CCV (1	CL (mg/L)		12.5	11.37	91	80 - 120	1/6/00	QC00257
CCV (1	Fluoride (mg/L)		2.5	2.26	90	80 - 120	1/6/00	QC00257
CCV (1	Nitrate-N (mg/L)		5	4.51	90	80 - 120	1/6/00	QC00257
CCV (1	Sulfate (mg/L)		12.5	12.64	101	80 - 120	1/6/00	QC00257

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	pH (s.u.)		7	7.0	100	80 - 120	1/6/00	QC00327
CCV (1	pH (s.u.)		7	7.0	100	80 - 120	1/6/00	QC00327

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	Total Dissolved Solids (mg/L)		1000	965	97	80 - 120	1/12/00	QC00311
CCV (1	Total Dissolved Solids (mg/L)		1000	968	97	80 - 120	1/12/00	QC00311

Page 5820 of 5828

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID #: A000106008

Company Name: NAVAJO
Phone #: 505 748 3311
Address: (Street, City, Zip) PO BOX 159
Fax #: 505 7489077
Contact Person: Charlie Plymale
Invoice to: (If different from above)
Project #:
Project Name: Inj Wells
Project Location:
Sampler Signature: Charlie Plymale

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME
138278	Inj WELLS	2	40ml	X				X		X		1/5/00	9:45
	"	1	1L	X					X	X		1/5/00	9:45
	"	1	1L	X							X	1/5/00	9:45
	"	1	250ml	X							X	1/5/00	9:45

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC-MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Turn Around Time if different from standard	Hold
			See Attachment													

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Charlie Plymale	1/5/00	16:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Wonder	Date: 1-6-00	Time: 10:00

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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LAB USE ONLY
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Headspace Y / N
Temp -1 °
Log-in Review MB

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F 1-18-00
1-20-00

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Received by OCD: 5/16/2022 2:12:41 PM

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Charlie Plymale
Navajo Refining
501 E. Main
Artesia, NM 88210

Report Date: 2/7/00

Project Number: N/A
Project Name: Injection Wells
Project Location: N/A

Order ID Number: A00010608

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
138278	Injection Wells	Water	1/5/00	9:45	1/6/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 5 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 5/16/2022 2:12:41 PM

TELEPHONE
(505) 748-3311

Navajo REFINING COMPANY
501 EAST MAIN STREET • P. O. DRAWER 159
ARTESIA, NEW MEXICO 88210

EASYLINK
62905278
FAX
(505) 746-6410

FAX NUMBERS:

ACCOUNTING OFFICES:	505/746-6410	MARKETING OFFICES:	505/746-6155
REFINING/ENGINEERING:	505/748-9077	PIPELINE DIVISION:	505/746-4438

PLEASE DELIVER 6 PAGES, INCLUDING THIS COVER SHEET

TO: Wayne Price PHONE: _____

COMPANY/DEPARTMENT: OCD

MESSAGE: Wayne, here is the volatile analysis

FROM: Darrell Moore DATE: 3/16/00

If you do not receive all pages, please call _____ at 505/748-3311, ext. _____.

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Report Date: 2/7/00 Order ID Number: A00010608 Page Number: 2 of 5
N/A Injection Wells N/A

Analytical Results Report

Sample Number: 138278
Description: Injection Wells

Param	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
8260 (µg/L)									
Dichlorodifluoromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromomethane	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Chloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Trichlorofluoromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Methylene chloride	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
MTBE	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,2-Dichloroethene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,2-dichloroethene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2,2-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloroethane (EDC)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1-Trichloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Carbon Tetrachloride	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Benzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromomethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromodichloromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
cis-1,3-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
trans-1,3-Dichloropropene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,2-Trichloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Dibromochloromethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dibromoethane (EDB)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Tetrachloroethene (PCE)	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,1,1,2-Tetrachloroethane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
m,p-Xylene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromoform	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Styrene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
o-Xylene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichloropropane	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Isopropylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
Bromobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
2-Chlorotoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Propylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
4-Chlorotoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3,5-Trimethylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
tert-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trimethylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,4-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
sec-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,3-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
p-Isopropyltoluene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2-Dichlorobenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
n-Butylbenzene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,3-Trichlorobenzene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
Naphthalene	<2.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	2
1,2,4-Trichlorobenzene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5
1,2-Dibromo-3-chloropropane	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

Received by OCD: 5/10/2022 2:12:41 PM

Report Date: 2/7/00 Order ID Number: A00010608 Page Number: 3 of 5

N/A Injection Wells N/A

Hexachlorobutadiene	<5.00	1	S 8260B	1/6/00	1/6/00	JG	PB00190	QC00251	5

Surrogate (µg/L)	Result	Dilution	Spike Amount	% Rec.	% Rec. Limit	Analyst	Prep Batch #	QC Batch #
Dibromofluoromethane	50.71	1	50	101	69 - 121	JG	PB00190	QC00251
Toluene-d8	51.32	1	50	103	91 - 108	JG	PB00190	QC00251
4-Bromofluorobenzene	47.70	1	50	95	80 - 120	JG	PB00190	QC00251

Released to Imaging: 7/12/2024 10:49:45 AM

Received by OCD: 3/16/2022 2:12:41 PM

Report Date: 2/7/00 Order ID Number: A00010608 Page Number: 4 of 5
N/A Injection Wells N/A

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
Dichlorodifluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromomethane (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Chloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Trichlorofluoromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Methylene chloride (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
MTBE (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,2-Dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,2-dichloroethene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloroethane (EDC) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Carbon Tetrachloride (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromomethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Bromodichloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
cis-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
trans-1,3-Dichloropropene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,2-Trichloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3-Dichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Dibromochloromethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dibromoethane (EDB) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Tetrachloroethene (PCE) (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,1,1,2-Tetrachloroethane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
m,p-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromoform (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Styrene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
o-Xylene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichloropropane (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
Isopropylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
Bromobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
2-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Propylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
4-Chlorotoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,3,5-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
tert-Butylbenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2,4-Trimethylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,4-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
sec-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,3-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
p-Isopropyltoluene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
1,2-Dichlorobenzene (µg/L)		<2.00	2	1/6/00	PB00190	QC00251
n-Butylbenzene (µg/L)		<2	2	1/6/00	PB00190	QC00251
1,2,3-Trichlorobenzene (µg/L)		<5.00	5	1/6/00	PB00190	QC00251
Naphthalene (µg/L)		<2	2	1/6/00	PB00190	QC00251

Released to Imaging: 7/12/2024 10:49:45 AM

Report Date: 2/7/00	Order ID Number: A00010608				Page Number: 5 of 5
N/A	Injection Wells				N/A
1,2,4-Trichlorobenzene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
1,2-Dibromo-3-chloropropane (µg/L)	<5.00	5	1/6/00	PB00190	QC00251
Hexachlorobutadiene (µg/L)	<5.00	5	1/6/00	PB00190	QC00251

Surrogate	Result	Spike Amount	% Rec.	% Rec. Limit	QC Batch #
Dibromofluoromethane (µg/L)	50.11	50	100	69 - 121	QC00251
Toluene-d8 (µg/L)	52.65	50	105	91 - 108	QC00251
4-Bromofluorobenzene (µg/L)	46.07	50	92	80 - 120	QC00251

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	1,1-Dichloroethene (ug/L)		1	100	88	88		77 - 136	0 - 20	QC00251
LCS	Benzene (ug/L)		1	100	95	95		71 - 120	0 - 20	QC00251
LCS	Trichloroethene (TCE) (ug/L)		1	100	90	90		84 - 109	0 - 20	QC00251
LCS	Toluene (ug/L)		1	100	94	94		74 - 113	0 - 20	QC00251
LCS	Chlorobenzene (ug/L)		1	100	95	95		79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCS	Dibromofluoromethane (µg/L)	1	50	50.97	102	69 - 121	QC00251
LCS	Toluene-d8 (µg/L)	1	50	51.40	103	91 - 108	QC00251
LCS	4-Bromofluorobenzene (µg/L)	1	50	45.29	91	80 - 120	QC00251

LCSD	1,1-Dichloroethene (ug/L)		1	100	86	86	2	77 - 136	0 - 20	QC00251
LCSD	Benzene (ug/L)		1	100	95	95	0	71 - 120	0 - 20	QC00251
LCSD	Trichloroethene (TCE) (ug/L)		1	100	89	89	1	84 - 109	0 - 20	QC00251
LCSD	Toluene (ug/L)		1	100	94	94	0	74 - 113	0 - 20	QC00251
LCSD	Chlorobenzene (ug/L)		1	100	94	94	1	79 - 112	0 - 20	QC00251

Standard	Surrogate	Dil.	Spike Amount	Result	% Rec.	% Rec. Limit	QC Batch #
LCSD	Dibromofluoromethane (µg/L)	1	50	49.67	99	69 - 121	QC00251
LCSD	Toluene-d8 (µg/L)	1	50	51.67	103	91 - 108	QC00251
LCSD	4-Bromofluorobenzene (µg/L)	1	50	44.87	90	80 - 120	QC00251

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
CCV 1	1,2-Dichloropropane (µg/L)		100	106	106	80 - 120	1/6/00	QC00251
CCV 1	Dibromofluoromethane (µg/L)		50	50.35	101	83 - 121	1/6/00	QC00251
CCV 1	Toluene-d8 (µg/L)		50	49.3	99	91 - 108	1/6/00	QC00251
CCV 1	4-Bromofluorobenzene (µg/L)		50	51.76	104	80 - 120	1/6/00	QC00251

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

COMMENTS

Action 107164

COMMENTS

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 107164
	Action Type: [UF-DP] NOI Discharge Permit (DISCHARGE PERMIT NOI)

COMMENTS

Created By	Comment	Comment Date
cchavez	Quarterly Reports 2019 - 2022	8/9/2022

District I
1625 N. French Dr., Hobbs, NM 88240
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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
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Santa Fe, NM 87505

CONDITIONS

Action 107164

CONDITIONS

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 107164
	Action Type: [UF-DP] NOI Discharge Permit (DISCHARGE PERMIT NOI)

CONDITIONS

Created By	Condition	Condition Date
cchavez	Use Federal Reporting Nomenclature, i.e., Oct - Dec (Q1); Jan - Mar (Q2); Apr - Jun (Q3); and Jul - Sep (Q4)	8/9/2022